

Talent and Teams in Elite Motor Sport: Driving Development Through An Interpersonal Focus

by

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ABSTRACT

Motor sport is a sport of constant development and innovation (Delbridge & Mariotti, 2009). At elite levels, marginal gains create fractions of a second differences between winners and also-rans (Motorsportsetc, 2019). It is a field in which little research has been undertaken in human performance and competitors and teams rely on experience and serendipity for success. The overall purpose of this thesis is to explore the value of focussing on interpersonal behaviours in the development of elite drivers and teams.

Chapter 1 and 2 outline the thesis and the rationale for adopting a pragmatic research philosophy. Chapter 3 investigated talent development knowledge, explored the context of motor sport and, found many similarities such as developmental stages and normative and non-normative transitions (e.g. Bailey & Collins, 2013; Wylleman, Alferman & Lavallee, 2004). With increasingly higher levels engaged in by reducing numbers of competitors Chapter 4 investigated enabling and constraining factors using focus groups with young elite drivers and interviews with motorsport professionals. This uncovered the critical role of interpersonal relationships in achieving long term success.

Based on the critical role of interpersonal behaviours found in Chapters 3 and 4 Insights Discovery (ID), a psychometric tool used predominantly for interpersonal development in business, was evaluated in Chapter 5. This concluded that, with some caveats, its use could offer opportunities for enhancing development and performance through positively impacting relationships. Chapter 6 thereafter studied the application of ID in a global elite young driver programme and used qualitative methods to investigate the impact from the perspectives of the drivers and those in their sporting network. Whereas benefits were reported one critical limitation was that only the driver side of relationships was addressed. Therefore, to explore the impact of using ID more

extensively Chapter 7 presented a case study of the application of ID across a whole team, including a young elite driver, in a development programme during an international race series.

The study concludes that there are tangible benefits to be gained from focussing on interpersonal development in elite motor sport and that, with knowledgeable and considered application, the use of ID can help realise these, Further it is concluded that opportunities exist for benefits to be read across into other areas and sports.

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CHAPTER 1: INTRODUCTION

This chapter outlines the background and context of the research starting with an overview of why this subject holds interest and relevance to me and how this interest and involvement aligns to the aims and objectives of the thesis. This leads to an overview of the programme of research into talent development in motor sport, the role played by interpersonal behaviours, and how increased sophistication in interpersonal behaviours may benefit drivers.

1.1 Overview

There is currently a popular school of thought in motor sport that the main performance-defining contributor is the race engineer. The engineer, or team of engineers, is thought to mastermind the ultimate capability of the machine through a process of innovation, development and optimisation of the platform informed by gigabytes of data captured from innumerable sensors reporting the performance of every component and component system at all points on the track (Hatton, 2019). According to this view, the driver is merely the platform operator who “only” has to perform a sequence of learned operations (i.e., drive the car to the engineer’s instructions) to ensure success. Reflecting on this comment, it is worth considering the role of the driver, his ability and talent, as a key agent in the attainment of world class performance. In the context of such a complex pursuit as motor sport, the driver’s talent is multidimensional and includes the physical, psychological, technical, and tactical factors that contribute to the conversion of potential into superior performance (MacNamara, 2011).

The role played by the driver can be considered to be further diluted as the ability of the engineer to innovatively create the fastest car may also be complemented by the

resourcefulness of the team manager whose skill at management generates the most effective teamwork. In addition, the potential adeptness of the team owner to provide a commercially sponsored budget to quench the financial appetite that accompanies 'world class' race engineering programmes is an important consideration. Against this backdrop, it is perhaps understandable that the driver is considered as only one small element in the performance chain. My belief however, supported by over twenty years of working with in excess of one hundred top-level drivers, is that, at best, the engineer led model undervalues, and even undermines, the potential of human performance as a contributor to success. It does not account for the large number of drivers that ultimately compete for the small number of lucrative career positions behind the wheel. As such, and as this thesis will explore, it is the interaction of multiple factors that ultimately will lead to superior performance rather than any one factor (be that finance, driver or engineer) in isolation. Indeed, as I will go on to point out in Chapter 3, the conversion of potential to performance requires multiple inputs and these come from interactions between the sponsor, engineer, driver, and others.

Although there are potentially no circumstances in which a talented driver alone can perform well without the support of a good engineer talent, in its broadest sense, must play a role in differentiating between those drivers who achieve and those who do not. The conversion of talent to skill, furthermore, is not a linear progression as this engineer-led model might purport. It is commonly punctuated by success and failure and a host of challenges which the driver must negotiate on their route to the top much like that faced by athletes in any sport (Abbott, Button, Pepping and Collins, 2005; Collins & MacNamara, 2012; MacNamara, Button & Collins, 2010; Ollis, MacPherson & Collins, 2006; Vaeyens, Lenoir, Williams & Philippaerts, 2008).

The dearth of research in motor sport contrasts starkly with the growth in Talent Identification and Development (TID) research over the last 20 years (Baker, Cobley, Schorer & Wattie, 2017). Without a robust evidence base, talent development practices in motor sport have been left to grow organically through serendipity where pockets of best practice can, and do, occur but with no consistency across the sport. For example, the FIA established the Young Driver Excellence Academy as an attempt to cascade a level of consistency and best practice down through the five global regions and into the national governing bodies, the Association Sporting Nationale (ASNs) that nurture and regulate the sport (“Academy spreads selection worldwide”, 2013). Until this point, the world of motor sport operated in silos without a shared understanding of the processes and systems that should underpin talent development. Reflecting this status, this thesis, therefore, has a broad scope on two fronts: firstly to shed light on the current status of TID in motor sport and secondly to investigate the developing driver’s need for interpersonal skills and evaluate the use of a psychometric tool to enhance development and performance and, in doing so, potentially aid bridging the gap between research and practice.

1.2 My Personal Context

As a child I loved cars; toy cars, real cars, cars made from old cardboard boxes. It was therefore of no surprise to my parents when I took up an apprenticeship with British Leyland, as was, to become an automotive design engineer. My first job was assembling gearboxes for Austin Allegros at Longbridge however there followed a period of tumultuous change within the automotive industry and British Leyland. My progress in the company to managing director of a BMW subsidiary in my mid-thirties was a roller-coaster of learning about people and processes and the application of a host of successful, and sadly some unsuccessful, business change-management projects. Along

the way I collected a number of qualifications, some informal, like how to cross a hostile, unionised picket line, and some formal, such as a master's degree in business administration from Warwick Business School. All have contributed to my toolbox and all have helped me understand my observations and perceptions of the world.

In recent years, I have chaired and held chief executive positions in a variety of companies and organisations. I have found great interest in technology start-ups and early stage companies and their development from embryotic ideas in the minds of some exceptional people to flourishing young businesses. Within this my involvement has been frequently directed at the human performance element and how some people can achieve elite status through exemplary performance and the delivery of extraordinary business success.

Throughout my professional career I have been passionate about motor sport. Since my days as an apprentice I have competed in my leisure time, with some modest success including class wins at world championship level, in rallying. I have also built race winning cars and run race winning teams competing at national and international level.

The confluence of my professional and sporting activities occurred over ten years ago when, together with world champion rally co-driver Robert Reid, we formed Elite Sports Performance (ESP) with the objective of exploiting my experience and knowledge in business development and organisational change management and Robert's detailed knowledge of sporting processes at the highest level. The vision was to create a training company that was capable of facilitating the development of future world champions through providing training with sound, evidenced, epistemologically grounded methods. To date we have provided programmes to circa 100 young drivers. Over two-thirds have secured careers as successful, professional drivers and ten have gone on to

become world champions (2010 Production World Rally Champion, 2011 Production World Rally Champion, 2011 & 2012 Intercontinental Rally Champion, 2012 S2000 World Rally Champion, 2013 Junior World Rally Champion, 2015 GP2 World Champion, 2017 WRC-2 World Champion, 2018/9 LMGTEPRO World Champion, 2019 World Rallycross Champion, 2019 World Rally Champion). We have worked with the drivers, engineers, and managers in one Formula One championship winning team, one World Rally Championship winning team, one World Endurance Championship winning team and one World Championship GT3 winning team.

Whereas ESP cannot in any way claim all the credit for performance, there are undoubtedly many other contributing factors, anecdotal feedback and the fact those who have undertaken courses with us have progressed, has led us to believe that we have managed in our efforts, to some extent, to bridge the gap between quality research and applied practice. This gap is something contemplated as a challenge for TID across many sports (Collins, MacNamara & Cruickshank, 2018) and, moreover, our experience is that effort expended in delivering robust transformational processes and methods does generate positive outcomes. However, this leaves the question of how and why these endeavours have been successful. We may have done *the right things* but that raises the question of *why* these were *the right things* to do and, from that, what qualified them as such in the context of the training that we provided. This line of thought then leads to a deeper line of inquiry into what this context was and how that might align to a more academic model of a talent development environment. Further questions then appear regarding the detail within appropriate training interventions and how their effectiveness can be understood, quantified or qualified and ultimately transferred into other driver and team development scenarios.

In building on this line of inquiry in the future I can only see opportunities for personal development and for creating new and impactful development programmes for transitioning of drivers from current to future states. In this future vision the very practical motivators for delivering change, as with work within businesses, requires a systematic discovery and understanding of underlying issues and a structured delivery of behavioural and process change. It is in pursuit of this vision that I have adopted a pragmatic research philosophy with the objective that this research should inform and guide our future practice in developing elite sports performers in the world of motor sport.

1.3 Research Questions and Objectives

In moving towards fulfilling this vision there are questions that arise that inform and direct the studies in this thesis. Namely:

- 1. How do the current approaches and future needs of talent development in motor sport compare to known best practice in sport?*
- 2. What are the perceptions and experiences of the enabling and constraining factors impacting upon young developing drivers in motor sport?*
- 3. What are the ways in which the use of Discovery might impact upon the development of young elite drivers both on and off the track?*
- 4. What is the potential impact of the use of Discovery in improving whole team performance?*

Considering how these questions can inform and guide our practical work at ESP aligns to our diligent approach to bridging the research-practice gap (Collins, McNamara & Cruickshank, 2018) and, from a pragmatic perspective, these are questions to which we seek practically meaningful answers. We have systematically used interventions

designed around the best practice principles from research and this has been a major contributing factor in our success, or to be more accurate, in the ultimate success of our those who have been part of our development programmes. From my experience in business, focusing on improving the effectiveness of the relationships within a team rather than just on operational process efficiency and improvements is an important element of business change management. In the context of motor sport this manifests itself as the behaviours and interactions between the drivers and those upon whom they are reliant for their ultimate success (or failure; e.g., the sponsor who funds their racing or career, or the engineer who sets up their car to a race-winning specification). Green and Oakley (2001) highlight an 'excellence culture' where interaction between athletes, coaches, managers, and scientists occurs in a fluid, formal and informal way is beneficial to the development process. Building on this, the key focus of this thesis is to explore how the behaviours and interactions between drivers and significant others impact upon the development and ultimate performance of the driver and the team. In turn, this allows an exploration of how improvements to these relationships can be made that enable drivers to convert their talent more effectively to skill. As such, the main objectives of the thesis are:

1. To review features and characteristics of best practice in talent development from research and published literature and consider how talent development in motor sport compares against this benchmark.
2. To identify and understand enabling and constraining factors impacting upon young professional drivers on their route to the top.
3. To consider and explore the use, value, and limitations of the Insights Discovery psychometric tool, widely used in business, as a supporting mechanism in aiding development through its impact on interpersonal sophistication.

4. To apply and understand the impact of use of the Insights Discovery psychometric tool in an elite young driver support programme.

5. To refine and consider the basis for broader use of the tool in an applied case of developing a specific race team thereby understand, any impact and where that impact may have had the greatest effect.

6. To present a summary of the findings, implications and conclusions and provide recommendations for principles of application in the field of motor sport and other areas.

These questions and objectives then translate into an order which I shall now expand upon in the context of the research programme and structure of the thesis.

1.4 Structure of the Thesis

In addressing these research questions and objectives Chapter 2 sets out the ontological and epistemological features that bear relevance to my consideration of the most appropriate philosophical approach and, thereafter, the choice of suitable methodology. Following this in seeking to answer the specific research question of *how do the current approaches and future needs of talent development in motor sport compare to known best practice*, Chapter 3 sets out to review the literature and create the underpinning framework on which the research within the thesis is based. Chapter 3 then goes on to critically review the literature regarding talent development factors, features of the athlete's overall journey, and how an individual's attributes and skills, particularly psychological and psycho-social, are developed. This chapter considers how coherent pathways, coaches, support personnel, parents and others interplay with the need for structured challenge in developing appropriately adaptive, independent, and resilient performers. The chapter then looks at the current approaches and future needs

of talent development in motor sport. This includes reviewing the unique organisation and culture of motor sport, professional drivers, who they are and what skills they tend to have, typical routes to the top and recent progress and initiatives in talent development. Finally, to address the first objective and as a basis for the empirical studies that follow in the thesis, Chapter 3 benchmarks how talent development in motor sport compares against the broader talent development literature.

In order to address the research question of *what are the perceptions and experiences of the enabling and constraining factors impacting upon young developing drivers in motor sport?* Chapter 4 describes a two-part study. Part 1 held a series of focus groups with young, aspiring elite drivers competing at national and international level. Adhering to the pragmatic research philosophy, which is described in Chapter 2, a qualitative approach was adopted in which individual driver's experiences were captured, explored and an inductive analysis performed to examine the enabling and constraining factors on development. In Part 2 senior motor sport experts were interviewed to provide an alternative perspective. A key finding from this study was the need for interpersonal sophistication – the ability to have high levels of self-awareness and an understanding of the impact of one's behaviours on others.

In considering Objective 3, Chapter 5 sets out to understand the Insights Discovery (Discovery) psychometric as a tool to support and develop interpersonal sophistication. In this chapter, the background and development of Discovery is critically presented and recent applications within sport are reported. Chapter 5 then goes on to give a critical appraisal of the strengths and limitations of Discovery with a particular emphasis on the quality of its theoretical base. Finally, Chapter 5 looks at the potential use of Discovery with drivers and teams in motor sport and gives an overview

of the factors that need to be considered and developed for optimal application in a motor sport context.

Building on the understanding of Discovery established in Chapter 5, and in alignment to the pragmatic research philosophy described in Chapter 2, Chapter 6 presents an empirical study on the application of the Discovery model in an elite young driver support programme. This study was designed to meet Objective 4, to apply and understand the impact of Discovery and, in doing so, to address the specific research question of *What are the ways in which the use of Discovery might impact upon the development of young elite drivers both on and off the track?* This was explored from the perspectives of the young drivers and, in a separate study, that of a selection of significant others in these driver's networks such as coaches, managers and parents. Using qualitative research to explore and understand the different perspectives and opinions, this study, conducted over the period of one season, used focus groups and interviews together with extensive field notes to create an insight into the impact of Discovery on the group of young drivers. The inductive analysis suggested that Discovery provided a framework and methodology for self-reflection and that, overall Discovery provided a driver with a more sophisticated grasp of interpersonal relationships. However there were caveats to this, namely that it took careful and knowledgeable use and, in including the driver and not his immediate team and individuals who interface with him, there were potential limitations to the access to benefits due to individuals in key relationships not holding a shared mental model.

Building on this study, and to address Objective 5, Chapter 7 evaluates the basis for broader use of Discovery within motor sport. The study moved from developing drivers to a young, professional driver in the British Touring Car Championship (BTCC).

Following the pragmatic research philosophy outlined in Chapter 2 the case study in Chapter 7 describes the use of Discovery with an established driver and team who were experiencing constraining factors and had called upon the author to assist in identifying and delivering solutions to their problems. This case study explored the effectiveness of applying Discovery at the very sharp end of the performance spectrum – the race team and the driver’s on-track performance - and describes which mechanisms were found to be useful in developing all-round performance. In doing so it sought to answer the specific research question of *understanding the potential impact discovery could have in improving whole team performance.*

Finally, Chapter 8 addresses Objective 6 through summarising the findings identified throughout the studies along the pathway from young aspirant to professional driver. This then suggests the implications and contributions to practice through a series of recommendations on how Discovery may be used at a macro, meso and micro level in talent development programmes, in individual talent development pathways and in other performance levels and domains within motor sport with recommendations for future research with and on Discovery.

The pursuit of answers to these specific research questions brings into focus the consideration of the most appropriate philosophical approach and, thereafter, the choice of suitable methodology. In the following chapter I will explore the ontological and epistemological features that bear relevance to my choice of philosophical approach.

CHAPTER 2: PHILOSOPHY AND METHODOLOGY

2.1 Seeking an Appropriate Research Philosophy

The overarching objective of this thesis was to generate a much deeper understanding and knowledge that can be applied meaningfully within my own, and potentially others', work. That is, the prime concerns were firstly the extent to which knowledge generated can be shared and, secondly, what shared behaviours can be facilitated from this knowledge (Morgan, 2007). Reflecting this aim, the research in this thesis was undertaken using a pragmatic research philosophy (Schmidt-Felzmann, 2003; Tashakkori & Teddie, 2010). Arriving at this decision, however, required a significant amount of reflection and consideration in order to understand the number and types of assumption being made both consciously and sub-consciously (Burrell & Morgan, 1979; Alvesson & Skoldberg, 2009). To do this it is important to contextualise and understand the research within specific paradigms, (e.g., positivist, postpositivist, constructivist, interpretivist, poststructuralist) and in alignment to the underpinning philosophical bases of ontology, epistemology and methodology (Culver, Gilbert & Sparkes, 2012; Denzin & Lincoln, 2008; Sparkes & Smith, 2009). This chapter expands on the implications for this thesis, giving an overview of the pragmatic approach and the relevance of this choice to the research. Further it provides a context for the methodologies used and the challenges faced in the generation of knowledge on the topic. As I have, effectively, been a practitioner all my life it would have been easy to fall into the trap of furnishing my own epistemological and ontological values and experiences as evidence that adopting a pragmatic research philosophy was the only way without due reflection on why that might be so. In undertaking that reflexive process many deeply held beliefs about motor sport were brought to question.

One such example is that, in the world of motor sport where there has been little research to define what is known, I believe that many ontological assumptions, that is concerning what constitutes reality (Crotty, 1998), exist. For instance, funding through sponsorship is held by some team owners and managers as undesirable because it brings onerous and unwanted marketing needs and they believe that young drivers must only be funded by wealthy parents. However, some hold an opposing set of values and beliefs that view the driver as a merchantable product, in terms of the driver's commercial promotability, and thus they hold that sponsor funding is a desirable and additional value that they create. My own ontological perspective is that both exist as realities and that many more conflicting or aligned values and beliefs can and will exist.

Following on from this, as these realities are not static but are constantly evolving in response to social actions, leads me to consider a pragmatic approach as a research paradigm (Goldkuhl, 2012; Maxcy, 2003; Morgan, 2014a). Morgan (2014a) draws on three points which resonate soundly with my perspective on the world of motor sport. Firstly, that the actions cannot be separated from the context in which they occur, and that actions and experiences produce beliefs which are warranted rather than being universal truths. Secondly, that these beliefs can be provisional as no two experiences will be lived in the same way. Thirdly, that worldviews can be both individually unique and socially shared as, although no two people will have identical experiences, there can be varying degrees of shared experience that lead to differing degrees of shared belief.

Additionally, theory and concepts such as these and that are derived from a pragmatic approach are provisional and fallible in nature and require constant re-evaluation to maintain their continued specificity (Corbin & Strauss, 2008). Knowledge and action are, as such, interacting factors as contexts and applied environments evolve (Corbin & Strauss, 2008). Therefore, research can be shaped from the bottom up, that

is from the perspectives of individuals, to broad patterns and ultimately broad understandings as extolled by Cresswell and Clark (2011).

Taking this epistemological perspective a step further, that is the way of looking at the world, the assumptions made about the nature of knowledge and how to communicate this knowledge to others (Burrell & Morgan, 1979; Crotty, 1998; Ormston, Spencer, Barnard & Snape, 2014), leads to decisions on the kinds of methods to be used in the research. Building on this adopting a pragmatic research philosophy, and potentially mixed methods, requires researchers to be aware of the links between their epistemology, methodology and methods (Culver, Gilbert & Sparkes, 2012). Pragmatists view positivism, with its objectivity and rigid belief in a world of generalisable truths, and constructivism, with its subjectivity and belief that all knowledge is socially constructed and contextually bound, as bipolar opposites on a single axis. Pragmatists further reject the potential of a single reality and the possibility that one 'truth' is closer to reality than another (Giacobbi, Poczwardowski, & Hager, 2005; Morgan, 2007) and place emphasis on the implications and outcomes of thinking and action and that practical meaning exists in specific contexts. In this case I view knowledge as subjective, personal and unique rather than objective hard and tangible and, in adhering to a pragmatic philosophy, have undertaken a greater involvement with the subjects of the studies placing myself at the interpretivist/constructivist end of the continuum.

Reflecting on this, pragmatism has its origins in early twentieth century America and the work of philosopher William James (1907). Along with Charles Peirce (1905), James established the philosophical school known as pragmatism. James held the view that the value of any truth was utterly dependent upon its usability and that thoughts and statements must correspond with actual things and be verified by observed results in the application of an idea to practice. This very fundamental view resonates with my

role as a practitioner because, invariably, within the projects I have undertaken during my career, little has been known about the behaviours and processes which have had to be changed to improve business, and sporting, performance. This has meant that, right at the outset, to address the truth about any actual challenge, it must first be interpreted and knowledge about it must be constructed. From that base interventions can be designed, and change applied and observed for the real difference it makes to performance.

Latterly John Dewey's concepts of human experience and learning through a hands-on approach suggested that, from a pragmatic perspective, reality must be experienced and that students must interact with their environment in order to learn (Dewey, 1931). How knowledge is constructed therefore comes from practical solutions to applied research questions (Giocobbi, Poczwardowski & Hager, 2005). These are important concepts when considering the research in this thesis because, similar to the challenges I have previously undertaken professionally, little knowledge exists outside the opinions of subject matter experts. These experts, who may be self-professed as such, are often retired successful drivers or sponsors, and their knowledge has the potential to vary and hold biases and assumptions due to their individual experiences and circumstances. Further, their teachings, coming from a personal perspective, can be unhelpfully subjective and quasi-phenomenological – typically a 'do it my way and you'll do well' approach. As demonstrated in the literature on constructivism, the pragmatist view of knowledge requires agreement to be found, within a community, that any specific intervention improves performance before research findings can reach an objective position (Giocobbi, Poczwardowski & Hager, 2005).

2.2 Considering Alternative Philosophies

In contrast to this, it is also important to consider why other research philosophies may seem appropriate but were not chosen. Adopting a positivist approach, a word coined by Auguste Comte in the 1830s, would mean that objective inquiry be based on quantifiable and predictable events (Kincheloe, 1991) and suggest that reality is tangible and real and can be objectively evidenced and measured (Antwi and Hamza, 2015). This is not without attraction. For example, I know of one current Formula 1 driver who, when a teenager, embarked upon a course, set by his father, to achieve a place on the F1 grid in five years with an investment of £5m. Undoubtedly it would be both interesting and valuable to study this successful path through a quantitative methodology and deductive reasoning. Such a study could potentially quantify the progress attained during each season and event, collecting data to understand the cost and attained benefit of each step or stage and, ultimately, test the hypothesis that '£5m and 5 years' was a generalisable pathway. However informative, this research paradigm would only describe one truth which may not be the only one and, in conclusion, may only approximate the truth (Ernest, 1994; Crotty, 1998).

Considering this point in a wider context the application of this orientation in researching talent development in motor sport, and potentially other sports, would require explanation, prediction, and proof in creating knowledge about the breadth of talent development. In motor sport, where there is little knowledge or previous research on which to base hypotheses, adopting this approach would create the possibility that research could fail in the objective of finding ideas and practices that could be judged in terms of their usefulness, workability and practicality (Scott, 2016). Thus, considering the workability and practicality aspects of research directs consideration towards the use of qualitative rather than quantitative methodology.

If quantitative methodology, with its close relationship to positivism, is less suitable than qualitative inquiry, then consideration could be given to adopting a phenomenological approach which would support qualitative inquiry. Stemming from the work of German philosopher Johann Lambert in the eighteenth-century phenomenology became a distinctive philosophical approach through the work of Edmund Husserl (1859-1938). A phenomenological philosophy explores the perceptions of experience and therefore would appear well suited to the aims and objectives of this thesis. However, in this thesis I do not seek to examine the essence or structure of experiences of the drivers but rather to find the answers to practical questions. In short phenomenology describes rather than explains (Merleau-Ponty, 1945) whereas I seek solutions to applied needs.

In summary, the specific research questions in this thesis are directed to the problem of developing an understanding of how interpersonal behaviours impact talent and team development in motor sport. In applying appropriate methods my own belief is that research should be initiated by my own doubts and beliefs and that focus on the problems will enable successful action and inform future practice. Thus pragmatism, in asserting that concepts are only relevant where they support action (Keleman & Rumens, 2008), resonates with my own values and beliefs.

In being guided by the specific research questions, and not taking a top-down view of reality and knowledge as per other research paradigms, this thesis is situated at the interpretivist end of the continuum of epistemology and adopts a pragmatic philosophy to underpin mixed methods research (Creswell & Plano Clarke, 2011; Giacobbi, Dietrich, Larson & White, 2012; Gould, Collins, Lauer, & Chung, 2007).

Hence an interpretivist epistemology and constructivist ontology that aligns to a range of methods designed to follow the research questions, summarises my

philosophical position. Indeed the explorative nature of this thesis and the practical aspects of the research in discovering practical-level truths in the context of the subject of the study further reinforces the decision to adopt a pragmatic philosophy underpinning largely qualitative approaches appropriate to the specific questions posed (Keleman & Rumens, 2008). The research process thus used multiple methods in an iterative way (Giocobbi, Poczwardowski & Hager, 2005) and focussed on the evolution of thought as knowledge was accumulated (Corbin & Strauss, 2008).

2.3 Considerations in Adopting a Pragmatic Research Philosophy

Although not linked to any finite epistemological position or ‘top-down’ paradigm, pragmatism influences the research process for example the search for practical solutions, theory as an instrument to explore applied discoveries, the process of data interpretation, the role of the researcher and the criteria for evaluation of research (Corbin & Strauss, 2008, Denzin & Lincoln, 2008; Giocobbi, Poczwardowski & Hager, 2005; Gould, Collins, Lauer & Cluny, 2007; Morgan, 2007).

The main focus of pragmatism is with the research questions and the stage of inquiry (Giocobbi, Poczwardowski & Hager, 2005). In this thesis this can be seen in the methods deployed to first explore the nature and type of constraining and enabling factors impacting upon elite development in the sport (cf Chapter 4) and then investigate the impact of the use of a psychometric tool, after uncovering an initial understanding of the nature of elite performance, across the different settings of individuals and teams (cf Chapters 4, 6 and 7).

From the perspective of the type of questions that can be posed, as noted by Creswell & Poth (2016), pragmatism allows the researcher to focus on both the ‘what’ and ‘how’ of the research inquiry. This brings the research question into the centre of

consideration, prioritising methodological issues over philosophical ones, such that the collection of data and the methods of analysis are then chosen on the basis of how likely they are to provide insights into the problem (Giocobbi, Poczwardowski & Hager, 2005). However, this can become situation specific giving answers to the problem in question rather than exposing underlying truths and the nature of the reality, and thus has the potential to produce superficial conclusions. The delivery of a pragmatic research philosophy must be rigorous to avoid this and to be trustworthy (Creswell & Poth, 2016; Lincoln & Guba, 1985; Smith & McGannon, 2017; Tracy, 2010). Within its pluralistic approach to methodology, emphasis should be placed on the optimum choice of research methods and the careful consideration of the role of the researcher and the collection and analysis of data (Creswell & Poth, 2016). I will expand on these points aligned to the studies in the specific chapters that follow however there are generic factors of the subjective approach and largely qualitative methodology of this thesis worthy of consideration. Conducting qualitative research is concerned with people describing their own experiences and exploring and understanding the meaning individuals ascribe to social problems (Creswell, 2014; Merriam & Tisdell, 2014). Merriam & Tisdell (2014) suggest that a qualitative research approach displays a number of characteristics which are relevant to this thesis. Firstly, the aim is to understand the experiences that people have, secondly the primary mechanism for data collection and analysis is the researcher and, thirdly, that data from the study is analysed inductively. The findings and explanations are thereby generated from the data by the researcher. Following on from this my own participatory role requires further understanding.

2.3.1. Considerations for the Researcher

Whereas my active involvement in the area of study, as well as being an observer of it, aligns well to adopting a pragmatic research philosophy (Corbin & Strauss, 2008)

my experience and knowledge of motor sport and direct involvement in talent development brings the potential for biases and subconscious opinion. Further, during the period of research, I also had an acute awareness of the demands and pressures associated with the developmental needs of the individuals and groups within the studies.

The potential for bias brought about as a consequence of being in such a position highlights the need to identify the qualities that originate from my own experience and, potentially, to suspend and hold in abeyance my own presuppositions, biases, and theories (Drew, 2004; Gerring, 2004). However, pragmatism encourages the use of these when appropriately managed. Undertaking this process of management requires being honest and vigilant about my own perspectives and engaging in the self-reflective process of 'bracketing' – recognising, setting aside, but not abandoning, my own a priori knowledge and assumptions (Starkes & Trinidad, 2007). Tufford & Newman (2010) pointed out a lack of uniformity around bracketing and what it encompasses (for example beliefs and values (Beech, 1999); thoughts and hypothesis (Starkes & Trinidad, 2007); biases (Creswell & Miller, 2000); emotions (Drew, 2004); preconceptions (Glaser, 1992); presuppositions (Crotty, 1998); and assumptions (Charmas, 2006). However, Gearing (2004) pointed out that this is not a homogenous group of factors and, indeed, bracketing requires reflection on all the above plus history, knowledge, and culture. Importantly the act of researcher reflexivity, or bracketing, in at least considering the implications of all the above, acts as useful technique for building rigour and trustworthiness (McGannon, Smith, Kendellen & Gonsalves, 2019).

The question of when to undertake this self-reflexivity has a number of alternative proponents. Giorgi (1998) suggests only in the analysis, Glaser (1992) suggests at the start and Rolls and Ralf (2006) suggest throughout. However, adopting a

reflexive approach in each methodological element of the research offers an effective counter to all the associated risks (Corbin & Strauss, 2008; Culver, Gilbert & Sparkes, 2012). Writing observational memos to note thoughts and feelings also serves to engage more with the data (Cutcliffe, 2003; Glaser, 2008) and potentially enables the illumination of new ideas and directions. Put simply it becomes an ongoing process of being careful, thoughtful, and honest. Indeed, with that in place, the potential weakness of my involvement becomes a strength in that it enables definition of appropriate and effective methods for gathering, assessing and interpretation of the data in this sport where little, or no, academic research exists to inform or guide the direction of study.

2.3.2. Considerations in Methodology

In approaching the methodology, the overall goal of producing results that are rigorous and relevant to the work of the researcher makes qualitative research a common practice in sports research, especially in sport and exercise psychology (Kay, 2016; Smith & McGannon, 2018). However, as Smith and McGannon also point out, the growth of qualitative research brings with it the challenge of understanding and implementing the latest thinking and developments. Successfully meeting this challenge through engaging in contemporary methodology, along with knowledge in epistemology, ontology, methodology and up-to-date methods, serves to mitigate the risk of poor-quality research (Knight, 2016, McGannon & Schweimbenz, 2011; Terkildsen & Petersen, 2015).

The noted gap between the academic and practical world (Collins, MacNamara & Cruickshank 2018) presents an even greater challenge to bridge in motor sport where research into talent and sporting development pathways, and the factors and characteristics that align to success or failure in development in motor sport, are largely under researched. This creates a very real need to understand the applied problems

and underpinning processes (Giocobbi, Poczwardowski & Hager, 2005) and lends itself to a heuristic approach to gain knowledge through case studies, inductive reasoning and introspective methods (Giacobbi, Poczwardowski & Hager, 2005; Martens, 1979). Furthermore, adopting a pragmatic research philosophy allows the unique sporting context to be considered in both academic and applied ways and the impact of multiple realities upon individuals can be explored against historical, social and political contexts which can, and will, influence the findings and potential actions arising from them.

Adopting an inductive approach for building up theory that is grounded in the data can be a difficult strategy to deliver as it relates to an exploratory purpose (Yin, 2003). This can be mitigated by analysing the data as it is collected and developing a conceptual framework to guide further work. This grounded approach allows the identification of relationships within the data, the development of questions and hypotheses to test these and, ultimately, for theory to emerge from the data collected (Cote, Salmela & Baria, 1993; Preissle, 2008).

2.3.3. Considerations in Quality of Research

Finally, considering the challenge of delivering quality in research, the options of methodologies and philosophical perspectives which researchers can adopt brings challenges to ensuring the quality of qualitative research (Sparkes & Smith, 2009). The social nature of inquiry has led qualitative researchers to wrestle with the standards of 'objectivity', 'reliability' and 'validity' (amongst others) deployed by positivist and postpositivist researchers seeking to minimise 'bias' or 'subjectivity'. Thus, leaving open the question of credibility when objectivity is not assumed or even sought (Kincheloe, 2001; Padgett, 2004). Further, Sparkes and Smith (2009) argue that research quality can be judged against factors that originate from the philosophical orientation of the study in terms of its context. In adopting a pragmatic research philosophy within this thesis

the research process and findings can be ultimately measured against the context and value of the practical implications they furnish on the individuals and groups investigated (Giocobbi, Poczwardowski & Hager, 2005). It is thus the consequences which distinguish pragmatism from the positivist and postpositivist perspective of validity (Corbin & Struass, 2008) and, as posited by Bryant (2009), the best judgement of 'good' pragmatic research is in that its findings should make a tangible difference.

There is, however, a substantial body of literature on the criteria by which the quality of qualitative research can be judged, whether they are needed, what they should be termed and if and how they should be used. This 'criteriology' was typified by Lincoln and Guba (1985) who proposed criteria based on the terms "credibility", "transferability", "dependability", and "confirmability" stemming from the postpositivist concepts of internal validity, external validity, reliability and objectivity. Although acknowledged as a useful vocabulary these criteria were regarded as suspect due to their alignment to positivist criteria (Guba & Lincoln, 1994) and led to an expansion of evaluative criteria with multiple criteria and procedures depending on the paradigm being followed. Despite this diversity, in the qualitative research in this thesis quality can be judged from the convergence of some common "big tent" criteria, upon which there is a high level of agreement, (Eisenhardt, Graebner & Sonnenschein, 2016; Tracy, 2010). Whilst some of these criteria are broad, and therefore potentially not explicit, (for example Tracy 2010's criteria that good quality research must address a "worthy topic") they are a valuable guide to questioning and challenging the quality of procedures and criteria (Welch & Piekkari, 2017) and this was undertaken, and is expanded upon, in the research studies in Chapters 4, 5 and 7. For example, in considering the rigour of the studies, in each I have spent considerable amounts of time in the field with the study participants who, in each study, typify the targets of the

research questions and the context in which they are set. The data collection and analysis methods and processes used were appropriate to the studies and supported by my own knowledge of the subjects and participant observations and extensive taking of field notes. Further in considering trustworthiness and credibility, credibility is manifest in the depth and detail of the studies, the development of tacit knowledge, multiple groups and perspectives and the trustworthiness of the studies underpinned by a pragmatic approach to adopting the processes and methods from the literature as noted above.

2.4 Summary

In summary pragmatism offers the most appropriate methodology for creating knowledge through discovery and building an awareness of the practical problems that the drivers and the teams face, the exploration of the relative importance of these problems and the prioritisation of effective strategies for their resolution. It places these questions at the centre of the research and sets the framework for developing research objectives and structure.

In pragmatic research the methods can be varied to suit the research question and use multiple approaches to derive knowledge about a problem (Cresswell, 2003). In this thesis the research questions involved a variety of individuals, groups, and perspectives and thus multiple or mixed method designs have been used as deemed appropriate. However, underpinning this approach the methods used have enabled credible, well-founded, trustworthy, and relevant data to be collected (Keleman & Rumens, 2008; Tracy, 2010) and ensured that the solutions created are meaningful with applied impact.

In advance of this it is important to start from a theoretical perspective to provide an analytical framework for the thesis and link the objectives of this research into the existing body of knowledge in sport. In the following chapter I will therefore review the literature on talent development in sport and describe the organisation and culture of motor sport. The comparisons therein thus providing a context for the ensuing research questions and findings.

CHAPTER 3: TALENT DEVELOPMENT KNOWLEDGE AND MOTOR SPORT

3.1 Introduction

In Chapter 1, the case was made for the importance of understanding the individual attributes and skills that developing performers require as they progress in their activity. These included, but were not limited to, the technical, tactical, physical, psychological, and psychosocial factors as well as the quality of the talent development environment that the aspiring elite interacts with. In this chapter, building on a critical review of the literature, I will provide an overview of the world of motor sport and, in the second section, I will review the organisation and culture of motor sport and how this facilitates the development of young drivers. As a result, this account provides a foundation from which to consider the impact of the unique organisation and culture of motor sport on the talent development process of professional drivers. Against this background, the typical routes to the top in terms of motor sport's talent development pathways highlight some of the challenges and opportunities facing the limited number of current UK and international talent development programmes. In the final section, some gaps in knowledge and practice will be highlighted; therefore, setting the focus and agenda for subsequent chapters.

3.2 Talent Development Factors

Talent development is currently receiving much attention from athletes and coaches as individual performers, teams, national and international groups focus their efforts, resources and funding on the task of achieving sporting success (Johnston, Wattie, Schorer, & Baker, 2018). In this section I will provide an overview of some key published literature on talent development factors including: (a) notable features on the overall journey which characterise the challenges to the athlete; (b) individual attributes

and skills; and (c) facilitative talent environments and programmes. This will provide the context for the thesis and allow me to consider current features of talent development in motor sport.

In order to give a consistent, accurate and clear description of the published literature and, later in this chapter, to apply the same clarity to the consideration of how research may or may not be relevant or applied to motor sport, it is important to have a common understanding of the terminology used. This is not only the case for the jargon-filled and often inconsistent nomenclature in the world of motor sport but also for the talent development literature where inconsistencies are known to exist (Dohme, Backhouse, Piggott & Morgan, 2017). As recommended by Dohme et al (2017) care has been taken throughout the thesis to define key terms meanings, and to ensure meanings are consistent and considered in the context to which they are used.

3.2.1 Notable Features of the Overall Journey

3.2.1.1 A Staged Perspective on Development

In general terms, research to date has suggested that athletes pass through relatively similar stages of development as they progress from novice to elite with performers typically moving from sampling to specialisation and ultimately investment in their chosen sport (Cote, 1999; Cote & Hay, 2002; Durand-Bush & Salmela, 2002). In these models, stages, or periods of development, are separated by transitional change. For elite performers, these stages are characterised as normative, predictable, and anticipated, and a feature of developmental progress (Wylleman & Lavallee, 2004). For example, the 'sampling years' saw the athletes engaged in various sports, games, and physical activities predominantly for pleasure and social reasons. These activities enabled performers to develop fundamental interpersonal characteristics and skills in

play and physical attributes such as motor skills. As performers progressed into the full 'specialisation' stage, athletes begin to spend more time engaging with fewer sports: i.e., specialising with more focus and structure in training and competition. This specialisation often includes substantial amounts of deliberate practice which has been correlated to improvement and attaining expert level performance (Ericsson, 2007; Ericsson, Krampe & Tesche-Romer, 1993; Ericsson & Moxley, 2012). However, in contrast to this, the correlation of accumulated hours deliberate practice to performance, although noted as important, has been criticised for ignoring any psychological factors (Gardner, 1995) and the claim that individual differences in performance are largely accounted for by individual amounts of deliberate practice have been posited as not supported by the available empirical evidence (Hambrick, Oswald, Altmann, Mainz, Gobetv & Campitelli, 2014; Macnamara, Hambrick & Oswald, 2014).

The specialisation years were followed by the 'investment years' in which the focus narrowed, and effort and resources expended more on deliberate training, and competitions increased in the sport in which they would attain the highest levels. Finally, the 'maintenance years', the last stage in these models of phased development, reflects continuous improvement to maintain their position at the top. As I will expand upon later, this pattern does occur in motor sport with early specialisation from as young as eight years old.

Such an orchestration of development provides a very uniform representation of talent growth. Indeed, this linear model mirrors how some sports may be organised in terms of the pyramidal model of development (Bailey & Collins, 2003) or the Developmental Model of Sport Participation (DMSP) (Cote, Baker & Abernethy, 2007; Cote, Lidor & Hackfort, 2009). The widely articulated standard model of talent

development (Bailey & Collins, 2013) aligns to this structure. However, this simplistic model has received considerable challenge from those who have noted inconsistencies in a number of facets in its efficacy. For example, Bailey and Collins (2013) demonstrate that the ability to perform at any given level or time does not necessarily carry forward to performing at higher levels where other skills and characteristics may become important for success. Indeed, the pyramid model does not recognise the dynamic nature of the development journey experienced by many and varied skills that are required to facilitate this journey.

From the perspective of the athlete it is not only the internal context of performance but also the myriad of external factors and circumstances which can impact upon performance (e.g., psychological, psychosocial, situational, financial changes). This suggests that a much more holistic approach to viewing the athletes' developmental path is necessary to give a complete understanding of the stages and transitions faced during an athlete's development (Wyleman & Lavalley, 2004). In particular, the transitions between stages, and the understanding of the changing demands on the athlete are important to understand. Some transitions may be normative and to some extent predictable, or nonnormative, that is are they the outcome of an unplanned or unanticipated event or circumstances. Further it must be considered at what level do these demands arise in the context of the sporting level. In other words, are they the product of the context of the sporting level, a psychological level, a psycho-social level or at an academic or vocational level (Wyleman & Lavalley, 2004)? These are particularly valid questions when considering the factors impacting upon young, developing drivers and the landscape of motor sport competition discussed later in this chapter.

3.2.1.2 A Micro Level Perspective of Talent Development

As well as transitioning through general, macro-level stages, research has also highlighted that athletes will experience a number of meso-level changes as they progress through the talent pathway. More specifically, both normative and non-normative transitions often provide a significant challenge to the athlete as they cope with the effects. For example, and in alignment with other studies that highlight sporting, psychological, social, academic, vocational, and commercial aspects of the career journey (e.g., Pummell, Harwood & Lavellee, 2008; Wyleman & Lavellee, 2004), Henriksen and Mortensen (2014) described the transition from junior to senior level as a normative transition. However, even at a micro level, the normative transition from one coach to another at various age-groups can require much adaptation and resilience on the part of the athlete, especially if the coaches work from notably different philosophies (Webb, Collins & Cruickshank, 2016). Finally, and complicating matters even further for a developing athlete, the journey to senior elite status is also characterised by a multitude of micro-level (i.e., month-to-month, week-to-week, day-to-day) challenges from the very small planning and execution of everyday competition to structuring practice for events. The stage models are arguably too generic or macro in their approach to account for this effectively and so the focus must move to the meso and micro-levels of individual development and performance in order to apply the principles of development effectively.

Indeed, development towards exceptional performance has been shown to be a multidimensional, multiplicative, and dynamic process with emergenic and epigenetic factors impacting on the growth of giftedness into talent (Davids & Baher, 2007; Simonton 2001; Simonton, 2005). The journey to accomplished elite performer is

therefore well noted as being non-linear and paved with difficulties (Collins & MacNamara, 2011; Gulbin, Weissensteiner, Oldenzel & Gagne, 2013) and athletes are reported to progress through irregular, often unique pathways as they acquire expertise and develop through a mixture of individual, task and environmental constraints and challenges (Phillips, Davids, Renshaw & Portus, 2010; Collins & MacNamara, 2012). It is also important to consider that there are complexities and challenges associated with sport specific cultures which can introduce problems to the performer (Green, 2005; Petlichkoff, 1996; Storm, Kristoffer & Hough, 2012). For example, Storm, Kristoffer and Hough in their 2012 study interviewed, in depth, seventeen elite Danish athletes, and argued that specialisation pathways of elite athletes are more unique to the individual. The study by Storm et al (2012) suggested that specialisation pathways were embedded in a cultural context and noted the impact of Danish ideals of collectivism and equality as being in opposition to the promotion of elite athletes. As an example of this cultural content within motor sport, although this thesis does not seek to investigate the differences in the development of male and female athletes, there are cultural differences which impact upon the growth trajectory of females which are widely attributed to the dominant male culture in motor sport and the net effect it has on the development of female athletes (FIA Women in Motorsport, n.d.). One very simple example being that race cars are designed around the 50-60th percentile male body (Mitchell & Noble, 2019) including male shape, weight and ergonomics thus creating a potential disadvantage for female drivers.

3.2.1.3 Examining the Challenges of the Journey

Of course, any performer will experience a range of challenges, disappointments and other events that impact on their development. These, coupled with the non-

linearity of the development trajectory, are not accounted by, for example, the developmental model of sport participation (Cote, 1999). The often irregular career journeys of top athletes have been described by Collins and MacNamara (2012) as 'The Rocky Road to the Top'; a perspective framed with evidence that an overly smooth, linear progression towards the top is unlikely to lead to an elite career. This research proposed that athletes learn from challenges and setbacks as these experiences support the development of coping strategies and other psychosocial skills that support their long-term development (Collins & MacNamara, 2012; Gould, Dieffenbach & Moffett, 2002; Nicholls, Holt, Polman & Bloomfield, 2006; Van Yperen, 2009).

A number of factors emerge when interrogating the rocky road concept in greater depth, all of which starts to unveil patterns of similarity in the route to the top in motor sport. In particular, Collins and MacNamara (2012) contest that talent can be seen to benefit from 'trauma' to bring the best out of individuals. Therefore, trauma, defined as a non-normative or memorable challenge, can lead to a positive attribute for success in that it brings a developmental experience in which athletes can deploy and refine effective coping and response strategies (Collins & MacNamara, 2012). As Collins and MacNamara point out, sporting challenges are key and, to some extent, can potentially be artificially constructed to bring about explicit learning by replicating a less smooth development trajectory. In considering traumas outwith the sport context there are still unanswered questions about some non-sporting 'traumas' in terms of their causative roles and benefits (Howells & Fletcher 2015; Rees et al 2016). It is worthy to note that Collins, MacNamara and McCarthy (2017) later point out that major life events were not a common or significant factor in the self-perceived development of 'super champs' (defined as over fifty national caps, or ranked in the top three in the world for at least four years and won at least five world or Olympic medals), with these events

being reported more often in the histories of 'almosts'. However, there remain conflicts in this area. Whereas Savage, Collins and Cruickshank (2016) also report findings where trauma was predominantly sport related, earlier studies, such as Fletcher and Sarker (2012) and Debois, Ledon, Argiolas and Rosnet (2012) related the life-traumas as instrumental, or milestones, in career progression. Elite athletes, especially in motor sport, are commonly exposed to physical and emotional trauma and, within this constellation of non-normative challenge, it is important to consider that traumatic experiences may manifest as mental health symptoms. Elite athletes commonly develop coping strategies that can mask these symptoms (Aron, Harvey, Hainline, Hitchcock & Reardon, 2019). Although extensive, clinical trauma does not fall within the consideration of this thesis, there are notable examples of very serious trauma, from the sometimes-dangerous world of motor sport, followed by successful recovery. When former F1 and CART driver Alex Zanardi, lost both legs, one at the thigh and one at the knee, in a racing crash in 2001, he not only returned to car racing but went on to win four Paralympic cycling gold medals. Zanardi said after returning to car motor sport: "I once thought I'd rather die than have no legs but now I see I was wrong" (Zanardi, 2007). Seventeen-year-old, Billy Monger, was critically injured when he was involved in a collision in an F4 race at Donington Park in April 2017. Both of his legs were amputated however, after treatment and therapy, Monger successfully returned to racing in November 2017 and, in 2018, Monger was awarded the BBC Sports Personality of the Year Helen Rollason Award for outstanding achievement in the face of adversity (BBC Sport, 2018). Monger attributed much of his comeback to an exceptional support network including Mission, an armed forces charity dedicated to the rehabilitation of injured servicemen and women through motorsport engagement, Carlin Racing, the team who designed and built a specially adapted car to enable Monger to race, and

inspirational motor sport celebrities such as Alex Zanardi and Lewis Hamilton (Garside, 2018). In both cases the catalyst could be considered to be the skills that the drivers had, rather than the accident.

In summary, it is broadly agreed that non-normative as well as normative events or unpredictable transitions can be considered 'turning points' or 'proving experiences' in an athlete's career and can produce the opportunity for both crisis and growth (Alferman & Stambulova, 2007; Savage, Collins & Cruickshank, 2017; Stambulova, Alferman, Statler & Cote, 2009). It is the ability to cope, persevere, and take learning from these events that equips the athlete for future encounters with a degree of readiness that reduces the psychological impact of setbacks on their career progression (Stambulova, 2003; Taylor & Ogilvy, 1994). This is consistent with the findings of Linley and Joseph (2004) who concluded that, in clinical practice, there was evidence to demonstrate that people who reported and maintained adversarial growth over time had an ability to be less stressed when subsequently faced with impactful events and refer to this as the 'human potential for resilience' (Linley & Joseph, 2005).

Beyond the 'turning point' therefore there can be seen to be growth following adversity including psychological changes across a number of domains that surpass the person's previous state as a result of their struggle with the stress (Tedeschi & Calhoun, 2004). In addition, the findings of Joseph, Murphy and Regel (2012) suggest that this can also include changes in self-views, improvement in interpersonal relationships and changes in life philosophy. It would be valuable to pursue research into constructs and mechanisms by which these contexts and 'trauma' attributes can be synthetically created to obtain the same, or similar, benefits to the athlete at significant development points in their progression. The theories of growth, of course, are dependent upon the

studies behind reported growth being veridical however, for example, much of the evidence presented by Cho and Park (2013) in their overview of growth following trauma suggests increases of and shifts in self-awareness and situational perceptions and assumptions with reflective rumination are related to growth. Indeed, work with para sprint athletes has suggested that, rather than the challenge of the trauma itself, it is the disruption to the athlete's assumptive safe world that is both the biggest problem and also, with the proper interventions and support, a contributing factor to precipitate growth (Hammer, Podlog, Wadey, Galey, Forber-Pratt & Newton, 2019). Further they go on to postulate that rumination is a key contributing factor. In the case of Billy Monger, it would appear that, alongside an exceptional support network, structured reflection, rather than rumination, was an instrumental factor in his recovery to successful racing. During his time in hospital Monger reported reflecting on the crash and watching the television footage many times:

I'd exposed myself to it quite a lot when I was in hospital. It was always on the TV quite early on. What I took most from the accident when I was in hospital was I wanted to inform myself properly as to what had happened. Because it happened so quick in the car, although you lived it you can't really remember anything about it. My thought process was I wanted to figure out what had happened, and whether I could have done anything differently. I wasn't sure at the time if I could have done anything to avoid the crash, but looking back at it, I could see it was one of those situations where I was just helpless to the fact that the other car was stationary and my vision was blocked. I don't get upset or get any negative feeling when I watch it – obviously it's had a big impact on my life but the crash doesn't play on my mind too much. (Robinson, 2019)

The point of structured self-reflection becomes relevant in the studies in Chapters 5 and 6 where increases in self-awareness and subsequent reflection, drawn out through self-disclosure, learning, and observed feedback, emerge as important factors in the studies.

In their consideration of the importance of actual versus reported growth, Cho and Park (2013) raise three important elements. Firstly, Cho and Park emphasise the measurement of growth attributes, what they are, and how can they be qualitatively or quantitatively assessed. This is relevant to this thesis; the interpersonal factors that may facilitate the development journey are both subjective and objective in their nature. As such, it is important to both consider the objectivity of on-track performance with the subjective challenges of dealing with sponsors as key aspects of the driver's skill toolbox. Although both set of skills are critical, they require different approaches. Secondly, understanding cross-cultural issues is important (Jarvis, 2006) especially where cultural behaviour norms can mask or amplify reported growth (Berger & Weiss, 2006; Cho & Park, 2013; Schroevers & Teo, 2008; Shakespeare-Finch & Coppoing, 2006; Taku, Calhoun, Tedeschi, Gil-Rivas, Kilmer & Cann, 2007). In the case of motor sport, as I will describe in the second part of this chapter, the machismo culture of the sport (Black, 2019) can often dominate good practice in learning and promote the achievement of short-term results to the detriment of longer-term development (Abbott, Collins, Martindale & Sowerby, 2002) and this has the potential to impact on growth. Thirdly there is the potential for there to be over emphasis on the positive outcomes of trauma without due consideration to the negative outcomes for example in fear or recurrence or negative emotional changes. Indeed, there are studies which reflect that, when the positive and negative outcomes are combined, there can be little net effect (e.g. Bellizzi, Miller, Arora & Rowland, 2007; Park & Blank, 2012). These are important points for consideration in the study in Chapter 4 on enabling and constraining factors.

Finally, in considering the challenges of the journey, rocky road nature of the pathway does not seem to be particularly well-anticipated by athletes who are in the earlier phases of their journey (Henriksen & Mortensen, 2014). For example, Henriksen and Mortensen (2014) explored the transitions of eight young athletes and eight successful performers in four different sports and identified normative, predictable transitions such as series progression where one might exit one stage and enter another, and non-normative, unpredictable transitions such as injury. In this study, young athletes were asked to imagine their career paths whilst the older athletes were asked to describe actual events. In their findings, Henriksen and Mortensen found that accomplished athletes, in describing their journey, emphasised the link between events inside and outside their sport – such as moving away from home, changing clubs or coaches, and injuries – which brought stress and uncertainty. By contrast, the younger group forecasted fewer external obstacles and seldom considered the link between sporting and non-sporting events and their impact on development. The younger group described an easier and smoother path to success with fewer hardships and higher degrees of external support. This becomes an important consideration within Chapter 4 where the experiences of the journey undertaken by a number of young drivers is examined for enabling and constraining factors.

3.2.1.4 In Summary

In summarising this section, the contention is that the standard model of talent development provides a framework that is too generic and doesn't encompass the dynamic and varied experiences and factors that characterises the development of young athletes. For example, although some models describe the development journey in broad generic terms, other factors, such as the impact and nature of non-linear

development and macro, meso and micro stages, events, and transitions are not accounted for (Henriksen, Stambulova & Roessler, 2010a and 2010b; Martindale, Collins & Abraham, 2007; Rees & Freeman, 2007; Wylleman & Lavellee, 2004). Indeed, the nature, level and volume of these challenges are not necessarily anticipated by young athletes suggesting that a focus on interpersonal skills could have significant impacts on how young athletes manage their developmental trajectory. This also suggests a focus on preparing young athletes to learn from 'challenging' events, whether sporting or non-sporting, positive or negative, and be supported in the development of coping skills. Reflecting on the importance of acquiring and deploying psychobehavioural skills, such as structured reflection, to cope with developmental challenge, the next section will provide an overview of the attributes and skills that prior research has identified as important for athletes to possess when negotiating their rocky road.

3.2.2 Talent Development Factors: Individual Attributes and Skills

Having explored the nature of the journey in sporting talent pathways, I now wish to consider some of the particularly important attributes and skills that athletes may be required to have in order to navigate their way along this journey to the top.

In providing a framework for mapping the qualities and attributes in a developing sports person, the Differentiated Model of Giftedness and Talent (DMGT) (Gagne, 2004) describes a model for the transition of outstanding natural abilities, termed 'gifts', into top level skills, or expertise, termed 'talent'. Reflecting on core or 'natural abilities', the DMGT model proposes a series of aptitudinal functions covering intellectual (reasoning, judgement, metacognition), creative (inventiveness, creativity, problem-solving), socio-affective (intelligence, communication and perceptiveness), and 'sensorimotor' (visual, auditory and physiological) domains. In this model, the development process relates to

a range of physical characteristics (physiological determinants of ability), social characteristics (the interactions between the performer with the people involved in their development), and psychological characteristics; such as motivation (being the needs, interests and values of the individual), volition (defined as the will-power or persistence of the individual), self-management (articulated by work habits, initiative taking and planning ability) and personality (such as the traits of self-awareness, esteem and adaptability in response to situations). Within the broad and comprehensive canvas of an athlete's qualities and attributes, it is notable that research has increasingly turned to focus on two key areas; the social (Baker, 2003; Storm et al 2012, Wiersma, 2000; Wylleman & Lavellee, 2004) and the psychological (Orlick & Partington, 1998, MacNamara and Collins, 2010 a and 2010b) aspects of development. This reflects perhaps a greater recognition of the limitations of physical profiling and prediction alone (Bailey and Collins, 2013) and gives increased weight to these latter, psychological characteristics and factors when considering development trajectories. Given the focus on the individual in this section, and the emphasis within this thesis on psychobehavioural and psychosocial factors, it is therefore relevant to consider the psychological features of effective development (social factors will be addressed in the section that follows on 'facilitative environments').

3.2.2.1 Psychobehavioural Factors – The Role of Self-Awareness and Reflection

There is a considerable evidence base attesting to the importance of psychobehavioural factors in the attainment of excellence. Some interesting distinctions have been reported between the psychological attributes of 'super champions, champions and almos'ts' (Collins, MacNamara & McCarthy, 2016). Namely, these authors found that super champs, defined as having played or playing at

premiership level and had achieved more than 50 appearances for their national team or attained more than five world class medals, could be discriminated by the nature of their:

- Commitment
- Reaction to challenge
- Reflection and Reward and
- The Role of Coaches and Significant Others in this Process

Reflecting on the journey of elite performers, these factors become of interest. According to Collins et al. (2016), commitment appeared consistently across all of their interviewed super champions and manifested itself as a passionate interest and enjoyment in participating and competing, sometimes rather more than in training and practice. Commitment, in this context, appears to be an underpinning characteristic that is potentially rooted in Gagne's 'volition' or the enjoyment taken from performing (Adachi and Willoughby, 2013). Collins et al. (2016) further reported that 'super champions' were characterised by 'an almost fanatical reaction to challenge', be that normative or non-normative in nature. This motivation towards engaging with and creating a positive experience from challenge was noted as almost an 'internal drive' which reinforces the suggestion that self-awareness and reflection can be a powerful and enabling characteristic for growth. Reflection and reward were also noted as important as they played a role in learning and feeding the motivation to continue to commit and take on, then grow from, challenge with self-reflection at an 'almost spiritual' level. The role of coaches and significant others highlighted noted qualitative distinctions between the individuals.

It is worth briefly expanding on one key individual attribute that is related to all four of these factors, commitment, reaction to challenge, reflection and reward and the role of coaches and significant and that is resilience. In this context I am simply defining resilience in as “the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress” or “bouncing back” from difficult experiences (APA, 2019). Studies in soccer (e.g., Galli and Vealey, 2008) have investigated individual athlete’s perceptions of resilience with respect to the situations they faced. The themes that emerged from their study were:

- Breadth and duration of the resilience process
- Agitation (e.g. coping strategies)
- Personal resources (e.g. determination) and
- Socio-cultural influences (e.g. social support).

In all of the above points self-awareness and the ability to reflect and analyse situations and ruminate on cause, symptom and the effects of outcomes of any coping interventions, can become a key enabling factor of human development (Ardelt & Grunwald, 2018) and, in the athlete, can build self-confidence (Beaumont, Maynard & Butt, 2015; Hays, Maynard, Thomas & Bawden, 2007; MacNamara, Button & Collins, 2010a). The Psychological Characteristics of Developing Excellence (PCDEs) (MacNamara, Button and Collins, 2010b) provides a set of tested and refined skills that have been developed (Collins & Macnamara, 2017) to support athletes in achieving a growth mindset and to counter a variety of challenges in the “ups and downs” of development. Collins, MacNamara and Cruickshank (2019) acknowledge that the PCDE model does not give an exhaustive or complete model, for example, resilience is not on the list. However, the approach is noted to work well (e.g. Newton & Holmes, 2017) and

Collins et al point out that resilience can be built through developing one or more of the PCDEs as appropriate to the individual. Adopting a focus on eventual performance, deciding on the desired outcomes and the process that will deliver can provide the coach or practitioner with a set of tools to use with the athlete.

This leads to two important considerations relevant to the studies in this thesis with regards to self-awareness and interpersonal relationships. It could be considered that increasing an athlete's ability to develop self-awareness and giving sophistication and structure to their reflections has the potential for creating more effective coping strategies, behaviours, and actions. These can be beneficial to the athlete to both in dealing with challenges where the desired outcome is within their control and also when the desired outcome is dependent upon others. For example, when they need to engage and mobilise individuals within their support network. In doing so, brings into focus the need for the athlete to be able to interact with those around them to optimise the benefits from their interpersonal relationships.

3.2.2.2 Psychobehavioural Factors: Achieving Optimal Performance

In exploring the relationship between psychological resilience and optimal sport performance Fletcher and Sarker (2012) interviewed twelve Olympic champions and found that numerous psychological factors influence elite athletes' ability to evaluate challenge and develop their meta-cognition on attributes including personality, motivation, confidence, focus and perceived social support. On face value, these attributes should be as valid in motor sport as in any other context; therefore, any intervention setting to build on resilience should be able to work fluently with any of these attributes and engage proactively with the themes emerging from Galli and Vealey (2008). Indeed, one notable finding from research on resilience is its' multifactorial

nature; in short, resilience, like mental toughness, seems to reflect a constellation of attributes or skills.

Reflecting this focus on an individual's broad psycho-behavioural skillset, a body of research has found that a host of psychological attributes are present and significant in successful development (e.g., MacNamara, Button & Collins, 2010a, 2010b; Savage, Collins & Cruickshank, 2017). For example, Hill, MacNamara and Collins' (2018) work on the Psychological Characteristics of Developing Excellence (PCDEs) reinforces a number of these psychological factors (MacNamara, Button and Collins, 2010a and 2010b, Kamin, Richards and Collins, 2007; Orlick and Partington (1986). This body of work has ultimately produced and supported a combined list of psychological skills, for example imagery and goal setting, with psychological characteristics, such as commitment and coping skills, that are crucial in the development of an individual athlete from an early age. These PCDEs provide a distilled and refined list of ten psychobehavioural skills which are considered to require systematic development to allow the individual athlete to effectively engage with the opportunities and challenges that emerge on their chosen career path and an evaluation system has been created to provide metrics against which development target and actions can be set (Hill, McNamara & Collins 2018; MacNamara & Collins, 2010a, 2010b, 2017). Given the generality and applicability of these characteristics across sports PCDEs can be proposed to be a useful and practical resource for practitioners in talent development. As a resource however they must be contextualised effectively and relevant to the specific sporting application and the needs of the athlete at that point in time (Collins, Button & MacNamara, 2010b; Petlichkoff, 2004). This point is particularly relevant in the unique environment of motor sport with the complexities of impactful factors which I will explore in more detail later in this chapter.

In addition to these positive psychological skills and characteristics, it is of note that there are also negative and dual-effect psychological characteristics that can have a deleterious effect on talent development (Hill, MacNamara & Collins, 2015; MacNamara & Collins, 2014). For example, a characteristic of coping with issues by avoiding them was categorised as negative because that behaviour would not resolve the problem and, as a coping strategy, could lead to the re-emergence of issues related to the problem, or that strategy, later. With regards to dual effects, these can occur through the negative execution of what otherwise would be a positive characteristic, such as analysing a performance to the point where the process of analysis is no longer productive and, in fact, becomes a limiting factor. In a similar vein over-optimism, or over-confidence, can be often be attributed to young athletes in their often-naïve approach naive towards how difficult their chosen career might be (Henriksen & Mortensen, 2014). Indeed, a pervasive optimistic bias, and the tendency to continually overestimate the benefits and underestimate the challenges, can be more impactful and potentially derailing (Henriksen & Mortensen, 2014). Such research demonstrates that developing in sport is not just achieved through the attainment and deployment of tactical skills but also a constellation of other skills and characteristics in such a sophisticated way that the athlete manages not to overplay them to the extent of those very critical strengths becoming weaknesses that can constrain or even derail development.

In conclusion, the literature suggests that a balance of physical, technical and, critically, psychological, and psychosocial qualities, applied in the context of the sport, can facilitate the capability of the elite individual to develop. There are psychological characteristics and skills which can be detected, over and above the technical and tactical, and, more importantly, can be developed and nurtured within a facilitative

environment to create a greater chance of the athlete having a successful outcome. In considering how this can be achieved in practice, I now move attention to facilitative environments and programmes.

3.2.3 Facilitative Environments and Programmes

Having considered important features of the talent development journey and the individual attributes and skills that performers can bring to their development process this section focuses on the pathways, support network, parents and other environmental attributes that facilitate development through providing structured challenge and support of the TD environments and programmes.

Following on from the point raised earlier in Gagne's DMGT, the catalyst of environment is characterised by cultural and social factors, people and significant others, provisions (programmes and activities), and events (be they encounters, awards or even accidents). Within any sport, including motor sport, these environmental factors can all be very apparent and tangible features when considered in the context of any specific athlete's development and performance.

3.2.3.1 Considering Talent Development Environments

TDEs are essentially the context of learning and performing for developing drivers. This, of course, necessitates that the TDE responds appropriately to the needs of developing drivers at different stages of their journey to provide an effective environment particularly in attaining elite level performance (Abbott, Collins, Sowerby & Martindale, 2007; Gagne, 2004; Vaeyens, Lenoir, Williams & Philippaerts, 2008).

In order to create an appropriate TDE, it is important to consider the sporting demands that the athlete faces at any given time in their development journey. For example, in the sections above the importance of both normative and non-normative

change were discussed with an emphasis on equipping the athlete with the skills and ability to successfully cope with these turbulent periods (e.g. Collins, MacNamara & McCarthy, 2016). It is important that the TDE recognises the different challenge that athletes face at different stages and matches the support and resources to these particular needs, albeit these might be stage, age, and even individual specific (Coutinho, Mesquita & Fonseca, 2016). In this thesis, I am particularly interested in how TDEs support athletes who are considered to have the potential to achieve elite performance and therefore could be considered to need an optimum TDE. In their 2007 study, Martindale and colleagues sought to obtain a picture of best practice in terms of TDE in UK Sport. In order to do this, Martindale et al. sampled sixteen elite level sports coaches from a variety of sports and used a qualitative process to draw out their experiential knowledge about TDE. Despite working with this small sample size, and acknowledging the limitations of such, Martindale et al. came to some clear conclusions about how the environment for talent development might be improved and three clear gaps in practices emerged.

Firstly, they described the need for laying effective foundations in both how and what skills were taught. Expanding on the definition of what and how requires understanding of the pathway of development specific to the demands of progress within any given sport. Considering for example, in motor sport, as speed increases with more senior sporting series, so do the g-forces generated in braking and turning and, in countering this, the driver must equip themselves with the strength and stamina to cope with them at the next level. Another example in motor sport is driven by the culture where often drivers, particularly at a junior level, do not see the value of using a coach or seeking supportive assistance in their learning. These drivers arrive at more senior

levels without the basic understanding of how to maximise coaching input that is they have not learned to be coachable.

Secondly, the need to have systems in place to identify and aid talented performers at an appropriate time and not just to select based on results at an early age and make winning the sole objective of coaching (Abbott, Collins, Martindale & Sowerby, 2002). In considering the systems for development it is critical to find differentiation between the metrics of talent development and the results achieved in competition and deploying some contextual analysis of PCDEs can assist in this. This is of particular interest in motor sport where, as expanded upon later in this chapter, progress, selection and financial investment are often given to those who deliver results on the track rather than demonstrate development or potential. For example in motor sport comparisons are rarely drawn between a driver who sets their goal to finish on the podium or qualify in tenth position as a target based on improving certain aspects such as racing line or braking skills who may therefore have been more successful in achieving their development goals than a driver who has won because their car had a better set up on race day.

Thirdly, Martindale et al (2007) stress the importance of having coherent aims across stages of development and clear long-term pathways. In motor sport this would mean having the long-term aim to win supported by a structure of shorter term aims, such as circuit learning, developing car set-up knowledge and expanding the support network appropriate to developing needs. In building on this idea of coherence, Gagne's DMGT model also asserts that environmental catalysts are more effective if delivered with some coherence. Webb, Collins, and Cruickshank (2016) also stressed the need for the performer to experience coaching as a relevant and integrated series

of interventions against tactical and strategic needs. The need for coherency also extends beyond the coach to other stakeholders, such as parents and significant others, in the performer's career so that their inputs and influences are aligned in a collective way (Pankhurst & Collins, 2013). These inputs and influences being defining characteristics of the cultural values of cooperation, individual responsibility and focus on performance processes encountered in successful athlete talent development environments (Henriksen; Stambulova & Roessler, 2009).

In terms of providing clear and integrated themes that are associated with effective talent development processes within any TDE, five key generic features are suggested; long-term aims and methods; wide ranging coherent messages and support; emphasis on appropriate development rather than early selection; individualised and ongoing development and integrated, holistic and systematic development (Martindale, Collins & Daubney, 2005). This brings many and varied potential stakeholders into the domain of developing skills and delivering progress to the performer. In motor sport, where a driver's performance depends on a cluster of significant people this brings a duality of purpose. For example, the race engineer must not only tailor the car to the driver's needs but also coach the driver in how to create this specification; the parent who must care and nurture must also be the commercial manager. This, again, demonstrates the need for effective and sophisticated interpersonal communication to avoid conflict and get the most out of each relationship.

3.2.3.2 TDEs – A Broader Perspective

The TDE literature goes beyond the above and this limited overview of the TDE literature. There are other models such as the multi-faceted conceptualisation of talent as a mixture of innate elements such as biological factors, physical and psychological

capacities and emergent, dynamic, cultural, and social factors (Baker, Wattie & Schorer, 2018). The holistic ecological approach (HEA) to talent development in sport (Henriksen, Stambulova & Roessler, 2010; Henriksen, 2017) considers the role of the overall environment in athletes' development and focusses on how an environment manages the balance between talent identification and development.

Given that this is indicative of a complex 'soup' of interacting people and variables, the most obvious and fundamental questions of 'what to do to develop talent' and then 'when to do it' and 'how to do it' arise when trying to establish and mobilise optimal supportive and enabling elements of any TDE. With this very rich, and somewhat complex, mixture of research (e.g. Rees, Hardy, Gullich, Abernethy, Cote, Woodman & Warr, 2016) and guiding strategies (e.g. Collins, MacNamara & Cruickshank, 2019) the translation of research to practice can present a daunting prospect and some clarity and focus would undoubtedly benefit practitioners in defining operational themes and processes.

Summarising the above leads to three overarching targets for practitioners at all levels with some examples from motor sport. Firstly, create the appropriate environment which means a nurturing culture that rewards development towards long term achievement with consistency and persistence in developing appropriate skills. For example, in motor sport this could typically show up as teams rewarding discrete elements of process improvement such as braking skills. Rather than continually focussing on lap times and results targets could be set, and encouragement given, to drivers who set development targets in knowledge of car set up or testing protocols. Secondly, creating systems that encourage autonomy in methodical learning and training and that are aligned to supporting the skill acquisition by the athlete. Again,

there are some very obvious areas in motor sport where this could be applied such as in developing the relationship between the driver and the engineer to build the specific skills of each in setting up cars for specific races and circuits. Thirdly, a structure for learning and training that allows flexibility to the needs and timing of the athlete. As each driver progresses through the ostensibly normative change from one formula to a more senior one, for example from karting to single seater racing or even from F4 to F3 etc, there are demands for different skills and approaches for which no formal structure of learning or training exists.

It is important to consider how these principles can be implemented throughout the development of an athlete. Varied participation, ranging from fun sporting activities and less formal competition with lower levels of stress on performance particularly with young aspiring athletes can allow for development and refinement of physical literacy skills that can be fundamentally valuable to participation and transferrable to other sports in later development (Baker, 2003; Beamer, Cote & Ericsson, 1999; Baker & Cote 2006; Ericsson, 1998 Knight, Harwood & Gould, 2017). Fundamental movement skills also underpin more specific sport/tactical skills later in the athlete's development in the sport (Beamer, Cote & Ericsson, 1999; Jess & Collins 2003; Soberlak & Cote 2003). Critically, early specialisation, where young drivers are taken from school, from as young as eight years old, to follow an intensive 'career path' of motor sport training, development, and competition, is a common occurrence. This would also appear to be far from best practice (DiFiori, Brenner, Comstock, Cote, Gullich, Hainline & Malina, 2017; Mostafavifar, Best & Myer, 2013) as it has the potential to lead to burn-out and drop out.

Reflecting the importance of a developmental focus as the key emphasis in the TDE, it is important that the focus is on skill and process improvement, rather than on purely winning. Of course, this is challenging to any system, or stakeholders, for example parents or sponsors, that seeks performance as a metric within a talent identification process or programme. However, as described in the previous paragraph a short-term focus is at odds with the practice of the goals and systems that (should) characterise an effective talent development environment (Martindale, Collins & Abraham, 2007). Instead, the TDE should encourage an environment where, for example, mistakes are seen as an opportunity for learning, promoting self-awareness and review and feedback mechanisms that enable goals to encompass developmental achievement rather than pure results. For example, in developing skills in PCDEs (Collins, MacNamara and Hill, 2017)

Contrastingly, the pursuit of early success can often lead to drop out through unnecessary pressure and stress (Crane, & Temple, 2015; Gardner, Magee & Vella, 2017; Gould, Dieffenbach & Moffett, 1982; Ommundsen, Robert, Lemyre, & Miller, 2006). In such circumstances the performer may also miss out on life experiences through excessive practice (Cote & Hay, 2002; Ericsson, 2003) and, crucially, may eventually be so focussed and rehearsed in current playing that they are ill-prepared with the necessary more advanced skills to step-up to the next level in their sporting pathway (Moore, Collins & Burwitz, 1998; Stafford 2005). In motor sport this often can cause an otherwise normative transition, for example from one formula to the next, to become a non-normative one due to trauma, for example if inexperience or, more accurately, lack of a relevant skill such as car set up or racecraft, causes mistakes which lead to accidents. There are many examples of this, for example in Formula 1 Lance Stroll in 2017 (Delaney, 2017) and Alex Albon in 2019 (Wilson, 2019).

3.2.3.3 Problems in Talent Development Practice

Given that there are problems of the nature described above and yet literature can identify better practice, suggests that there must be gaps between research and practice from core teaching (e.g. Pope, 2014) to advanced coaching (Fullagar, McCall, Impellisseri, Favero & Coutts, 2019). For practitioners to be empowered to adopt, adapt, and appropriately implement the principles from the literature there is a need for a systemised process to close any such gap. A process methodology such as the 'performance-outcome-process continuum' suggested by Collins, MacNamara and Cruickshank (2018) provides a translational map to cross the divide between research and practice. As they point out, more research on translational methodologies is needed however this logical approach sets out a structure to provide practitioners through considering performance-outcome-process. In this continuum Collins et al advocate the setting of performance goals, defining outcomes, by which they mean the factors that are critical to the successful outcomes, such as psychological or even technical skills and, finally, define the process – the mechanisms by which athletes can work to achieve the goal. This can lead to exploiting, for example, the development opportunities coming from the psychological factors such as PCDEs (MacNamara, Button & Collins, 2010a and 2010b). Although the 'POP continuum' depicts a generic approach featuring broad categories, rather than presenting a specific 'how to' methodology, the principles provide a valuable guide for practitioners. This does offer one potential solution to address the process of closing the gap at a meso level. At a macro level suggestion such as the aggregation of research into larger "messages" that may be more impactful (Gould, 2016). Another concept is to create larger specialist bodies to "translate" findings into contextualised, applied solutions (Lyle, 2018). However, at a micro level this still leaves open the question of how the practitioner or coach interacts with the

athlete at a personal level and how effective that relationship is as a conduit for disseminating the research into applied practice. In short, no matter how good the translational process is, how it is delivered to, and received by, the athlete, will play a major role in how effective it ultimately is.

In concluding, it is important that the TDE provides individualised and ongoing opportunity for development (Cote & Fraser Thomas, 2007; Durand-Bush & Salmela, 2002; Ericsson et al, 1993; MacPhail & Kirk. 2006; Russell, 2012) and that opportunity and support triangulates to the needs of the athlete at that specific point in their growth. Addressing these developmental needs of young performers requires high quality and challenging experiences as opposed to a large amount of repetitive skill training or deliberate practice (Van Aken, 2005). Indeed, and in reinforcement of the need for multi-dimensional competencies, Buekers, Borry and Rowe (2014) asserted that elite athletes originate from an optimal combination of intrinsic competences (e.g., physical, technical and psychological) and extrinsic contextual factors (e.g., training, parents) and concluded that the best talent detection programme will be useless unless selection is followed by high quality well-designed training programmes in which coaches play a crucial role. A point which resonates with Gagne's (2004) DMGT model. Without any doubt, having access to the necessary level of funding or resources is also essential in making progress along the sporting pathway in any sport (Green & Houlihan, 2005) and this truly resonates in motor sport. Again, however, any effective TDE must allow these resources and others to be aligned in addressing the long-term development needs of the individual athlete and provide learning and other interventions aligned which are effective.

3.2.4 Summary

In summarising some of the main themes from talent development research to date, there starts to emerge a structure of context against which the talent development pathway in motor sport can be framed. Broadly, this context includes features of the performer's overall journey, individual attributes of the performer (which extend beyond the acquisition and practice of specific technical skills to psychological and psychosocial qualities) and finally to a suite of characteristics which define environments which enable successful talent development. To establish where gaps in knowledge and practice in motorsport may exist against these features, it is important to understand the context of the sport, current approaches to talent development in the sport and the nature of current and future demands on the performer on their developmental journey. Firstly then, one has to understand the structure, organisation and culture of motorsport and explore some specific attributes of professional drivers and typical routes to the top. This provides a framework to audit recent developments in talent development in motor sport against current practice and research findings in other sports and thereby gain insight into how the efficient progress of young drivers may be facilitated.

3.3 Talent Development in Motor Sport: Current Approaches and Future Needs

Motorsport can broadly be described as a multi-discipline sport which breaks down into a large number of sub-categories and formulae for competition distinguished by the variables of cost, type of vehicle used, and ability of the performer. The pinnacle is largely seen as Formula One (F1) and this championship has come to define top-level motor sport ("Sporting Lives", 2014). It is a global series, run annually, in which the sporting objectives are to achieve both success for individual drivers and success for

each two-car team, also termed a manufacturer. Cars in this formula are of the single seat, open-wheel form and the annual budget for participation in F1 is the largest in the sport where top teams Mercedes and Ferrari each spend circa £325 million per season (“The cost of F1 success”, 2019). It is also the commercial pinnacle of the sport where the forces and demands of business, marketing, technology, and innovation have the strongest presence.

In terms of talent development, motor sport has, historically, been synonymous with high levels of financial investment. Even at its ‘grass roots’, motor sport has high costs of entry, meaning practice is expensive and therefore skill development, in terms of actual driving skill, often only occurs during competition. For those who have funding to progress beyond ‘grass roots’ an additional challenge is often in finding technical and tactical support in a sport which has no regulation on coaching and no structured talent or sporting development pathway. As new entrant to F1 Charles Leclerc put it “My family had some money to start my career in karting, but only until 2010, when it ran out. Then my friend Jules Bianchi introduced me to his manager Nicholas Todt, and Nicholas provided the funding for me to carry on (“Ferrari’s Next World Champion”, 2018 p 110) – two aspects, money and a wealthy investor and manager, overtly critical in reaching the top of the sport. To further highlight the context in which young drivers develop, in this section I will now explain the unique organisation of the sport, what constitutes a professional driver and how they may have found a ‘route to the top’. Finally, I will describe some examples of recently established and structured talent development programmes at a national and international level and discuss gaps in knowledge and practice which open the opportunity for further work and development within the sport itself.

3.3.1 The Unique Organisation and Culture of Motor Sport

Firstly, I wish to describe motor sport generally and then shift focus to address the parts that give it its uniqueness; namely, its governance, breadth and depth of specialisms plus other relevant aspects such as the roles and positioning of race teams, driver coaches and supporting specialists. It is important to understand this context as, in doing so, it brings into focus the vast scale of the sport and the financial and commercial pressures involved that, ultimately, rest with the performance of the driver.

3.3.1.1 Sporting Governance, Events and Disciplines

The world governing body of motor sport is the Fédération Internationale de l'Automobile (FIA). Founded in 1904 by 14 national automobile clubs, the FIA's mandate in motor sport is to promote the development of motor sport, improve safety in motor sport, as well as enact, interpret and enforce common rules applicable to the organisation and the fair and equitable running of motor sport competitions. The FIA therefore hold the exclusive right to take all decisions concerning the organisation, the direction, and the management of international motor sport ("Federation Internationale de l'Automobile", 2019). Currently the FIA has 245 member organisations which include 140 national governing bodies (countries represented by Association Sporting Nationale (ASNs), such as Motorsports UK in the UK, who govern motor sports within their respective countries. ("FIA Activity Report", 2019). These ASNs contribute to the World Motor Sport Council who delegate specific motor sport governance to 24 FIA International Sporting Commissions covering each of the variants of motor sport competition. At a global level the FIA promote 1,161 international motor sport events in 81 countries including 303 events counting towards the FIA Championships, Trophies, Challenges and Cups, 218 non-championship events and 640 events which are part of

International Series approved by the FIA. They administer thirteen annual World Championships across the different motor sporting disciplines

As an example of a typical European ASN, in Great Britain Motorsport UK manage motor sport from the 'grass roots' to international participation level. They support eleven different disciplines of motor sport with nineteen distinct British Championships. In the UK, Motorsport UK licences 121 permanent venues and, in 2016, issued permits for 4,978 competitive events with a total of 133,956 entries across all eleven disciplines ("MSA Annual Report", 2017). To compete at entry level to the sport requires only local club membership and, in 2016, there were 748 clubs registered with Motorsport UK. To compete at regional, national, and international level a graded system of licencing applies and, again in 2016, the MSA issued 30,255 competitor licences. These figures have remained relatively stable over the five years up to 2016 ("Annual Report - Motorsport UK - The beating heart of UK motorsport", 2019)

In addition, Motorsport UK runs six International events which are part of the FIA's International Sporting Programmes: these are rounds of the FIA Formula One World Championship, the FIA Formula E Championship, the FIA World Rallycross Championship, the CIK-FIA European Superkart Championship, the FIA European Rally Championship and the FIA European Drag Racing Championship. In total the gross national product or financial impact of the sum of these events and the industry infrastructure behind it, is estimated in a survey by the Motorsport Industry Association (2014) to be worth £9bn to the UK economy ("Some selected highlights from the 2013 Review of UK's Motorsport Valley Business Cluster", 2019)

In this respect and others, the Motorsport UK is a typical European ASN in terms of scale and activities. African, Middle East and Asia-Pacific ASNs have, historically, been smaller however these are growing ("2019 International Sporting Calendar", 2019)

3.3.1.2 The Predominant Types of Motor Sport and the Transferability of Technical and Tactical Skills

Figure 3.1 Categories and Types of Motor Sport

<i>Category</i>	Description	Main Championship e.g.s
<i>Circuit Racing (Racing on conventional race circuits)</i>	Formula Racing: Vehicles are single seaters and have their wheels outside the bodywork. Governed by the FIA (except IndyCar)	F1, F2, F3, F4, Formula Ford, Formula Renault, Formula Palmer Audi, IndyCar (USA) Formula E (all electric)
	Sports Car Racing: Specialised racing sports cars and variants of road-going sports and GT cars. Racing can be of long distance (up to 24hrs)	WEC, GT World Cup, Porsche Supercup, SCCA World Challenge (USA), Regional International Championships
	Saloon Car Racing: Modified production cars. Races can be short or long (30minutes to 6hours plus)	WTCC, Regional International Championships (e.g. BTCC)
<i>Rallying</i>	Modified and Road-Legal Production Cars specially built to compete in point-to-point stages on public or private roads leaving at regular intervals.	WRC, WRC2, WRC3, WRC4, ERC, Regional International Championships
<i>Karting (Racing on bespoke, scaled-down circuits)</i>	Small, single-seat, open wheel vehicles with motorcycle type engines	OK, OKJ, KZ1 and KZ2, Superkart, (International) KF2, KF3, Formula KGP, Super Cadet and Cadet (National)
<i>Other Specialist Regulated by the FIA</i>	Rallycross, Hillclimbing, Drag Racing, Cross Country, Truck Racing, Historic Motor Sport	WRX, ERX, Cross-Country Rally World Cup, Int'l Hill Climb Cup, EHCC, Euro Truck Racing Champ, Euro Drag Racing Champ
<i>Other Non-FIA Regulated</i>	Stock Car Racing, Drifting, Lawn Mower Racing, Snowmobile Racing, Tractor Pulling	

Having looked at the scale and the broad features of the sport's governance, events and types, the main specific categories of motor sport are summarised in Table 3.1 as a graphic representation of the context for the focus on performance development in the rest of this thesis.

As shown in Figure 3.1, although all of the main sporting variations follow similar complex structures drivers can move freely between types with many transferable skills. It is not my intention to consider these further individually, but to consider them as wholly similar for the purposes of sporting and talent development and as potential features in the overall development pathway.

3.3.1.3 The Relevance of Skills Transferability and Transition Levels in Motor Sport

It is common for drivers to move across race series as they seek an upward direction in the sporting pathway, it is less common for drivers to change the type of motor sport in they participate, for example from rallying to racing. Although some believe this greater diversity can bring a skills advantage there are sufficient challenges across series to provide transferrable benefits for example as four time IndyCar champion Dario Franchitti noted "a wide-ranging experience of driving multiple types of cars leaves [drivers] well-placed to quickly adapt to other series" (Malsher, 2019).

For athletes/drivers who ultimately make it to the top, either at F1 or other major FIA international series, as professional drivers there are broad and established sporting pathway demands which set loose age thresholds (See Figure 3.2).

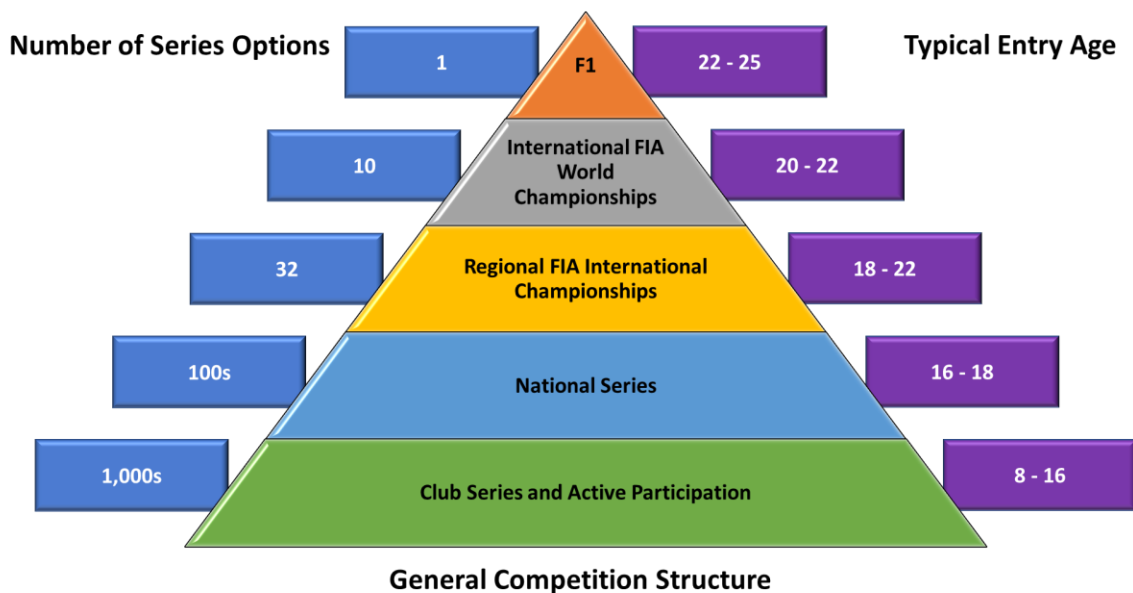


Figure 3.2 Motor Sport Sporting Development Pyramid

This is important when considering the age at which the potential future elite are transitioning between national series and international championship level. Arguably this represents the most important part of both their talent development and also their sporting development and, at this age, 17-22, individuals are experiencing high levels of psycho-social development (Petitpas, Cornelius, Van Raalte & Jones 2005) coincidentally with a potentially critical time of normative and possibly non-normative transition (Wyleman & Lavalley, 2004). In addition to stepping up in the purely technical and tactical skills that these drivers must have to deliver performance on track, they must also learn how to interact effectively with an expanding group of individuals who will impact upon their development, for example coaches, driving instructors and trainers, and also learn how to create effective relationships with others who will have short, medium and long-term influences on their ability to race effectively and their progress to elite level, for example their engineers, sponsors, family, team managers and even team-mates.

Reflecting on the transitions between levels of performance (Figure 3.2) the move up the levels in motor sport may be to some extent normative however the intensity of the change is notable. In addition to learning new driving skills, such as adapting to increases in grip, aerodynamics and power, the young driver must learn new circuits, a new engineering language and systems to include things such as variable aerodynamics and multi-facetted car set up, interpretation of increasingly complex computer data reporting performance, increase their fitness levels to cope with higher physiological demands, integrate with a larger team structure including new people and new roles such as sponsorship managers, race strategists and others, respond in new ways to commercial and marketing needs of the team and manage a lifestyle with frequent long and short haul travel. Finally, they have to integrate into a race series where the majority of the field will be established and perform under the spotlight of the world's media. In short, the scale of the change and the increase in pressure to perform compounded with the personal psychological development of the driver at this stage in life could potentially take the sum of the change to non-normative levels in the case of any individual athlete. At this time, as pointed out in the literature (Collins & MacNamara, 2012; Debois, Ledon, Argiolas & Rosnet, 2012; Fletcher & Sarker, 2012; Savage, Collins & Cruickshank, 2016) and the growth of the driver may best be served by increased levels of support from their network be that focussed on specific elements of the transition or directed towards developing the autonomy of the driver through taking charge of their own problem resolution (Alferman & Stambulova, 2007; Linley & Joseph, 2005; Savage, Collins & Cruickshank, 2017; Stambulova, Alferman, Statler & Cote, 2009; Stambulova, 2003; Taylor & Ogilvy, 1994).

From the perspective of this thesis this brings focus to the factors that impact on driver development, as enablers or constraints, and also directs thinking towards the maximisation of supporting role of the network of the driver.

3.3.1.4 The Role of Racing and Rallying Teams

In all but the lower forms of motor sport, vehicles are built, prepared, and run throughout the season by specialist commercial teams. This commercialised environment, with its focus on creating a sustainable and profitable business, tends to not provide a coherent, integrated, or holistic system in which talent can be nurtured and developed. In the pursuit of funding, designing, developing, managing, and maintaining the 'machine' for competition and the human resource required to perform there are more similarities to a business unit than perhaps a sports team. Teams in motor sport have owners and shareholders, whose objectives, rather than to just perform, are also to maintain and build a profitable business. To achieve their objectives, these owners employ a range of staff with specialist roles to perform the series of motor sport processes required to produce the final output – performance on the track. Indeed, many specialists are hired on a seasonal or even event-by-event basis and cover roles such as team manager, crew chiefs, logisticians, mechanical engineers, aerodynamicists, data and software engineers, mechanics, cooks, hospitality specialists, funding managers, driver managers, tyre and suspension specialists, electronics specialists – the list is long. These individuals are instrumental to the driver in a tactical skills deployment perspective and also as the immediate network for support in their growth and development. It is therefore important that the driver should recognise that each of these individuals has the potential to contribute in some way not only to their performance but also to their development.

3.3.1.5 Significant Other Input

Finally, it is worth considering that there are commercially available services to developing drivers which operate at a personal rather than a team level. Examples of these professional services would be sponsorship finders, who would find and broker deals between drivers and companies or private investors who might back a portfolio of drivers. Offering a broader service are driver managers who are paid to undertake all the administrative tasks the driver is confronted with. Examples of these tasks would range from overseeing and preparing race and event schedules to negotiating contracts or sourcing specialist help such as nutritionists or physiotherapists. In terms of tactical skills there are also driving coaches – usually ex-competitors or more senior or established competing drivers who supplement their driving incomes by offering coaching services. Largely driving coaches are not regulated in the same manner as say, coaching in football or yachting although recent discussions within Motorsport UK and the FIA are noting the need for this ("1st4sport Level 2 Certificate in Coaching Participation Motor Sport", 2019). In F1 and in some of the junior series and other world series such as the World Endurance Championship, it is more common for the engineers become the closest to a coach the professional driver has as noted by senior F1 engineer Ayao Komatsu; "Some drivers need a personal relationship...as an engineer you have to approach the situation with an open mind" ("Driving Instructors", 2012 p 58)

Finally, in addition to the immediate network of the driver and those whom the driver may retain there are companies who offer specialist supporting services. One main example of this is the rental of time on simulators – sophisticated computer-generated models of tracks and cars enacted on realistic car-like consoles (SIMs). These are used for a variety of training purposes from learning new tracks to perfecting new

techniques such as braking styles or to define and practice car set up variables. Specialist SIM providers also sell packages of training aligned to the benefits offered e.g. track learning or braking skills for example adding the services of other specialists, such as personal trainers who would create sport-specific physiological training routines for the driver during the SIM sessions to attempt to replicate the physical exertion of real racing by raising heart rate and inducing fatigue.

In summary, to reach and stay at the top in motor sport requires the input from many people, as four times F1 world champion Sebastian Vettel said; “In order to be able to focus and give your maximum it is important to have the right professionals around you. I’ve got a team of people working hard to help me achieve my goals and pushing me forward.” (“Reach Sustainable Results with our Performance Coaching Services”, 2019)

3.3.2. Professional drivers: Who They Tend to Be and What They Tend to Have

Moving now from the nature and features of the sport to considering professional drivers, in this section I will set out an overview of the typical professional driver, including background, motivation and generic skill sets deployed.

As described earlier, motorsport clearly requires the acquisition of the technical, tactical, physical, and mental skills needed to drive the car competitively on the track. In addition, there are a multiplicity of skills related to the cars, technical specifications and other factors that determine the pace of the car and driver on the day of qualifying or the race. These can be a function of variables like suspension set up, the influence of weather and temperature on tyre grip, that determine performance. The assimilation, interpretation and eventual outcomes of information gathered about these variables is the combined work of the driver and others in the team. As these discussions require

precise communication and efficient discussion and debate, effective interpersonal relationships are a valuable asset. There are also communication skills required for dealing with media, promoting products and brands to customers of the sponsor— both directly in person and through television and internet media. Alongside this, drivers should have a core understanding of how to interact with the corporate world of their sponsors. All of these people are impactful upon the driver’s sporting development and can be argued to require skill in navigating through on any journey to success. Put simply, against the points made earlier in the chapter these sophisticated interpersonal skills are needed to effectively manage these aspects as they are key in enabling the driver to both perform on-the-day and to progress along their development trajectory. To further explore who professional drivers tend to be and what skills they tend to have, it is important to understand the relevant landscape of the pinnacle of the sport, F1.

In F1 there are just 23 drivers competing in the series and they all bring more than just talent, determination, focus and dedication - they also bring money, in varying quantities. Consider two-time World Champion Fernando Alonso, as an example. When he moves teams, he brings with him high commercial value through personal sponsorship deals with global brands, Santander and Adidas. This makes the driver an appealing proposition to a team looking for a big-name driver. In terms of experience requirements for those much earlier in the careers, a driver in F1 must have competed in at least two years of single seater series and completed a number of testing hours driving an F1 car. However, while there are many ambitious young drivers trying to attain a drive in F1, the reality is that most, even the exceptionally talented, will not reach F1 but end up with very successful careers in other high level race and rally series due to the demand for high quality, professional drivers in the major FIA international series such as the World Endurance Championship, GT ProAm racing etc.

Given the regional and global structure of motor sport competition, the plethora of series and the broad set of sporting and non-sporting demands placed on the driver, it would certainly seem a daunting challenge to even set out a list of attributes of the typical performer and their background across that landscape. However, anecdotal evidence suggests that progression largely requires a balance of how well a driver is perceived off the track as well as on the track. As F2 driver Jordan King put it:

What you soon realise is that modern racing drivers need to be about so much more than just posting the fastest lap time...becoming a complete racing driver is vital. Being good with the media, talking to sponsors and understanding other aspects of the sport are crucial ("AUTO Asks", 2014).

In one particular example from my own experience, a current F1 driver who we trained as a young junior series driver was introduced to an F1 team principle. He said so little and engaged so poorly at an interpersonal level that it prompted the team principle to say to us afterwards: 'I just hope he is fast'. In short, implying that his interpersonal skills were a great let down and he would have to overcompensate with outstanding driving ability. Suffice to say we worked very hard with him at all levels of 'fast, fit and professional' and he is now a regular competitor in F1. This example also serves to demonstrate just how important impression management is as, while the encounter I refer to was merely minutes long, the outcome was lasting and overwhelming. As an observed characteristic, it only takes a few minutes of watching any media involving Formula 1 or World Rally to realise that consummate professional drivers know exactly what to say about their car, their team and their sponsors and craft their consistency in this very carefully. This adds considerably to their asset value to a team, a sponsor and a manufacturer. As motorsport media guru Louise Goodman put it

“No one wants a driver who just name checks their sponsors...there are subtleties in getting that across” (Simmons, 2018, p. 186).

One other feature of professional drivers is that most, if not all, will have been exposed to the use of current performance as a metric of progress in talent development. From ‘grass roots’ series, success, and crucially the ‘readiness’ to move up the sporting pathway to the next-status-up series, is invariably measured in results. Individual potential and psychological/psychosocial factors are seldom, if ever, considered and developmental process goals bear little relevance. Both are prime examples of the point made by MacNamara and Collins (2011) that talent is often oversimplified as the ability to perform as an age group ‘elite’ with little consideration generally given to the factors that contribute to the eventual attainment of elite status at a senior level. As a result, the typical routes to the top in motor sport are significantly shaped by the driver’s need to ‘win now’. Thus, drivers will seek out series where they can win rather than those where they can develop.

As noted above, typically, drivers who reach elite levels incur the most rapid and potentially trauma-filled period in their late teens, when psycho-social skills are still in development. Considering this situation from the perspective of the performer means drivers are often insufficiently mature, and without significant life experiences from which learning can be drawn, to deploy sophisticated coping strategies and, potentially, without the paid, professional support network that can aid with coping with the type of trauma they face. Traumas at this point are, in part, often due to the escalation in cost as the performer seeks to progress to more senior formulas and is unable to fund the increase as they are either funded by parental money which may run out or place significant burden on the family. The drivers at this time may be insufficiently

established or unable to present a marketable proposition of a mature personality to attract commercial investors or sponsors. Other causes of trauma can be sporting, for example a season with high numbers of crashes or incidents, typically occurring with drivers as they transition from kart racing to car racing, can lead to being dropped by a race team or tensions caused between drivers in the same team can lead to a driver suddenly being asked to leave. As motoring writer Ben Anderson puts it “two alpha pilots in the same team tend to breed destruction” (Anderson, 2019 p 6). In Hamilton’s and Loeb’s examples, the intervention of finance, expert and coaching support in their more exclusive environment presumably played a role in their pathway, providing support in advance of, and response to, anticipated challenges; as envisaged by Collins et al. (2016). In motor sport more generally, progression along a pathway of talent development may well be down to indeterminate factors such as the personality of the driver and how they can engage and mobilise those around them – for example in gaining support from a sympathetic team manager, money from their family or investors. This can also transcribe into considering how capable and developed the individual is to cope, take learning from the experience and progress.

3.3.3. Typical Routes to the Top

Although I have outlined the generic structure of motor sport in Figure 2.1 this does not fully reflect the high number of potential series and combinations of championship options that a young and upcoming driver can compete in on their sporting pathway to the top. The bewildering choice of series with some more beneficial than others, and some that are ‘dead-ends’ offering little competitive challenge or development opportunity, can itself contribute to the emergence of non-linear pathways as highlighted earlier in this chapter. Therefore, having considered the

sporting structure and the attributes and the skills needed to negotiate a route to the top I now want to explore the pathways from a sporting progression perspective.

3.3.3.1 The Sporting Pathways of Race and Rally

Even with the high number of sporting variants, as seen with the earlier table (Figure 3.2), track driven single seater racing is considered the place where young aspiring drivers place their initial ambition, no doubt inspired by the glamour and financial lure of F1. In recent years, the FIA has consolidated a number of the championships leading up to F1 to produce an F4 to F3 to F2 to F1 ascendency. This creates a broad ladder of increasing demands for features such as driver skill, technical supremacy and, critically, cash input. There are quite literally hundreds of other series that offer pathway options across the world's nations and regions; however, the FIA has worked to make a clearer, potential route to F1. Pragmatically the reality is somewhat different. The initial part of the journey, in giving young children their experience of motor racing, is done on the kart track. However, the journey becomes more confusing after karting with the options of targeting a number of series that ultimately 'feed' into F1. The route into this ladder of series can be varied, however the most popular entry to car racing from karting is initially into Formula 4 – a series run in many countries as a national championship. 'Formula Money', a trade report compiled for the business of F1, reported in 2014 that nearly 80% of the drivers had competed in Formula 3, followed by Formula Renault at nearly 60% and Formula 2 had seen under 50%.

That said, from a personal experience perspective, there has never appeared to me to be any evidence in motor sport of a particularly pre-determined 'route to the top'. Although at any given time there may be a set of options that can produce a generic strategy of 'what to do' Mark Webber had a successful, eleven year career in F1 with

nine race wins and forty-two podium finishes produced a simple pathway strategy early in his career (Figure 3.3) which he recently found in a drawer when having a clear out. Notable here is

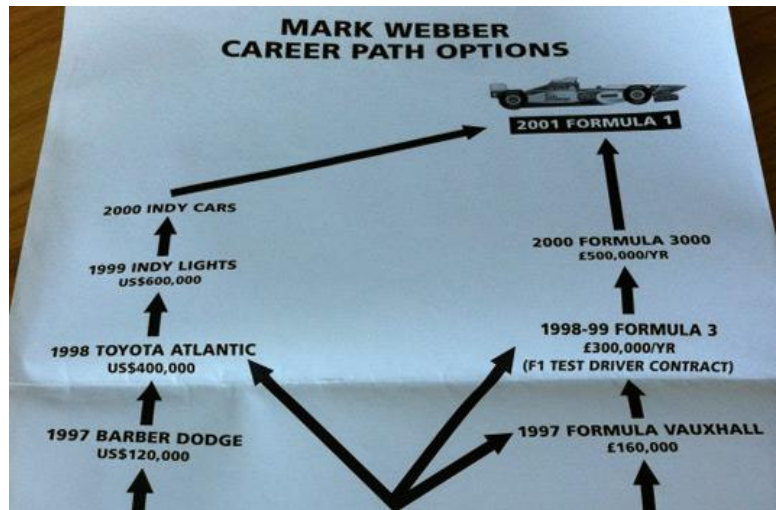


Figure 3.3 F1 Driver Mark Webber Career Plan

that, even at this early stage, to progress meant planning options for competing all over the world must be considered. Summarising in terms ‘what to do’ there are many series across many countries at vastly differing costs and demanding varying levels of skilled input from drivers – be that in the form of ‘behind the wheel’ talent or race car development and set-up skills. In terms of aligning talent development to a sporting pathway F1 World Champions such as Lewis Hamilton were preselected at an early age (circa 11 years old) and from that point were subjected to multiple progressive race series and off-track training interventions to build as complete a ‘race driver package’ as possible. By contrast, World F1 Champion Damon Hill only competed in his first F1 race at the age of 32. In World rally, multiple World Rally Champion Sebastien Loeb switched at a young age (late teens) from modest national success at French Gymnastics to rallying when his talent behind the wheel was spotted at a junior event in France. Loeb then received backing from the French ASN, went on to drive for Citroen and took seventy-nine world rally wins and nine world championships.

No doubt Hamilton, Hill and Loeb have had their fair share of challenge, disappointment and hurdles to negotiate on their pathway and mapping this would almost certainly concur with Collins and MacNamara’s (2012) postulations however

their pathways were most certainly accompanied by a comprehensive and effective support network. This would mean that the drivers could certainly learn from positive and negative experiences and grow as a consequence and, throughout, enable them to make well informed decisions.

3.3.3.2 The Significant Role of Finance

Any gravitation towards 'typical routes to the top', that might be experienced in other sports, in motor sport are massively overwhelmed by the barriers brought about by the large budgets required to enter and compete at the front end of events. The glamorous nature of the sport and its appeal to a large and affluent demographic supporter population. The F1 cumulative TV audience in 2018 was 1.76bn with almost two-thirds of the fans forty-five years old or younger ("Ratings – Motorsport Broadcasting", 2019). Social media performance is significant with 187m social engagements in 2018 compared to 46m for the FIFA World Cup and 17m for the Premier League (Nielsen, 2017). Aligning to this nearly 50% of the fan base comes from technical, management or professional occupations (Burrows, 2017). All this contributes to motor sport having long been seen as an investment area for particular types of product marketing proving an attractive global platform for Business-to-Business brands like Tata Communications, IBM and KPMG as well as more consumer-facing brands (Nielsen, 2017). Hence, corporate sponsorship and investment into the sport via teams, drivers and events is a significant feature of both participation and success given the high costs of competitive racing. With annual budgets up to many millions of pounds (sterling) the demand for a supporting infrastructure of product supply and service provision has created a diverse and complex business landscape of race and rally teams who provide the platform for competition. As noted, they are driven by success and profit and these

factors alone can have a significant impact on the development of an individual. This is often seen in the mid-cost, higher profile series, such as WEC, F3 and F2, where teams dictate costs and drivers' fees and activities based on their business objectives of profiting from the sport rather than developing winning drivers and talent for the longer term. In terms of the route into F1, the financial demands were eloquently and accurately reported by Toto Wolff, the F1 team principal for Mercedes, ("F1 is a sport where money talks - to the tune of over €8 million", 2019)

If somebody is talented, very talented, you probably need to spend €1 million in karting through junior, senior and international races," says Wolff. "You need at least a season in F4 or Formula Renault which is another €350,000 if you do it properly. You need €650,000 for an F3 season so we are at €2 million. You probably need another season of F3 so you are at €2.6 million or €2.7 million and then you haven't done any GP2 or World Series. So let's say you are at €3 million if you are an extraordinary talent. GP2 is another €1.5 million so probably, if you want to be on the safe side, you are around €4.5 million and €5 million and you have only done one year of GP2. You are on the verge of getting into Formula One but you are not in there. You need another €2 million to €3 million to get the drive. So you are talking about €7 million to €8 million.

This level of investment serves to reinforce the need for commercial investors that seek to gain long term return from the exploitation of the successful driver who may earn several millions of pounds per annum in a combination of salary and private sponsorship. More specifically, to attain long term success in this regime, the competitor must develop advanced levels of skill not only behind the wheel, with commensurate fitness, but also, critically, in the professional and commercial skills that

are essential in justifying this funding. Mainly this is done through delivering media of all types and supporting corporate activities such as product placement and other marketing tasks ("The UK Motorsport Sponsorship Database", 2019)

In short drivers must acquire the funding to attain the equipment, the time to test and modify the vehicle, and all the necessary resources to help secure and develop the right team and compete effectively. In short, the journey to the top in motor sport is complex, relies on many people and services and is thus heavily reliant upon major investment.

3.3.4 Recent Developments in Talent Development in Motor Sport

For some years there have been driver development schemes associated with the F1 race teams for example, the Red Bull Junior Team, taking drivers from 14 to 20 years old (Team, 2019). However, drivers can still pay substantial amounts of money to achieve the proverbial 'foot-in-the-door' of an F1 team for example the funding of Charles Leclerc, and others where third party investment has been needed to promote drivers into F1 (Peacock, 2018). It is recognised that drivers such as Vettel, Ricciardo, Sainz and Hamilton have come through such schemes and therefore are examples of the benefits of learning under the guidance and support of a top team's professional network. The application of this network was effectively explained by Daniel Ricciardo; "the support network works best for young drivers" (Driving Instructors, 2012 p 58). Schemes such as the Red Bull driver development scheme, however, have very limited space and obtaining a place is fiercely competitive and, quite often, dependent upon maintaining success on the track rather than achieving non-results related developmental goals. Despite being self-professed as 'the best young driving talent in the whole of motorsports' ("How the Red Bull Junior Team have nurtured future

champions since 2001", 2019) Red Bull have a policy of deliver results or be fired exemplified in this quote from 'The Telegraph' reporting on young Red Bull driver Pierre Gasly:

At Red Bull the policy is sink or swim. Gasly has drowned; in both team-mate Max Verstappen's brilliance and his own failure to get the best out of the car. His Red Bull career lasted just 12 races. In that time, he scored 63 points to Verstappen's 181, with a best finish of fourth. The most telling statistic is that he is just five points ahead of the midfield-leading McLaren of Carlos Sainz. ("As Max Verstappen reaches greater heights, Pierre Gasly's worrying performances are becoming harder to defend", 2019)

This is, of course, completely at odds with the nurturing environment that the literature suggests however it is indicative of the attitude that prevails and send the message to the lower ranks that 'this is the way to do it'.

More importantly in consideration of perhaps a more learned and accessible support system, some national governing bodies, in search of the 'next world champion', have started to promote driver development programmes – notably Australia, France, Finland, USA and the UK. The FIA also have successfully promoted a talent development scheme entitled the 'Young Driver Excellence Academy' (YDEA) which ESP were contracted to design and deliver as an exemplar of 'best practice'. To convey some detail of these current approaches in motor sport talent development it is worth now expanding on the Motorsport UK programme which targets a broader base of performers at a more emergent, national level and also on the YDEA as an elite development programme.

3.3.4.1 The Motorsport UK Academy

The Motorsport UK Academy demonstrates the approach of a typical top level ASN towards talent development. Motorsport UK have a four-tiered system of engagement and annually review the participants at each level. The tiered system starts with a base of 'Performance Master Classes' which deliver free-to-attend workshops to junior competitors and also to provide guidance for parents and are delivered in conjunction with the Youth Sports Trust. Topics include fitness, diet and nutrition, image presentation, sponsorship, and technical aspects of driving. The next level is a formal two-year sports science course, an Advanced Level Apprenticeship in Sporting Excellence, aimed at 16-19-year-olds and giving a level 3 BTEC certificate and diploma qualifications in business and in sport. It is undertaken in conjunction with Loughborough College. The higher levels comprise of a 'MSA Squad', of circa 25 drivers who are selected annually to go through a series of development activities and workshops, and 'Team UK', a group of circa 10 drivers who receive coaching and guidance from the MSA network of coaches and specialists. Team UK is a national squad of potentially elite drivers who are hand-picked to receive a bespoke one-on-one performance management programme as they progress towards the sport's top levels. It is the pinnacle of the Motorsport UK Academy talent development pathway in which drivers work with a Motorsport UK, Level Four Qualified Performance Manager who provides ongoing coaching, support, advice, and guidance. Each driver's programme is tailored to their individual needs and requirements. Following a needs analysis this programme is mapped out using a scientific based approach to talent development.

Team UK Coaches are a combination of in-house qualified professionals and expert consultants from the industry. Drivers can use the coaches personally, in groups

or as an access point to specialist support. Overall, therefore, the MSA's programme covers competition from grass roots to international levels of competition.

In terms of a broad structure for supporting from entry level to national elite this programme aligns well to the integrated framework proposed by Gulbin, Croser, Morley and Weissensteiner (2013). Their foundation, talent, elite and mastery (FTEM) model represents the four macro stages of skill development from with the content of each of the Motorsport UK Academy elements delivering against the further differentiated FTEM categories. This is apparent at all levels from the sport specific introductions in the Performance Master Classes to the coaching provided for sustaining success in Team UK. Being organised by a single governing body it also allows for the unique potential for each driver to be realised through coach intervention and it gives clarity and consistency in the messages and support between the stakeholders throughout the development process (Martindale, Collins & Daubney, 2005; Pankhurst, Collins & MacNamara, 2013). To date the Motorsport UK Academy has not produced a world champion however it has assisted drivers at up to world championship level.

3.3.4.2 The FIA Young Driver Excellence Academy (YDEA)

The FIA brief to ESP was to construct a world class development programme for the selection and development of top young drivers from around the globe. The programme ran from 2011 until 2016 and the selection events themselves were designed to provide a four-day training experience. Each of the 127-member countries of the FIA were invited to select their two most promising talented drivers, aged between 18 and 23. These drivers went forward to one of five regional selection events together with a smaller number of 'wild-cards' selected by an expert panel at the FIA. The two most promising drivers from each event progressed forward into the YDEA.

Determining factors were their performance both behind the wheel and in dealing with other professional demands such as interpersonal skills, fitness, team skills and their overall potential as judged by the selection panel.

The period of support for each of the YDEA cohorts was circa twelve months, which involved five one-week long training camps and inter-camp support and coaching. The YDEA workshops were designed to accept a broad range of skill level, fitness and commercial knowledge to reflect the disparities in generic ability levels across the global regions (by which I refer to the variances in regional levels of performance for example in Europe, where motor sport is more widely contested, the numbers and standards of performance are higher than, say, in South Africa where events are fewer and less well supported). The first workshop focussed on sports science, measuring fitness and other elements of sports physiology and psychology, the second on interpersonal factors and commercial skills, the third and fourth on behind the wheel technical and tactical skills and the final workshop was a summary with road safety as a key topic. Dedicated motorsport coaches supported the participants between workshops to further contextualise and embed the learning, facilitate development, and bring in further specialists as required (e.g., sports psychologists, nutritionists, etc.).

Since 2011 the programme has been instrumental in the career of over 50 young drivers with over 25% now competing and winning in world championship series and events. Being a programme targeted specifically at those already identified to some extent as elite it is perhaps less surprising that so many have gone on to long term success. However, there are some key points from the programme worthy of note. Firstly, at a practical level, despite having a requirement to select at least one representative from each region globally and, therefore having a large range of abilities,

by careful design and individual support, no driver was held back by the learning process of a driver with less ability. This was done through early identification of a multidimensional set of desired eventual performance targets across the range of skills required by individual. The setting of outcomes then broken down into meso and micro level processes and the tasks to deliver improvement, and finally these tasks integrated into the training schedules. In this respect the programme closely aligns to the principles suggested in the POP-continuum (Collins, MacNamara & Cruickshank, 2018). This broad attention to individual needs also encompassed the intrinsic and extrinsic competences of the drivers through covering technical, tactical and psychological skills and also the longer-term engagement of parents and support networks in the training process (Buekers, Borry & Rowe, 2014).

3.3.5 Summary

Throughout this chapter one clear message is that the multi-disciplined nature of motorsport, with its many series, championships, and regional variances, presents a bewildering array of potential sporting pathways. All of these pathways involve large amounts of money and a substantial support network to negotiate. There are aspects of motor sport which match the principles from talent development literature. Most noticeably, some of these principles are apparent in the emergence of talent development schemes such as in Motorsport UK and the FIA YDEA. However, in some areas, motor sport is ostensibly in conflict with these principles. From programmes such as the Red Bull Junior Team where focus appears solely on winning to the detriment of development to commercially biased teams who are driven by profitability and fail to create a suitable talent development environment. Instead just delivering a car to race

with the engineers to run it and no direct coaching or support structure to create a supportive environment for TID.

Relating back to the first section of this chapter, a number of important points therefore seem apparent: (a) the performer's journey to the top can be highly variable and is often chosen and structured by the performer (rather than guided by systematic programmes); (b) the skills needed to navigate this journey are varied, with a high level of interpersonal skills particularly important (to effectively engage with the number and range of individuals the performer needs to work alongside or impress); and (c) the chances for incoherence are particularly high given that performers, owners, teams, and parents can have significantly different needs, interests and motivations (e.g., the importance of develop skills for later versus the need to perform NOW). It is also significant that the technical and tactical skills required during their journey can, in general terms, be readily transferable (Barry, 2014) thus allowing this thesis to focus on the other aspects of the driver as a developing performer. Namely, one of the most notable implications for this thesis relates to the need to explore the psychological, psycho-behavioural, and psycho-social side of talent development in motor sport. More specifically, as there is no single or optimum pathway to success, what presents itself to the upcoming performer is a complex interaction of funding and talent set against a backdrop of ascending local, national and international championships using a variety of cars and technical equipment and a host of teams and specialists who all purport to offer the essential ingredients for winning. For any competitor, participation and progress thus comes with the involvement of many people. Indeed, competing teams also influence and introduce innumerable variables to success – cars, engineers, sponsors, capital equipment, tyre deals, the list is long. In short, performers need to have a range psychological, behavioural, and interpersonal skills to prepare for, negotiate, and

respond to these challenges. There are examples of good practice in some development schemes and coaching within motor sport on this matter, as indicated above, however, these only exist at a local, specialised or team specific level and no structure or standards exist to provide a coherent talent development pathway across the sport. Additionally, there is currently a dearth of empirical evidence upon which psychological, psycho-behavioural, and psycho-social interventions can be based.

3.3.6 Gaps in Knowledge and Practice: Identifying the Next Step

Following on from this it comes as no surprise that, with no formal talent development pathways in motor sport, no standardised structure for training, and no accredited coaching framework, the sport is proliferated with training delivered at a variety of levels of content, consistency and coherency unlike that proposed as good practice by Webb, Collins & Cruickshank (2016). Technical and tactical skills training is also often done by former or current drivers whose own career was curtailed by lack of ability or opportunity. Further there is no evident correlation of talent or skills development to a sporting pathway.

In addition to specific driving skills, the landscape of methodology to develop the skills associated with the psychological aspects or off-track professionalism, such as the development of PCDEs, looks even more bleak. Successful performance on track invariably comes from the complex interplay of extreme mental and physical demands (Klarica, 2001) and it has been noted that motorsport is one of the highest profile international sports with the lowest presence of sports physiology and psychology, especially for teams that play an integral role in the eventual performance (Klarica, 2001). There would appear to be little evidence that this has changed to any great degree over the last 20 years.

This raises three further implications that bear relevance to the talent development pathway. Firstly, no structure or framework exists across the whole sport to coherently develop talent and align skill levels to the ascending stages; secondly, no formal standards or metrics exist to give thresholds or benchmarks of performance development aligned to the different levels of competition; and thirdly, the specific skills-training that has evolved is predominantly subjective, based in the often singular experience of the delivering trainer or coach (i.e., often lacking an empirical base).

Taking the combination of these gaps in knowledge and practice together with the complexity of the sport and the number of 'stakeholders' encountered by the performer means that the developing driver is usually faced with disjointed (or at least sub-optimally aligned) inputs from a number of people and sources, some of which may help and some of which may hinder their career progression. This leads to a fourth gap and that is the potential for young drivers to fail simply because they are unable to extract the maximum from those around them. Put simply they do not have the psychosocial skills to develop, maintain and profit from interpersonal relationships and communication that are vital components of development. In summary, and to reinforce the objectives of this thesis, it would appear prudent to interrogate the specific experiences of young performers, and other key stakeholders, as they negotiate the development pathway in an effort to inform future system development and practice. In short, just what are the enablers and constraints of development as a young performer in motor sport?

The next phase of this thesis is, therefore, to develop a more specific understanding of these factors during a young performer's career progression and development path.

CHAPTER 4: EXPLORING THE ENABLERS AND CONSTRAINTS OF TALENT DEVELOPMENT IN MOTOR SPORT

4.1 Introduction

From the published literature reviewed in Chapter 3 it is evident that an elite athlete's journey to the top is full of potentially constraining challenges. In considering this journey to be a series of stages (Bloom, 1985; Cote, 1999; Cote & Hay, 2002; Durand-Bush & Salmela, 2002) problems can arise that can be typified by the ability to perform at one level not being transferable to the next (Bailey & Collins, 2013). Whilst the step-up from one level to the next might be considered a normative transition, non-normative transitions, for example in those events and situations summarised as creating trauma by Collins and MacNamara (2012), can constrain the athlete. It was also articulated in Chapter 3 that, within any talent development pathway, as exemplified by Gulbin et al (2013), there are features that can be introduced or constructed to greatly assist development and also help to mitigate constraining factors within the development environment (Gagne, 2004; Henriksen, Stambulova & Roessler, 2009). In the talent development environment other skills can be built that can assist in taking learning from potentially constraining events to develop more robust strategies for coping against future trauma (e.g. Collins and MacNamara, 2012). These individual attributes and skills, whether psychological, such as PCDEs, physical, tactical, or technical require bespoke development strategies and learning processes which are appropriate to the age and skill level of the performer. As noted in Chapter 3, they should also be aligned to long term development goals rather than short term winning (e.g. Abbott, Collins, Martindale & Sowerby, 2002)

As also described in Chapter 3, much of the current practice in motor sport ignores considering long-term developmental goals and concentrates instead on short-term process improvements to tactical and technical skills, which are often focussed solely on winning races to 'demonstrate talent'. Adding to the potential problem is that the translation of research into practice is, as extolled by MacNamara Cruickshank and Collins (2018) within sport generally, woefully missing in motor sport. Considering the bewildering range of optional routes to the top as noted in Chapter 3, the culture and context of motor sport presents neither a single or obvious sporting pathway nor an aligned talent development pathway and appears to leave long term success to the interplay of money, motivation and serendipity. The most recent introductions in talent development, exemplified in Motorsport UK and the FIA programme outlined in Chapter 3, have started to put an order and structure into some elements of talent development however these are early days and are relatively small, if not strategically important, initiatives. In overall terms enabling and constraining factors can appear to be addressed in an 'ad hoc' manner in many individual's programme of development and little attention is specifically given to build on the strengths of factors that act as enablers or to mitigate the constraints to long term career goals.

Following on from this it is evident, as noted in Chapter 3, that little empirical knowledge or understanding exists about the type, frequency, likelihood, or impact of enabling and constraining factors or how and when they manifest themselves to drivers. Before considering what action or actions can be taken within the talent development environment to support these young drivers it is essential to understand what these impacting factors are in order that they can be appropriately and effectively managed. The research question addressed in this study was therefore *What are the perceptions and experiences of the enabling and constraining factors impacting upon young*

developing drivers in motor sport? With the objective of identifying and understanding the enabling and constraining factors I will now set out the methodology, underpinned by the pragmatic philosophy outlined in Chapter 2, including explanation of the decisions made in the study.

4.2 Methodology

4.2.1 Overview

Given the challenges summarised in the introduction above, it was decided that exploring enabling and constraining factors in motor sport talent development would benefit from an interpretive approach and so was suited to a qualitative methodology. Following the pragmatic philosophy described in Chapter 2 a more prescriptive quantitative approach was thought could miss some of the subtleties of ascertaining perceptions and also the opportunity of delving into the thinking and the context behind perceptions to gain a meaningful understanding. Indeed, for this reason, qualitative research is a common practice in sports research, especially in sport and exercise psychology (Kay, 2016; Smith & McGannon, 2018) however the precise strategies for inquiry must be considered carefully. Individual interviews have been suggested to achieve a greater depth and detail of finding (Guest, Namey, Taylor, Eley & McKenna, 2017; Stokes & Bergin, 2006) however the potential for focus groups to quickly create a broad canvas of findings where little research or information exists (Powell & Single, 1996), was attractive.

Balanced against this the opportunity to give “better inferences based on a greater diversity of divergent views” (Teddlie & Tashakkori, 2003:pp14-15) an alternative perspective on enablers and constraints was sought in the second part of the study. Through individual interviews this second part explored the experiences and

observations of senior members of the motor sport community who had had, and continue to have, direct involvement in elite driver development. I will expand on this and other specific aspects to the design of inquiry in the following sections.

4.2.2 Study Part 1: Focus Groups

4.2.2.1 Design

Before setting out to use focus groups it is important to have considered questions such as when are focus groups appropriate to use, what type of knowledge will focus groups produce and what assumptions and practical issues are associated with using this method (Kitzinger & Barbour, 1999; Krueger & Casey, 2014; Morgan, 1997; Wilkinson, 1998). The research objective of this study seeks to identify and understand the enabling and constraining factors experienced by young, professional drivers. It is therefore not about sensitive or private issues but seeks to elicit experiences, views, and opinions. These are considered unlikely to be confidential or to cause the participants to become uncomfortable with the study – and any sign of such would cause the running of the focus group to immediately change topic or stop. Indeed, in designing the focus group process (Appendix 3) the topics considered were felt most likely to be commonly occurring amongst the participants and so focus groups appeared a suitable method. Further, through sharing experiences of any particular factor raised, using the focus group methodology can generate new thoughts and perspectives (Wimmer & Dominick, 2013) which would be valuable to the study.

In terms of choosing the number of focus groups, Guest, Namey and McKenna (2017) provide guidelines from their study of 40 focus groups. Their analysis revealed that more than 80% of all themes were discoverable within two to three focus groups, and 90% were discoverable within three to six focus groups. Three focus groups were

also found sufficient to identify all of the most prevalent themes within the data (Guest, Namey & McKenna, 2017). It would also, given each group had a sufficient number of members, that being at least 10 (Krueger & Casey, 2000), give a breadth of experience within the participants to aid achieving data saturation (Krueger & Casey, 2014; Stewart and Shamdasani, 1990; Vaughn, Schumm and Sinagub, 1996).

Further, focus groups offered the opportunity to gain access to social interaction as a tool for negotiating meaning in context (Braun, Clarke & Weate, 2016). Whereas a simple, individual answer to questions might be sought, the thoughtful stimulation of discussion with prompts and probes enabled, through subsequent analysis, the meanings within dialogue to be understood in greater depth (Bloor, 2001; Grudens-Schuck, Allen & Larson, 2004). In choosing to use focus groups two further factors were therefore considered. Firstly, the focus group methodology would enable a reflective and interactive exercise appropriate to the nature of the research. Secondly, from a practical perspective, the opportunity for creating and investigating drivers on their elite journey was provided via our work with Motorsport UK and the FIA.

In consideration of this and, in order to apply these principles consistently, a focus group guide was developed (Appendix 3). In designing the guide consideration was also given to enabling the participants to relax, open up, reflect deeply and consider their experiences as well as to enable synergies between members to create greater insight (Grudens-Schuck, Allen & Larson, 2004; Morgan & Krueger, 1998).

In considering potential limitations of this design it was felt that, given the exploratory nature of the study and the differing levels of experience and background of the focus group participants, options should be considered for evolving the study process (Braun & Clarke, 2006; Hoshman, 2005). Simply, although the study questions

would be the same, it was not fully understood at the outset whether the procedure for the focus group would be appropriate for all the groups in the study. For example, because the earlier groups would have less experience, they might have a different perspective on future goals and the potential factors that might impact on them (Henriksen & Mortensen, 2014). Thus, to mitigate this potential limitation, how insight was gained and meaning defined was a consideration of design – for example, as noted in Chapter 3, the role played by parents was likely to vary by stage on the sporting and talent development pathways and so prompts such as how parents may help or hinder were explored empathetically.

4.2.2.2 Participants

The four focus groups in Part 1 of this study came from, broadly, top national UK, top European regional/international and elite regional/international from a global cohort. As such they were at stages in their career where they were likely to have faced, or be facing, the challenges and transitions noted in Chapter 3. Specifically, with these groups, in their progression from national to international and then international to world championship level.

The first focus group came from the Motorsport UK Squad of young (17-22-year-old) national competitors, the second and third from the European FIA YDEA regional programme and the fourth the global FIA YDEA selected drivers. This represented a range of levels in sporting ability and, in talent identification terms, presented the potential elite. All had been identified by their ASN through achieving significant results in performance at National and International level thus being the best in the age range of 17 to 23 nationally, regionally, and globally.

4.2.2.2.1 Recruitment Considerations for the Focus Groups

The complex and diverse nature of motor sport, outlined in Chapter 3, creates the potential for enabling and constraining factors to be perceived differently and also to be given a different prioritisation in terms of risk and consequence, by individual drivers. Considering this from a research perspective is reflected in my recruitment choices in three ways. Firstly, the stage of competition and, or transition any given driver is currently experiencing is relevant because differing factors may apply in differing ways. Secondly, as explained in Chapter 3 the potential for difference at national and regional level around the world may introduce cultural or geographical factors. Thirdly, again as noted in Chapter 3, the fact that enabling and constraining factors can potentially occur at macro, micro and meso levels means a broad population of participants should be considered. For example at macro level a bad decision on selection of the next championship to contend can limit progression in the following year; at a meso level the management of sponsors can limit the amount of financing available to maintain a competitive car, say, during a season, and, at a micro level being unable to communicate technically with your engineer can limit performance on an event or even impact on results throughout a season. Therefore, it is important to consider the experiences and perspectives of a wide variety of young drivers at stages where they are most likely to be encountering or anticipating, or both, constraining and enabling factors.

The groups selected were starting their respective programmes at the time of the study and presented logical and appropriate groups with whom to investigate the perceptions and realities of the enabling and constraining factors these performers face at critical stages of progress along their chosen sporting pathway. Further details on each group and the participants who comprised them are now presented.

4.2.2.2.2 Focus Group 1: Motorsport UK Group (n=32).

This group consisted of 32 race and rally drivers aged between 17 and 22 years and all currently competing in British regional and national series. They had been selected for the Motorsport UK programme, by a panel of Motorsport UK selected experts, as a product of their results and considered potential for development. This was an indicator of their seriousness about the sport as a career choice rather than an expensive pastime. The needs of similarity in focus groups to facilitate quality and depth of data (Krueger and Casey 2002) were thereby met.

4.2.2.2.3 Focus Groups 2 & 3: YDEA Group 1 (n=16); YDEA Group 2 (n=12).

As mentioned above, the reasons for choosing these groups were as those in group one however with two important differences. Firstly, these individuals were further along their individual sporting pathway to the extent that they had been nominated to attend the regional FIA YDEA event by their ASN as the best/most promising talent in their age category in their country. In these groups, 23 European countries were represented by 28 participants (countries could nominate a maximum of two nominees). All were established semi-professional competitors with national and international success in their respective formulae. Most had significant commercial backing for their competitions although some were privately funded from either personal money, venture capital or other commercial funding. This represented a quantum stage of sporting development ahead of the Motorsport UK group in pathway terms as described in Chapter 3.

4.2.2.2.4 Focus Group 4: YDEA Group 3 (n=18).

The individuals in the last focus group were the most advanced in their career progression and were all competing at international level and, thus, further along their

sporting pathway than the previous groups. They were young semi-professional drivers from around the world (a minimum of two from each of five global regions) aged between 18 and 23. These elite young drivers were graduates from the FIA YDEA having attained their place as the best talents identified within their region in that age group. Numbers were added to by 'wildcards' – drivers who had been selected on a basis of talent potential and performance to date by a panel of global motor sport experts selected by the FIA. They were also a group who could be expected, through their maturity and competitive experience, to have clearer pictures of their potential futures, the route(s) to getting there and, critically, the enablers and constraining factors they had already faced or could see as pending hurdles. In short, they would have had greater experience of the stages, transitions and environmental challenges contemplated in Chapter 3.

Overall, the focus groups in this study represent a robust cross section of young and aspiring elite performers across motor sport disciplines and levels with sufficient experience to be cognisant of the factors which can help and hinder their career. Simply put, in motor sport these groups represent the best opportunity for exploring the issues in stages, transitions and the development environment from those engaged in the upper triangles of the sporting pyramid, as described in Chapter 3.

4.2.2.3 Procedure

Firstly, ethical approval had been granted from the University's ethics committee. All participants were made aware of this and the purpose of the study. They were also told that their participation was voluntary and that the information they provided would remain anonymous during the processing, write up and in any potential publication of the findings. Out of courtesy the regional ASN and the FIA Institute were

asked for permission, to conduct the studies in Part 1 with the focus groups, which was freely given.

4.2.2.3.1 Procedure for Data Collection, Focus Groups Study Part 1

Considering the procedure with the focus groups I will firstly describe the overall methods used to ensure consistency and then explain some of the small differences in procedure that evolved as the study was undertaken. At the outset of the focus groups, to ensure open and good communication and to set the tone for natural features of communication as well as focussed discussion, an introductory exercise was undertaken to help the participants to relax, open up, think deeply and consider alternatives (Patton, 2014). Approximately fifteen minutes were allocated to this exercise in which, specifically, arranged in table groups (n=4 to n=6) participants were asked to discuss, in pairs, how their vision for five years-time showed up for them. They were asked to consider what series they would be doing, in what car, with what team, where they would be performing (championships, country etc) and what would they be earning. In plenary fashion each table then recounted the highlights of this which was captured in annotated note form on flip charts at the front. Although not part of the study per se, this had the effect of aligning everyone's thoughts to their desired future state as a precursor to their consideration of the factors that might help and those that might hinder them in achieving their visions and objectives - the enabling and constraining factors. This process brought a common theme and consistency of alignment to the main research question posed to the group (Grudens-Schuck, Allen & Larson, 2004; Powell & Single, 1996). It also had the potential effect of helping those who had not conceived a 'vision' as such but were merely competing without greater objectives than the current event, series, or season. Finally, it also had the pleasurable effect of creating

synergy and rapport between the participants and, because they were able to exchange ideas about 'ambition' each from their own perspective and almost exclusively different sporting pathways through race and rally series, no conflict was witnessed. Indeed, in the following exercise sharing and discussing the differing viewpoints enriched the process (Vaughn, Schumm and Sinagub, 1996).

The first group study was undertaken in the UK as part of a one-day introductory training day for the recently nominated Motorsport UK Academy Squad. A time limit of 90 minutes was set for two reasons; firstly the thought that the attention span of the group would be reduced over a longer period thus diluting the value of the findings and also the recommendations from the literature, for example Grudens-Schuck, Allen and Larson (2004) that one and a half to two hours is the optimum length. Participants, as detailed above, had had, at the time of the focus group workshop, a short period, circa three hours, to get to know each other although many had informal friendships through connecting through motor sport series in this and previous years. This helped to break down barriers of unfamiliarity and encourage lively interaction (Powell and Single, 1996). Moving on, in addressing the research question, the method of drawing out and capturing the perceptions of enabling and constraining factors was approached in a similar way. Each individual was asked to write down the key notes on their personal objectives in terms of what they believed would 'Help' and what would 'Hinder' them in achieving their short, medium and long-term career objectives in motor sport? Each table was then given fifteen minutes to share these headlines with each other to Groups were then asked, in a plenary session, to expand on the key points from their discussions on their own and give feedback on others' notes (Grudens-Schuck, Allen & Larson, 2004; Krueger & Casey, 2000). Each key point raised was challenged with probes (Appendix 3 Focus Group Guide) and discussed where further exploration from myself, or with input

from the same or differing perspectives from any other member of the group, added value or depth (Gratton and Jones, 2004; Patton, 2002). Headline points were captured verbatim on memos made by the individuals and placed on flip charts as it was not possible with this group to record the session due to the size of venue and the ambient noise levels. Also, key notes, expansions and, in particular, non-recordable observations and notes were captured in written format by myself (Kreuger & Casey, 2000). The interpretive notes were taken personally i.e. not with the inclusion or awareness of the group in any way. As such the dynamics were more aligned to those of a traditional focus group rather than a group interview i.e. my role, and relationship with the group, was one of facilitator (Johnson, 1996; Kitzinger, 1994a). This also led to 'banter' between the participants in all groups which seemed very akin to what Kitzinger (1994a) refers to as a 'synergy' between participants whereby all those present contribute in some way to the richness of discussion.

This formed the main structure of the all the focus group sessions. Beyond that my input was to ensure the participants worked effectively together and, collectively, stayed 'on-message' and within the guide framework (Appendix 3) thus addressing the topic of enabling and constraining factors with particular focus on inviting them to be open and expansive in their explanations of the points they were making (Krueger & Casey, 2000; Patton, 2002). Finally, by observing and taking discussion in the above way I was able to interpret silence, body language, laughter, sighs etc and other non-verbal cues which led to deeper expansions on points raised (Schensul & LeCompte, 1999) and encouraged others to participate and build into new points and topics (Krueger & Casey, 2000). Further to the interaction with myself, in groups 2, 3 and 4 I enlisted the assistance of a sports coach. Their role was to primarily to help facilitate the study, taking independent observations and notes and act as a critical friend (Faulkner &

Sparkes, 1999) to review and cross check observations, meaning and emerging interpretations. This also meant that I could focus on observing the depth of emotions and thinking on discussion points, listen for ironies, contradictions and tensions and, crucially, challenge and interrogate any and all points to an appropriate depth (Grudens-Schuck, Allen and Larson, 2004). This latent content was recorded in field notes and linked to the conclusions to which it led. For example, when exploring funding and potential issues of language affecting meaning, which was sometimes humorous due to the banter between participants, the data captured verbatim from the drivers could be triangulated with the observations of my assistant and my field notes to optimise accuracy of meaning (Faulkner & Sparkes, 1999). Thus, all outputs were captured by memos made by the drivers themselves, by notes taken by myself and, where present, observations and notes taken by my coaching assistant.

4.2.2.3.2 Variances between Groups

In this section I will elaborate on elements of the procedure which evolved through the course of the four focus groups in response to slight differences in the make-up and background of each group in order to optimise the outputs and results (Schuck, Allen & Larson, 2004). It is worth now reflecting on these variations and how they might have impacted upon the consistency of approach across the focus groups.

The second and third group studies were conducted in Austria when participants were gathered for a regional FIA YDEA event. The cohort was split into two smaller focus group workshops (n=16 and n=12) to achieve a more optimal group size (Grudens-Schuck, Allen & Larsen, 2004; Krueger & Casey, 2002). This smaller number also allowed the 'warm-up' question to be handled collectively rather than as individuals and

retained the benefits of achieving a relaxed and open group where fewer had had the previous opportunity to meet prior to the workshop.

The procedure itself differed slightly in each of the stages. In the first warm-up stage the group were asked to work in twos or threes and discuss and synthesise their vision/objectives for their career in motor sport. None were competing in the same series and, being from different countries, this allowed any difficulties in expressing ideas in the English language to be broken down between themselves. In the second research-specific, stage they were asked to consider and reflect on what they would consider to be the most impactful things that could help and hinder their career in terms of achieving the visions that they had articulated. These factors were captured by the drivers on memos and expanded upon and captured in a facilitated group discussion. This, again, was beneficial because of the number of non-native English speakers present. The net effect was potentially more consolidation of ideas however there appeared to be no limitation to the enthusiasm and engagement.

One other key change with these and the final FIA YDEA group, as noted above, was the introduction of an assistant, a UK level 4 qualified, motor sport specialist sports coach to assist in prime note taking and critical expansions of points raised (Asbury, 1995; MacDonald and Bach, 1994). The interrogative, interpretive and recording principles were otherwise the same as for the previous group.

The final focus group study was undertaken in France with a cohort of FIA YDEA drivers who had been selected globally and represented the best talent/highest potential of their age group from each of the five global regions comprising of one hundred and forty-three FIA ASN member countries. These drivers, noticeably, had considerably better and more consistent use of the English language and therefore a

two-hour session was undertaken which allowed greater probing for clarification and elaboration (Patton, 2014) of points raised as enabling and constraining factors. The data collection method was, however, identical.

These factors impacted upon the process used within the session because they were at a more mature level of competition and could interact in a more sophisticated way enabling the ability to arrive at conclusions and consensus more rapidly and, from my notes, were more reflective and detailed in their input. Therefore, this workshop went directly to the study related questions in which participants were asked individually to produce a list of the what they perceived to be the most impactful factors that could potentially help and hinder their career in terms of achieving their medium to long term goals. This list was captured in personal memos and each note expanded on by the individuals in a shared conversation with the group and field notes and supporting observations made. Assistance was, again, given by an assistant qualified as a UK Level 4 sports coach.

4.2.2.5 Data Analysis

In alignment to my pragmatic approach to a subject where no previous studies existed, and knowledge was fragmented the decision was to follow an inductive content analysis process (Elo & Kyngas, 2007). In considering whether to use computer software to aid analysis the decision can be influenced by a number of factors, such as the nature of the data and the researcher's preferred philosophical approach (Morrison & Moir, 1998; Saldana, 2015). In reflecting on my own epistemological and ontological assumptions and the scale and exploratory nature of this study as a basis for this decision I concluded that a manual approach would be appropriate and, in terms of management of the quantity of data, achievable.

Data emerging from the focus groups, was subjected to an inductive content analysis (Cote, Salmela, Baria & Russell, 1993) to identify the enabling and constraining experiences young drivers in motor sport can experience. For clarity, an inductive content analysis was conducted for the combined outputs from all focus groups and data references given to the coded data units to enable traceability to the source group. This would later be used to enable the triangulation of findings with field notes taken during the focus groups.

In terms of analytical procedure, the first step in the process was to read and re-read all the points, quotes, and text in captured and transcribed form. This ensured familiarity and allowed me to gain a deeper understanding of the findings (Sandelowski, 1995). These were read in conjunction with the key notes, expansions and, in particular the non-recorded observations and notes of behaviours which were captured in written format by me in field notes (Kreuger 1994). This also provided the opportunity to find and cross link themes and personal group attributes that potentially influenced the discussion (Butler, 1996) for example any potential for negative or positive polarisation caused by the effects of group behaviour exaggerating ideas or creating unequal weighting to topics (Turner, 1991). One common example of this was the emphasis placed on sponsorship and funding where body language as well as tone of voice was noted as having an exaggerating effect. This seemed to be rooted in individual's frustration, which was shared by many, and was an emotive subject.

The next step in the inductive content analysis on the transcribed data was to divide the text into meaning units with each unit containing one item or piece of information (Tesch, 1990) producing a total of 328 raw data units. These raw data units were then transformed into higher order constructs through recursively engaging in tag

creation, category creation and organisation (Cote, Salmela, Baria & Russell, 1993). To incorporate revisions based on the emerging analysis the constant comparison method was used and conceptual memos made to capture evolving ideas (Boeije, 2002; Corbin & Strauss, 2008; Davis & Meyer, 2009; Glaser & Strauss, 1967).

4.2.3 Study Part 2: Interviews

4.2.3.1 Design

To address the potential limitation that, although competing at a global level, no focus group participant had fully completed the journey to elite as described in Chapter 3, a second part was included in the study. In this second part, interviews were held with senior professionals in the sport who held a senior role in motor sport and had had long term experience in talent development. This brought to the study a more complete and overall perspective through increasing the spectrum of participation and thus increasing the validity of study findings (Carter, Bryant-Lukosius, DiCenso, Blythe & Neville, 2014; Morse, 2009). In short, I wanted to explore, through experienced professionals in motor sport, whether there could be other factors that were missed and was the same emphasis given to those factors that were not. This also ensured that the study embraced the full range of possible factors and maximised the insight into divergent views and experiences (Powell and Single 1996) gained a greater depth of understanding with in-depth accounts of 'personal experience' (Braun, Clarke & Weate, 2016) and added a valuable method for strengthening and complicating other data through providing the opportunity to bring up observations and findings and ask interviewees to verify, refute, defend, or expand (Tracy, 2019).

Whereas in both inductive and deductive approaches focus groups have been reported to identify more categories than individual interviews and reach saturation in

fewer data collection events (Coenen, Stamm, Stucki & Cieza, 2012) interviews have been cited as generating significantly more relevant data (Hear & Hennessey, 2006). This fits well with the research question and the design of Part 2 of this study in seeking a holistic picture of enabling and constraining factors.

In terms of the data collection instrument a semi-structured interview guide was therefore created, based on the focus group guidelines, which addressed the research question and, through prompts and probes, gave greater specificity (Appendix 4). My own prior knowledge being a key contributing factor (Turner, 2010) in targeting the guide to consistently elicit responses that were deep (Dearnley, 2005; Baumbusch, 2010), unique (Krauss, Hamzah, Omar, Suandi, Ismail & Zahari, 2009), and vivid (Dearnley, 2005).

Finally, Part 2 of the study was designed to enable a degree of triangulation of the overall findings (Fusch, Fusch & Ness, 2018), add to the reliability of the study (Stavros & Westberg, 2009) and produce validating and complementary data (Teddlie & Tashakkori, 2003).

4.2.3.2 Participants

As described earlier, to add this, potentially, further triangulating detail to the perspective offered by the focus groups, experienced individuals with a relevant, long-term involvement in the sport and young driver development in the sport were sought. From my own personal contacts, three appropriately experienced and knowledgeable experts covering national to world level racing and rallying with talent development roles in each, were consequently recruited for the interviews, including:

- A current, forty-six-year-old, World Rally Championship team manager whose team had achieved two world drivers' titles, three world

manufacturers titles and been eleven times runner up in the twenty years he had been with them. Also, in that period, under his management, he had masterminded the introduction of a one-make based Junior World Rally Championship and had developed or worked with seven overall world champions and seventeen outright WRC event winners.

- A forty-eight-year-old managing director from a leading ASN responsible for talent identification and development in his country. He also had extensive experience in Touring Car racing and Formula 1 prior to his current appointment.
- A thirty-two-year-old rally and race driver who had, at one time, been chosen for development by his local ASN as a promising talent. He had competed at up to World Championship level in rallying at national level in racing but had subsequently 'retired' from competitive driving having succumbed to constraints. He now works with junior drivers as a motor sport coach for the ASN and has done so for ten years.

4.2.3.3 Procedure

As with the focus groups ethical approval had been granted from the University's ethics committee. Interviewees were made aware of this, the purpose of the study, that their participation was voluntary and that the information they provided would remain anonymous during the processing, write up and in any potential publication of the findings. A full description of the study question, including its aims and objectives, was emailed to the interviewees two weeks prior to the interviews in order that they could prepare their thoughts in advance.

A semi-structured interview guide was developed (Appendix 4) with similar questions to the focus groups and probes and prompts used for elaboration and further clarification as needed (Galletta, 2013; Turner, 2010). These interviews were all conducted on a one-to-one basis, by prior appointment with the interviewees briefed. Due to the availability and geographic location of the participants, two interviews were done by telephone.

It is worth noting that the use of the telephone as a method by which to conduct interviews has been cited as problematic in predominantly three areas. Firstly, the lack of face-to-face interaction can restrict the creation of rapport and a 'natural' encounter (Gillham, 2005). Secondly the depth of meaning conveyed can be curtailed due to the lack of visual cues (Fielding & Thomas, 2008). Thirdly there is a potential for loss in spontaneity (Sellen, 1995). In mitigating these potential issues; firstly my knowledge of and association with the individuals interviewed enabled an instant level of rapport to be reached; secondly, the potential for restrictions through not having a common understanding of the topics discussed was offset by already largely having a shared mental model of the subject and having sent out, in advance, the specific areas under question and; thirdly, the pace of the interview was controlled by me using the interview guide to avoid oversimplification of any points.

The interviews were conducted post the focus group workshops but prior to data analysis. The duration of interviews, as well as the number to be conducted, depend on the nature of the question and research strategy (Rowley, 2012; Roulston, 2010) and each was targeted to be of 30 minutes to match the availability of the individuals. The advanced briefing enabled the most efficient and effective use of the interviewees time and all interviews were recorded. As per the interview guide global questions with a

broad field of 'what do you see as enabling and constraining factors?' were initially asked to seek out what immediate answers came to mind. Thereafter factors raised were explored to delve into greater detail on the reason these came to mind. Finally prompts, such as 'what behaviours might you see as enabling or constraining?' were asked in open-ended question form to ascertain reflections on specific people and examples. Throughout, the interviews were very much a conversation (Kvale & Brinkmann, 2009) and the interviewees all said that they welcomed and enjoyed the opportunity to reflect on and talk about a topic in which they were interested.

4.2.3.4 Data Analysis

The interviews, with a mean duration of 33.7min and a SD of 3.8, were transcribed after the focus group studies. The transcriptions were read and re-read in conjunction with listening to the recordings and reviewing notes taken during the interviews. As with the focus groups this ensured a deep understanding of the findings (Sandelowski, 1995). An entirely separate inductive content analysis was conducted on the data which involved the identification and conversion of 208 raw data units into themes by creating and then grouping similar tags (Côté, Salmela, Baria, & Russell, 1993). As in the focus group analysis the constant comparison method was used to discern conceptual similarities, refine the categories, and to discover patterns (e.g. Tesch, 1990).

In line with the triangulation of methods the emerging categories were then compared to the findings from the focus groups. Given that this second part of the study aimed to explore differences and validate the findings from the focus groups, the first part of the study provided me with a set of categories, a model, against which I could test the interview findings. Whereas the use of the focus group study as a priory theory

within a qualitative methodology may seem dichotomous, the use of the findings as a model for a more deductive comparison can be epistemologically consistent with the overall approach (Ali & Birley, 1998; Hyde, 2000; Patton, 1991). The patterns and themes emerging from the data (Braun & Clarke, 2006; Tesch, 1990) were thereby compared and the commonalities and variances are expanded upon and discussed in detail in the following results and discussion sections.

4.2.4 Addressing Trustworthiness

Particularly in a field, such as motor sport, where there is little or no prior research and the aim is to put the knowledge created through research into practice it is essential that the research is recognised as familiar and understood as legitimate by researchers, practitioners, policy makers and the public (Nowell, Norris, White & Moules, 2017). Building on the philosophical approach described in Chapter 2 demonstrating trustworthiness is one way in which research can be established as worthy of attention (Lincoln & Guba, 1985) and it is important to scrutinise trustworthiness at every phase of the research process (Elo, Kaariainen, Kanste, Polkki, Utriainen & Kyngas, 2014). There is, however, some debate about the methods of achieving trustworthiness in qualitative research (Elo, Kaariainen, Kanste, Polkki, Utriainen & Kyngas, 2014; Smith & McGannon, 2017). Lincoln and Guba (1985) summed the criteria of trustworthiness into the categories of credibility, transferability, dependability, and confirmability rather than the quantitative assessment criteria of validity and reliability. Others, notably Tracy (2010), have presented a more diverse set of criteria which can be selected and used as appropriate to the research in question. Both are problematical (Smith & McGannon, 2017; Sparkes & Smith, 2009) however they can be considered viable if diligently applied and aligned to the epistemology and

ontology that underpins the work (Nowell, Norris, White & Moules, 2017; Smith & McGannon, 2017). In adopting the pragmatic approach that all criteria can be valid, the number of steps deployed in this study were maximised to establish trustworthiness.

Considering Lincoln and Guba (1985) criteria, credibility is achieved through prolonged engagement, persistent observation and triangulation of sources, investigations and methods; transferability is evident in the depth of descriptions of findings; dependability in the logical documentation of the research process and confirmability, the result of the former three, is in the demonstration of how interpretations and conclusions have been reached (Guba & Lincoln, 1989).

Moving to Tracy (2010)'s eight "Big Tent" criteria for excellent qualitative research the topic is 'worthy' by being relevant, timely and significant; 'rich rigour' is exemplified in the data collection and analysis process; 'sincerity' in the use of self-reflexive processes and bracketing of biases; 'credibility' as noted; 'resonance' through the inclusive nature of the study design enabling findings to be transferable across motor sport; 'meaningful coherence' through the connectivity between research questions, the structure of development pathways described in Chapter 3, the supporting literature and the findings; the ethical approach and methods and the 'significant contribution' through the practical nature of the methodology and results.

To demonstrate the level of rigour applied I will give more specific examples in each of the phases of the research. In the preparation and data gathering phase knowing the subject through my own experiences and involvement over many years in high level motorsport and in talent development working with drivers of all ages, assisted in building trust, respect and rapport with the drivers and others during data collection. This produced open and frank conversations however to mitigate my own

familiarity and potential distortion of the responses, I carefully observed and noted latent content such as silence, body language, joviality etc, and deliberately used my knowledge to probe rather than guide conversation (see guides Appendices 3 and 4). Additionally, member checks have been suggested to be deployed during, continuously or at the end of data collection (Guba & Lincoln, 1982) and the focus group guide included a reflective plenary session where the meaning of the individual's captured data was checked and reviewed by the group. Whereas there have been recent conclusions that member-checking gives little or no enhancement to the credibility or trustworthiness of qualitative research (Thomas, 2017), member reflections used in this manner can explore gaps and similarities in outcomes (Schink, McGannon & Smith, 2013) and ensure that the researcher is not subsequently biased by their own experiences which can subsequently influence their analysis (Kleinman, 2007). The continual use of open-ended questioning to explore the accuracy of meaning in the points raised, in focus groups and interviews, also alleviated the risk that I might impose my perception into the interpretation of any given response. Finally, the interpretation of responses had been triangulated through observations with my assistant, as a critical friend, during the focus group sessions (Faulkner and Sparkes, 1999) and the use of field notes on behaviours taken during the group sessions added a further dimension.

In considering an example during the data analysis process the data interpretation was continuously reviewed and challenged through using the constant comparison method and the keeping of conceptual memos (Davis & Meyer, 2009). This enabled the evolution of the meaning through re-evaluation and re-assertion of themes and categories and using a manual analysis potentially enhanced the trustworthiness (Davis & Meyer, 2009). Keeping conceptual memos and notes also assisted in maintaining an audit trail on the development of coding and themes and the hierarchies, and

boundaries, of concepts (Nowell, Norris, White & Moules, 2017) which aided the process of defining and naming themes. In the reporting of results the supervisors of this study also acted as critical advisors and critiqued the emerging interpretations and explanations (Faulkner & Sparkes, 1999).

4.3 Results: Part 1, Focus Groups

The analysis identified 328 raw data units which were ultimately grouped into fifteen lower order sub-themes, six higher order sub-themes and two umbrella themes as shown in Table 4.1. The table also reflects the finding that enabling and constraining factors exist on a continuum. To be specific an enabling factor, if not present becomes a constraint and a constraining factor, effectively dealt with, is potentially an enabler. In the following section sample quotes have been used to elaborate on each theme, demonstrate the depth and richness within the data and the interrelationship between the higher and lower order themes (Braun and Clarke, 2006).

Table 4.1 Part 1 Focus Groups, Enabling and Constraining Factors

Lower Order Sub-themes	Higher Order Sub-themes	Umbrella Theme
Tactical decision making (immediate and short term) (a, c,)	Making the best-informed decisions (a, b, c, d,)	Intrapersonal attributes and skills
Strategic decision making (long term) (a, b, d,)		
The need to achieve excellent results off-track (b, d,)	Developing physical and tactical skills for success (a, b, c, d,)	
The need to achieve excellent on-track results (a, b, c, d,)		
Basic skills to enter and perform competently (c, d)		
The role of preparation & application of skills (a, b, c)	Psychological skills and characteristics (a, b, c, d)	
The role of mental skills (a, b, c, d)		

Impression Management through specific behaviours (a, b, d)	Managing behaviours to achieve optimum outcomes (a, b, d)	Interpersonal attributes and skills
The need for adaptability in behaviour (a, b, d)		
The role of family members (b, d)	Utilisation of support network (a, b, c, d)	
The role of teams and team members (c, d)		
Other professional people within the driver's network (a, b, d)		
The continual demands of finding money (b, c, d)	Forging relationships to provide the money needed to achieve success (a, b, c, d)	
The demands of engaging and managing sponsors (a, b, c, d)		
External factors impacting upon funding (b, d)		
Key to Quotation Source Annotations in Results Tables:		
(a)	Group 1	Motorsport UK Focus Group
(b)	Group 2	FIA YDEA European Selection Event
(c)	Group 3	FIA YDEA European Selection Event
(d)	Group 4	FIA YDEA Global Academy

4.3.1 Intrapersonal Attributes and Skills

4.3.1.1 Making the Best-Informed Decisions

The decisions that a driver is faced with making and how they make choices in a motor sport environment exists at strategic and tactical levels, for example decisions range from the strategic choice of which series to contend next year to the tactical decision on which tyres to choose for qualifying in the next half hour. As noted at the start of the results section, as with all the factors, there is a bipolar relationship and with decision-making the right decisions are enablers and the wrong decisions become constraints. Invariably the drivers are surrounded by people who will advise them, rightly or wrongly, as noted in Chapter 3. From a perspective of *Tactical decision making*

(immediate and short term) drivers were quick to note the constraining impact on performance and results invoked from bad choices: “Wrong decisions, anything from picking the wrong tyres to picking the wrong team or series” (a) or just simply in making “bad decisions” (d, c, b) when racing on the track thus reflecting technical and tactical choices made during a season or an event.

In considering the *Strategic decision making (long term)* that a driver faces, a key enabler is receiving good advice on decision making. In its constraining form a number of drivers explained that, at a strategic level “Wrong place, wrong time – could just be doing the wrong series or missing a sponsor – maybe I just need advice?” (a) and “Team choice – I need to feel valued, I want to have the best” (d). From these two quotes two interesting factors arise. The first is that the risk and consequence of choices could both be potentially mitigated by the effective involvement of trusted inputs from others. The second is the expression of the drivers’ ‘need to feel valued’ which could be expected to come about from having a good relationship with the team and the individuals within it. These factors reinforcing the need for strong and successful interpersonal behaviours with others.

4.3.1.2 Developing Physical, Technical and Tactical Skills for Success

The factors highlighted in this category are perhaps the most related to the driver’s self-awareness of their own development and capability with the emerging themes being directly linked to the need to achieve results both on track and off track.

The need to achieve excellent results off-track was embodied in the need for commercial knowledge, marketing and presentation skills for example skills such as being able to “market yourself as a person as well as a driver and very well” (d), “ I need a brand and I need to be able to promote that – it’s what I sell” (d) and the more generic

“selling yourself” (a) which were expressed as key enablers of success. This is potentially a reflection of the commercial demands and exploitation of the sport as explored in Chapter 3 and is fuelled by the need for corporate sponsors to generate marketing content for promoting their products and services.

Considering *The need to achieve excellent on-track results* and the drivers’ on-track skills many reported that winning and top placings were still a key determinant allied to progress upwards in the sport “results” and “success” being given by many as key enablers (a), (c) and (d). Although some recognised the need for process skill development e.g. “results – but getting better at [achieving] them” (d).

Basic skills to enter and perform competently were expressed, particularly in the more advanced groups, as a more specific set of baseline skills that must be had as a bare minimum to compete effectively at whatever level for example the core skills of “fitness” (d) and “I need to be [fit and] ready to step up” (c) were cited many times. Knowledge of broader issues impacting the sport were seen as a requirement for dealing with media for example as a constraint some reported that environmental pressures were starting to bear relevance to their sponsors saying “Environmental issues are becoming a problem top sponsors who want a green agenda” (c) although racing with all electric cars, such as the all-electric Formula E, suggest ways around that.

This leads to the final sub-theme that emerged under this umbrella theme, that of the psychological skills and characteristics that the drivers must demonstrate.

4.3.1.3 Psychological Skills and Characteristics

In this section the subtheme is mainly, but not exhaustively, other related factors and topics that emerged which aligned broadly to the psychological characteristics of developing excellence discussed in Chapter 3.

There was consensus amongst drivers that demonstrated *The role of preparation & application of skills* formed enabling and, if absent, constraining factors. Specifically, commitment, goal setting, coping with pressure, focus and distraction control, imagery, planning and organisational skills and self-awareness were raised within the workshops e.g. in preparation and planning “hard work” (a) (b) was cited often and even linked back to the earlier theme of impression management “making the effort is important – and so is being seen to making an effort” (b), as was quality practice, which linked to the earlier theme of having the budget and good planning in creating it “practice – it costs money but I need it and I need to get better from it” (b) and goal setting, particularly with sponsors which, again, interlinks with earlier themes for example: “Goals I set with sponsors on getting results” (c).

The other emerging sub-theme was *The role of mental skills* such as the importance of “being mentally and physically prepared for every race” (d) and mental toughness e.g. “mental toughness – you need the will to succeed” (c) (d) and “there’s a lot of setbacks that you need to work through” (d) showing a recognition of needing to cope with non-normative challenge.

The lack of characteristics such as the above emerged, as might be expected, as constraining factors with “no commitment” (a) and “giving up [at any point in competition]” (c) seen as constraints by the junior groups however more specific examples of “getting complacent” (d), a lack of motivation “I just get fed up of not getting what I want from the team” (d), mental emotions “I need to clear my head to get the best times on the track” (d) and “Not letting my emotions effect my career in a negative way” (d) brought a more specific perspective from the more experienced drivers.

Generally, the alignment of “good attitude” (d) and being an integrated part of the team, showing commitment to the sport and those supporting you as a behaviour was seen as an important enabling factor

Again, within the framework of PCDEs, there is reference to the importance of connecting effectively and showing high levels of interpersonal and communication skills.

4.3.2. Interpersonal Attributes and Skills

In this section there are two higher order sub-themes with ostensibly similar connotations *Managing behaviours to achieve optimum outcomes* and *Forging relationships to provide the money needed to achieve success*. Before expanding on these in detail I will expand on my rationale for this and there are two reasons. Firstly, the quest for funding was, by far, articulated as both the biggest enabling factor and the biggest constraining factor. In my field notes it was the topic that brought no laughs or banter. As such, it created much deliberation and expression of fear of the constraints. Leading on from this, secondly, the drivers spoke more objectively of their relationship with sponsors in that they often viewed the relationship as a series of tasks to do rather than a person to interact with. For these reasons I have included the *Forging relationships to provide the money needed to achieve success* a separate higher order sub theme.

4.3.2.1 Managing Behaviours to Achieve Optimum Outcomes

In considering how drivers might seek to manage their behaviours in order to achieve *Impression Management through specific behaviours* there was a recognition that there was a relationship between success and getting on with many people: In considering where, when and how managing impressions become an enabling or

constraining factor is presented in the driver's interactions with others as outlined by a participant in group 1: "Being the right person – I need to be smiley and happy in front of sponsor's guests even on a day when I'm not doing well – then I need to be studying with my engineer" (a).

This was seen from another perspective as managing the impressions that the drivers' behaviour leaves with others where 'off track performance' was quoted as 'being the right person with sponsors and with press and television and media' (d).

When viewed as an enabler or a constraint, *The need for adaptability in behaviour* is perceived in order to achieve on the track goals through good communication and listening skills: "In the team or with the team sponsors – they want me to do a lot of things I don't like, like smiling and public speaking to guests when I'm racing" (b) And when working with engineers: "bad teamwork – they don't do the car right or listen to me, so I [don't] get what changes I need" (a).

Thus, there was a realisation that, as an extension of impression management within the team, behaviours included interactions with the general public and fans both by direct contact and through social media and television.

4.3.2.2 Utilisation of Support Network

There was a lot of emphasis given to the right team and the right people when referring to enabling and constraining factors and, as with the last point, advice and guidance from the support network including *The role of family members*: "support from my family and friends, financially and morally" (d). This reflects a broad range of input from family from funding to even allowing the young driver to actually go racing "They can ask me to do other things [they] might stop me from travelling and racing abroad" (d).

In considering *The role of teams and team members* in providing part of the support network reference was made to the team “a good race team [as] they can make the car right and introduce me to the right people” (d). However, some limitations were expressed: “[a] mentor and family [are important but] it’s also good to have one person that focusses just on you and watches your back” (d).

Other professional people within the driver’s network were also referred to as important enablers in terms of the specialist support they could provide at differing times for example some were referred to generically as “talking to as many professionals as possible for advice -just getting help from wherever you can” (b) or more specifically by the more developed performer group as “get some support that can help me find funding, improve fitness, mentally develop in racing” (d).

As a constraining factor the converse would appear to apply that is relationships failing such as “relationships breaking down... anyone really – but in the team it is important” (d). Thus, in mobilising and utilising the support network it appears that the interpersonal skills to connect with others in a meaningful and productive way can become a crucial enabler and mitigatory action to avoid constraints.

4.3.2.3. Forging Relationships to Provide the Money to Achieve Success

Unsurprisingly in a sport where, as outlined in Chapter 3, a route to the top in WRC will cost £3-5m and in Formula 1 substantially more, finance in various forms featured prominently in descriptions of enabling and constraining factors. In terms of first order themes emerging from the data three areas were apparent, the pressure of the continual demand for seeking money, the demands of engaging and managing sponsors and a number of other factors external to the driver which could impact upon funding.

The continual demands of finding money were seen as an ongoing challenge, either in building relationships with new, potential sponsors or developing relationships with existing sponsors. This was raised in all groups. Typical examples being: “A strong sponsor is always one you get on well with” (d), “[I need to] keep building my box of personal sponsors – I need a lot more contacts than actually ever sponsor me”(b) and “sponsorship, sponsorship, sponsorship, I need more each year as I go up in series” (b). There was also a need to be continually ‘on the lookout’ for potential sponsors: “to find sponsors I need to be more focussed and asking in the right places” (d). The demands of finding money were driven by the relationship between success and sponsorship. This was viewed by the drivers as a key hurdle to be negotiated as, to be successful they felt that they “must have the budget for the best car and [the best] team” (a) (d) with the belief that “top teams cost twice what mid running teams do” (d) and as a key enabler to achieve this they felt they had to “have enough money to get to a point where sponsors will be interested” (d).

The demands of engaging and managing sponsors were seen as: “doing the right things to get them involved” (d) and this included winning on track: “Once I am winning it is easier to get a conversation with sponsors” (d).

However, the commitment to sponsors, which drivers have to work hard at achieving and maintaining, is recounted by drivers also noted this with “off track performance” (a) being seen as important and “making sure sponsors get a full day’s work from me” (d) as noted enablers.

The discussion of finance and sponsorship brought with it a recurring fear of insufficient budget to perform or progress along a sporting pathway or running out of money during a season. This was mainly considered as a product of *External factors*

impacting upon funding. Potentially due to escalations in costs through accident repairs, mechanical failures, car development upgrades and so forth. Of course, this could also be due to bad budgeting or bad management by the team or the driver however the drivers perceived this as a real threat as a number of drivers in the fourth YDEA group in particular saw the potential for circumstances spiralling downwards based on insufficient funding: “Budget – not quite making the budget for what you want to race in” (d); “Sometimes I end up in not the top car because I have less budget” (d) and “I might lose a sponsor part way through the year because they change their mind (d)

This could also potentially be a product of financial circumstance for the sponsoring company and reflecting on the enabling factor of the relationship (above) suggests that some mitigation can sometimes be found therein.

Finally there was reference to the potential constraints of a number of other external factors beyond the control of the driver or race team such as teams being more responsive and providing a better service to drivers with more money “paid drivers – people who come in with money always get the best attention from the team” (b). Other external factors that emerged were “manufacturer support is withdrawn” (d), “the series has little coverage [television] to sell” (d).

Reflecting on the whole context of financial backing it appears as the product of the interplay of on track performance and, critically, working hard at seeking, building and maintaining relationships with sponsors. Having the funds to compete was the most talked about topic within the research.

4.3.3 Key Consistencies and Differences Across Participants

At the outset of this chapter there was a consideration that perceptions and realities of enabling and constraining factors might show up slightly differently to each

of the groups and the interviewees. However, critically, there is a consistency in the emergence of the factors which would indicate that these enabling and constraining factors appear at all levels and, indeed, from a methodological perspective, that the data has reached saturation (Krueger & Casey, 2014; Onwuegbuzie, Dickinson, Leech, & Zoran, 2009).

The small differences that appear seem to come from the experience levels of the individuals and their own encounters along their development path to date. In all areas there is consensus on the enabling and constraining themes with similar degrees of emphasis of their importance as considerations. As an example of those that were noted the less experienced performers very much view parents as an enabler through the provision of essential support and finance as typified by this quote from a driver in group b: “[Family] They need to help me by letting me follow my career. My Dad pushes a lot” (b).

Taking that point further the more experienced YDEA focus group showed evidence of a dynamic and evolving role for parents as part of a supporting group was a strong enabler: “[Having a] mentor/family –[is] also good to have one person that focusses just on you and watches your back”(d), as well as having “Support from family and friends financially and morally” (d) and “To have family support when going to compete international. They pay for my flights and hotels”

One other notable difference was in the articulation of enabling and constraining factors associated with the PCDEs. The first group stated very generic notions such as “Hard work” (group (a) once and group (b) twice) as an enabler and “not meeting goals” as a constraint. The more experienced groups articulated more detailed and sophisticated enabling constructs such as: “Being mentally and physically prepared for

every race” (d), “Mental toughness” (c) and “[being] focussed. It’s not just at the track but between races” (c). Where PCDEs, or lack of, appeared as a constraining factor the same was true with the lesser experienced group citing “No commitment” and ‘Losing motivation” (a) and the more experienced groups offering a more sophisticated explanation for example; “Lose focus – I’m not sure of what or why I’m doing things”(c), “Psychological state – lack of concentration. I don’t want to be thinking about other things in the race – like not getting on with my engineer or feeling the car is bad” (d).

In summary there is a broad consensus on the enabling and constraining factors but with slight yet understandable differences in perspectives on how these factors may specifically play out. The themes emerging as enabling were mostly mirrored as constraints, should they be ineffective or lacking, however the prominent finding from the results appears in the two umbrella themes emerging from the data. Yes, drivers must have the requisite skills to perform but they must also be cognisant of the impact of interpersonal behaviours in engaging the many and varied others who, individually and collectively, deliver the infrastructure of their success.

4.4 Results: Part 2, Interviews

The analysis identified 211 raw data units which were ultimately grouped into fourteen lower order sub-themes, six higher order sub-themes and two umbrella themes as shown in Table 4.2. As with the focus group results the table also reflects the finding that enabling and constraining factors exist on a continuum.

By way of easy reference, the interview findings can be identified as being sourced from: (i) Top National Competitor, retired early, now a sports coach, (ii) Director of ASN responsible for talent development in motor sport, and (iii) World Rally Championship winning team manager.

Table 4.2 Part 2: Interviews, Enabling and Constraining Factors

Lower Order Sub-themes	Higher Order Sub-themes	Umbrella Theme
Understand the complexity of decision making (i, ii, iii)	Effective decision-making capability (i, ii, iii)	Demonstrate developed personal competences
Seeking and using the right information when decision making (I, ii, iii)		
Understand fitness levels needed to perform (ii, iii)	Accurate self-assessment and demonstration of appropriate physical, technical and tactical skills (i, ii, iii)	
Being able to recognise own level of technical ability and limitations (i, ii, iii)		
Ability to prioritise between winning and longer-term goals in skills development (i, ii, iii)		
Having an achievement orientation (ii, iii)	Understand and demonstrate appropriate psychological skills (i, ii, iii)	
Dedication and perseverance (ii, iii)		
Self-reflection (i, ii, iii)		
Mental approach and attitude (i, ii)		
Displaying levels of maturity (i, ii, iii)		
Flexibility and adaptability in behaviours (i, ii, iii)	Demonstrate a portfolio of differing behavioural styles (i, ii, iii)	
Adeptness in inducing desirable responses in others (i, ii, iii)		
Being a team player (i, ii, iii)	Show effective working with others (i, ii, iii)	
Listening openly and sending convincing messages (i, ii, iii)		
Nurturing relationships instrumental to performance e.g. with engineers (i, ii, iii)		
Orientation to sponsors' needs (i, ii, iii)	Manage the relationship with sponsors (i, ii, iii)	
Developing empathy with sponsors (i, ii, iii)		
Organisational awareness of sponsors (i, iii)		

4.4.1 Demonstrate Developed Personal Competences

4.4.1.1 Effective Decision-Making Capability

Within the drivers' need to *Understand the complexity of decision making* the demand for good decision making in the context of the complexity of the sport was summed by the team manager as: "...we're finding more and more young people approaching us about motorsport who just don't know what way to turn. And I think that's a key factor; they don't know how to get on the first step" (iii). In considering how this can impact tactical decisions the team manager clearly expressed the complexity of bureaucracy in the sport: "It's not like football; you can't just go and turn up with a pair of boots and kick off. You need to have a lot of equipment, a lot of rules...those kind of things are not easy" (iii). Following on from this the sporting pathway was also complex with strategic decisions also coming to bear on career success:

Then if you have got the money, know what to do with it, there is no clear path...people have that very clear idea of what they think is the right way forward and that sometimes stops their careers as well. (iii)

In *Seeking and using the right information when decision making* the team manager pointed out that even seeking advice was not a guaranteed solution to making the right decision: "Once you got started then it's a question of getting sensible advice and that comes back a little bit to this –there's no step on the ladder, there's no clearly defined step to go forward. (iii)

However, the perspective of the ASN director shows how this essential enabler can turn into a constraint when young drivers sought advice from their parents:

There's a lot of delusion that they are going to be Formula 1 drivers, but I think that's more seeded in their mind by the parents, who are the people who are largely responsible for bringing young drivers into the sport (ii)

This was supported by the WRC team manager: "What stops them getting to world champions is then the very people that helped them to get started" (iii).

4.4.1.2 Accurate self-assessment and demonstration of appropriate physical, technical and tactical skills

In expanding on how a driver needs to *Understand fitness levels needed to perform* the ASN director said: "You need to have a level of fitness that enables you to maintain your performance throughout your entire event. These are the basics, the fundamental building blocks that they need to get right" (ii). The Team manager, however, was more sceptical of the understanding some drivers may have. In speaking about one of his world championship drivers:

Every morning or every day of a rally he gets up an hour before everybody else and goes for a run...there's not many drivers do that...if that's one thing we do tell them [is to get fit]...sure but how many of them actually do it. (iii)

In *Being able to recognise own level of technical ability and limitations* the reliance on technical skills alone was not perceived as sufficient by the ASN director who articulated the need for a more rounded approach to achieving elite success:

Being the best will get you ahead of the game when other people haven't yet got to the top of their game. But if it's just talent, if it's just [technical] skill that you are relying on you are only ever going to get so far because coming an elite athlete is so much more than all of that. (ii)

However, within this it was very clear that for a driver to overstate their ability would be considered negative. As stated by the ASN director: “Nobody likes a whinger or a prima-donna who thinks he has made it”. This was reinforced by the retired driver who attributed part of his failure to a recognition of his level and ability: “[I] was definitely a bit too big for my boots...people were looking it as arrogant – I was just so desperate to succeed at all costs” (i)

Within the *Ability to prioritise between winning and longer-term goals in skills development*, as noted by the retired driver, the building of skills for long term success was little evident: “Motor sport is geared entirely around short-term objectives and short—term success (i). This showed up to the ASN director when considering their driver academy and the challenge it presented to the accepted model, of winning throughout the sporting pathway, in delivering a more holistic skills development process:

There is still a feeling within the sport, not necessarily with the people who come into the academy who then maybe get their eyes opened to a different way of doing it, but the academy proposition was challenging to the accepted process by which you go through the junior motor sport in order to become an elite driver. (ii)

4.4.1.3 Understand and demonstrate appropriate psychological skills

Having an achievement orientation was viewed by the ASN director as a defining characteristic; “The people who make it to the elite: it's about the hard work, it's about the determination, it's about a mentality and a sense of...determination that this is absolutely what they want to do” (ii). The team manager, in referring to working with several world champions noted a “competitive spirit” and expanded on this as “they had

earned the right to be demanding because they were perfectionists, they wanted it to be right in order to win” (iii) noting that those who didn’t make it: “lose a bit of focus...then don’t have the killer instinct to be pushed, to be the absolute top”

Similarly a combination of *Dedication and perseverance* was summed by the team manager as a distinguishing feature of those who reached the top: “Everybody can get to 80%, a lot can get to 90%, a few can get to 95 but very few can regularly push up to 100% and I think that’s a combination of dedication and perseverance” (iii) adding:

There’s lots of drivers out there who can go very fast but haven’t the dedication or perseverance – maybe perseverance is a better word than dedication, to keep plugging at it, keep going and keep going until you get to the top. (iii)

The ASN director in reflecting on his experiences with elite drivers noted a slightly different perspective on this saying:

When you ask them the question ‘were you the best in your age group?’ I think almost 100% of the time it would be ‘No. There were people who were better than me all the time’. And then you go on to talk about what were the things – ‘how have you stuck at it? And it’s either ‘I wanted it more’ or ‘I was completely dedicated to it’ or ‘I trained harder’. (ii)

Within *Self-reflection* the retired driver emphasised the need for self-awareness and reflection saying: “For them the earlier the better they can start to understand themselves and their own ways of growing, their own personality character traits the easier it will be for them” (i). However for the ASN director there was a negative aspect to this from the perspective of young drivers encouraged by their parents at an early age saying: “I don’t see many drivers who determined for themselves at a young age

what they really want to do” (ii) and implying that more self-reflection could be personally beneficial.

Within *Mental approach and attitude* the team manager summed the enabling and constraining approaches as a combination of different characteristics stating that a mixture of on- and off-track skills, and behaviours, which had to be in evidence, for example that self-starting and showing initiative are also important: “At the end of the day they've got to be quick. That's the base...[then] they've got to show that they've got determination to be able to continue and know what they've got to do”. (iii). The ASN director said of those who make it to elite levels that: “It’s about a mentality and a sense of determination that this is absolutely what they want to do” (ii).

In consideration of *Displaying levels of maturity* the retired driver, in reflecting on his own experience reported age as important factor: “I think a lot of it today is maturity...even though you’re told things at that age as a young driver I don’t think a lot of it comes to light until later on...or for me it didn’t” (i). This point was viewed by the ASN director from a different perspective in exploring their driver academy operation and how developing a more rounded young driver was more important than just winning: “We’ve been working with drivers at a much younger age to give them the grounding that those nineteen, twenty, twenty-one year olds didn’t have when we first worked with them ten years ago” (ii)

4.4.2 Demonstrate High Levels of Social Competence

4.4.2.1 Demonstrate a portfolio of differing behavioural styles

In considering the portfolio of behavioural styles *Flexibility and adaptability in behaviours* the ASN director saw the need for adaptability as very much an enabling factor:

I think having to deal with parents or team principles or sponsors or media or mechanics, all require different handling and so if they [the drivers] don't have that ability to manage their behaviour according to the people that they are with, in order to get the most out of the person, then they've got no chance. It's not enough to say 'this is me and therefore take me as you find me'. (ii)

Pragmatically, the potential for exception to this as a constraint if the driver is an outstanding performer was highlighted by the team manager: "The ability to produce startling results does compensate for a bit of other social failings" (iii).

Moving to drivers' *adeptness in inducing desirable responses in others* appropriate behaviours were referred to by the ASN director in a commercial context whereby certain behaviours were important because 'your perception as a brand or as an entity can have a very positive or negative impact on your future career' (ii). The shortcoming of not managing impressions on others was noted by the ex-driver as 'I was a kind of marmite character rather than the driver that everyone liked' (i). This was perhaps more simply put by the ASN director as: "you also have to deal with people in different ways because they have different expectations" (ii) thereby intimating that, to achieve the driver's desired outcome from any individual may require a different behavioural approach.

4.4.2.2 Show effective working with others

In *Being a team player*, the team manager was emphatic in that drivers simply "drivers have to be part of a team" (iii). In terms of how that showed up with an example from one world championship driver he explained:

You have to be part of a team; I think that's very important. Focus on (Driver A) was fantastic, when he came to us in 2013, one of the things that immediately

ingratiated him with the team was every morning and every night he went round and thanked everybody, every day, whatever happened, he just went round and thanked everybody and in the morning he went round and shook everybody's hand, immediately it put him above his other team mates who thanked nobody. And if the two of them were on fire I'd be pretty confident who would get put out first. (iii)

Expanding on *Listening openly and sending convincing messages* the team manager felt that good listening skills were an important enabler stating: "I think the difficulty is when you've got somebody [a driver] that is very, you know, not prepared to listen to the people around them" (iii). The ASN director had a broader outlook on how listening could be used as a tool for engaging stating: "It's about getting to know people and how they react, so maybe with your mechanic it's a couple of minutes talking about football to find those points of connection that means he's listening to you". (ii)

The importance of relationships and *Nurturing relationships instrumental to performance e.g. with engineers* was voiced as being ubiquitous in motor sport by the retired driver: "There's so many different types of people in motor sport that you have to have good relationships with if you want to succeed" (i). Building on this one key point raised by the team manager addressed the issue of motivating these individuals to extract the most benefit for the driver:

So how do you motivate the people all around you that are your core team, your inner sanctum and making sure that you as an individual is at the heart of that, not in a selfish way but in a way that everything is geared around delivering performance and maximising potential (ii)

4.4.2.3 Manage the relationship with sponsors

The criticality of the relationship to sponsors and *Orientation to sponsors' needs* was summarised by the ASN director: "Every year you win you safeguard the money and the investment for the future because the success that you deliver in that one year makes people more inclined to back you the following year (iii). In understanding the sponsors needs the retired driver reflected on his experiences as:

Some sponsors are happy to write the cheque at the beginning of the season, read the press releases, get the end of season update...they didn't necessarily want any more...bigger businesses probably didn't have that much time for that kind of personal relationship whereas a lot of smaller sponsors want a lot more of a hands-on approach to meeting their needs. (i)

At the other end of the scale the team manager when speaking about a world champion driver in his team noted the effort involved in aligning to sponsors' needs: "He is in a different league with sponsors and that is simply because he works very, very hard. Very hard, he has good people around him and he works very, very hard" (iii).

From the ex-driver's perspective, the need for *Developing empathy with sponsors* and developing a relationship was also seen as key: "So forging a relationship with the people in the team who were doing the work for you. That was never as important I would say as on the other end of the spectrum are the sponsors" (i). In taking this further he reflected on his own shortcomings in that his sponsors: "Didn't feel as loved as they potentially should have. So, I think you need to make the sponsors your best friend in a way that I could have done differently" (i). The team manager summed his observations of one world championship driver's relationship with sponsors as: "They just loved him. He's one of those people that's a nice guy – he

understands...he's got that aura with sponsors...if you ask him to do something, he'll do something" (iii).

In terms of *Organisational awareness of sponsors* the ex-driver explained the need to understand the differing sponsors businesses: "Yeah – it can be very specific actually because suppliers, parts suppliers, motor-sport specific sponsors all have different needs" (i). The team manager extolled a greater level of detail giving examples such as: "A small example would be, on PR events, making sure he makes time for doing his PR activities on event...he might only spend five minutes but he'll spend five minutes every time waving to the crowds and signing autographs" (iii).

4.5. Discussion

The prime purpose of this study was to explore and evaluate perceptions and experiences of the enabling and constraining factors impacting on young drivers in motor sport. In short, to categorise what these factors are and how impactful they can be. As explained in Chapter 3 there is relevant published research that defines the nature of the talent development pathway in sport, the characteristics of individual performers and the facilitative environments. However, in contrast, there is very little research on individual development within motor sport. In this section I will compare the two perspectives explored in Parts 1 and 2 of this study firstly by way of overview and then considering specific areas.

4.5.1 Overview

In reviewing the enabling and constraining factors impacting on young drivers the study has produced two sets of clearly aligned umbrella themes. From the drivers' perspective, firstly intrapersonal factors and secondly, interpersonal factors appear as overall messages. When viewed from an external perspective intra and inter-personal

factors emerged as the need to demonstrate a developed suite of personal competences and high levels of social competence. The difference between the two studies being the specific definitions of attributes and skills articulated by the drivers and the more nuanced application of those skills as experienced and viewed by the senior professionals.

Considering intrapersonal factors it is unsurprising, given the review of the literature in Chapter 3, that creating the environment for and developing and deploying physical, psychological, technical, and tactical and skills was important and that bringing these to bear on performance and development (e.g. Bailey & Collins, 2013) was key. Perhaps more surprisingly was the prevalence and importance associated with interpersonal skills and the part that effective inter-relationships played in the processes of development and performance. In the case of sponsorship and funding these social competences became fundamental to competing in the sport. It is of note that these factors appear to exist in a continuum from enabling to constraining depending upon the degree to which they are present or absent. For example, engaging and managing sponsors is an enabling factor which if poorly done will become a constraint and if absent completely can ultimately derail. In this section I will work through the themes from the results of Part 1 of the study to compare and contrast findings to Part 2 and the literature explored in Chapter 3, including the findings against a model of talent development and, finally, consider the overall picture of the significance of relationships and interpersonal behaviour.

4.5.2 Decision-Making

Throughout the career path in motor sport, as in other sports, there are normative and non-normative transitions between stages of performance (Cote, 1999;

Henriksen & Mortensen, 2014; Wyleman & Lavalley, 2004). From the findings it was not just the transitions but making the right transition, that is the decision on series, location, and team in the next stage of sporting development, that concerned the drivers. Engaging with the specialist around them, and not solely following their parent's guidance, in the most appropriate way to seek their best advice was seen as the route to the best-informed decision at a strategic level. However, at a tactical and operational level, drivers were also concerned about the micro decisions, such as making the wrong decision on tyre selection, that might lead to poor results. This highlights even further the point raised above about focus on day to day winning rather than longer term development goals (Baker, Schorer & Wattie, 2018; Martindale, Collins & Daubney, 2005; Vaeyens, Lenoir, Williams & Philippaerts, 2008).

4.5.3 Physical, Technical and Tactical Skills

Within all the groups, and from the interviews, there appeared an almost subliminal assumption that each driver would have the physical, technical and tactical skills necessary at each stage of the development model (Cote, 1999; Wyleman & Lavalley, 2004). Only when prompted were the points of achieving, say, higher fitness levels to cope with the next level of competition car raised. However, the very immediate need to win on-track, and the associated negative effective of bad results, demonstrated that focus and targets were set on results and not development process goals. This finding contrasts with good practice identified in the literature in Chapter 3 as it does not place coherent aims across the stages of development (Martindale et al, 2007) and means that coaching, therefore, is likely to be focussed on winning and not be integrated into tactical and strategic needs (Webb, Collins & Cruickshank, 2016). Further the input of others is likely not to be aligned in a collective way across the

development environment as recommended by Pankhurst and Collins (2013) but, again, solely focussed on what it takes to win the next race. It is, perhaps, in this area that the gap between current best practice identified by research and current practice in motor sport (Collins, MacNamara & Cruickshank, 2019) is at its greatest.

4.5.4 Psychological Skills and Characteristics

By contrast to the physical, technical and tactical, there was a strong recognition of many of the mental skills and behaviours identified in the literature in Chapter 3 (Kamin, Richards & Collins, 2007; MacNamara, Holmes & Collins, 2006; MacNamara, Holmes & Collins, 2008; MacNamara, Button and Collins, 2010a) with motivation, quality practice, goal setting, coping under pressure and other being raised by all groups in Part 1 and by the interviewees in Part 2. What was more concerning was that these were brought up by all in an ad hoc fashion rather than being part of a systemised approach to developing these characteristics as skills. That is, they were recognised as needs but without a consistent mechanism or process for development. Again, reflecting a departure from practice and research (Collins, MacNamara & Cruickshank, 2019)

4.5.5 Managing Behaviours

Generally the consideration of social and interpersonal skills as underpinning factors of developing excellence was recognised in the field of music (MacNamara, Holmes & Collins, 2006) and also that social and interpersonal skills can be particularly valuable in smoothing the transition of entry into professional music (MacNamara, Holmes and Collins, 2008). The reach of consideration of how social and interpersonal skills play a part in motor sport seems to play a much more diverse and complex role than potentially in other sports where it is often considered from a simple perspective of communication (e.g. Turman, 2017) although it is more implicit in the later PCDEQ2

within 'seeking and using social support' (Hill, MacNamara & Collins, 2019). However, more specifically, the results in this section covered a range of interpersonal skills including the ability to manage impressions with engineers, media and teams and being able to adapt behaviours to suit situations and people ranging from television journalists to event stewards and even ad hoc and impromptu meetings with significant team owners who can judge the driver in a few short moments of interaction as noted by specific example in Chapter 3. From the perspective of the professionals in part two a need to access and use a variety of behavioural styles was required to optimise successful relationships. The concept of emotional intelligence (EI) (Goleman, 1995) or emotional competence (EC) (Brasseur, Gregoire, Bourdu & Mikolajczak, 2013) offers some insight into the emotional rather than behavioural responses and there is some debate as to whether EI is a cardinal trait or a knowledge or ability that can be trained (Laborde, Dosseville & Allen, 2015). In the case of the drivers' interactions with others EI may play a governing part however the managing behaviours to optimise outcomes displayed an array of social and personal skills. What was clear was that managing impressions was a deliberate act by the driver and that the impressions being managed could be different depending on whether the other party was their engineer, team manager or even a parent.

4.5.6 Working with Others

Drivers were very aware of the number of supporting people around them however they also realised that surrounding themselves with the best people also meant that they had to get the best out of them. This occurred not just in day to day exchanges, as might be contemplated in the PCDEQ2 as 'seeking and using social support' (Hill, MacNamara & Collins, 2019) but also in making sure that the team, their

sponsors and others in their personal network supported them through non-normative transitions and, potentially, trauma (Collins & MacNamara, 2012, Savage, Collins & Cruickshank, 2017). In this respect drivers saw trauma as being anything from accidents, crashes and injury to bad team selection and not having the equipment to win. Again, reflecting the focus on results rather than long term goals (e.g. Baker, Schorer & Wattie, 2018). The drivers also recognised the changing role and nature of involvement from individuals such as parents as they progressed thus aligning to the earlier PCDE work of MacNamara, Button and Collins (2010b) who noted the stage related differences in PCDEs. Part 2 of the study showed a nuanced version of similar factors with teamwork and skills in working effectively with others being described as important enablers.

4.5.7 Relationship with Sponsors

Finally, drivers were very aware of the fact that they had to perform not only on the track to keep sponsors happy but also in the commercial world of the hospitality guest and advertising and promotion through motor sport. This aligns to the world of professional musicians referred to by MacNamara, Holmes and Collins (2006 & 2008) however the long-term commercialisation of professional motor sport as outlined in Chapter 3 makes this an overwhelming factor. Monetary incentives and money as a motivating factor for athletes have been the subject of research (e.g. Maier, Woratschek, Strober & Popp, 2016) as has the commercialisation of athletes (e.g. Orłowski, Herter & Wicker, 2017) however this is from the perspective of reward from competition rather than the basics of competing in it. The forging of relationships with sponsors therefore takes on a different dimension of interpersonal behaviours and skills, and the sheer ability to engage, entertain and enthuse sponsors and their customers was unanimously perceived as a vital behavioural skill throughout this study. The

professionals in part two demonstrated a more subtle and detailed understanding of how to work with sponsors expressing how to manage the relationships with them.

4.5.8 Overall Comparison to Models of Talent Development

Beyond comparing and contrasting the themes from this study against prior literature, it is also useful to consider the overall picture against models of talent development. Firstly, many overlaps can be seen with talent development models (e.g. Bloom, 1985; Durand-Bush & Salmela, 2002; Ericsson et al., 1993; Gagne, 2004; Henriksen, 2017; Stafford, 2005). In reflecting on the results as a snapshot of where these drivers are in their talent development process there is much evidence of the types of catalyst Gagne (2004) refers to as helping or hindering the developmental process such as intrapersonal catalysts like personal traits and self-management, environmental catalysts arising from the psychological influences of others, in this case mainly parents, teams and sponsors and potentially some elements of Gagne's third catalyst, chance.

Dwelling first on the catalyst of chance, and the "accident of birth" as referred to by Gagne as "Few human phenomena are more dependent on chance than the specific mix of genes resulting from the random meeting of a particular ovum and one among millions of spermatozoids" (Gagne, 2004, p108). In this context being born into a wealthy family creates the opportunity to drive in motor sport through both using family wealth and the potential that the social and professional network of a wealthy family bring to obtaining contacts who can be convinced to fund careers through commercial sponsorship or investment. Chance, of course, can manifest in many other ways, however there is much that can be done in preparing a driver for encountering any of the enabling and constraining factors that impacts upon the driver as noted in Chapter

3 (Alferman & Stambulova, 2007; Collins & MacNamara, 2012; Savage, Collins & Cruickshank, 2017; Stambulova, Alferman, Statler & Cote, 2009). Typical examples here might be drivers being ready for 'the next step up' as an enabling factor – specifically being at the right level of fitness, motivation, and self-management to be able to respond when the opportunity arose. An example of mitigation against a chance constraint might be increasing effort with sponsors to overachieve on funding to hold a surplus in budget to prevent accidents or otherwise unforeseen costs becoming a derailer.

Considering Gagne's (2004) environmental catalysts there is much in the results that aligns with inputs to the driver from significant others around them in their personal network especially with the role of parents and family in doing many things from giving moral support through to organising flights and hotels and, in some cases, fully funding their participation in the sport. Gagne's provisions category, in particular the interventions that lead to learning and development of skills are more implicitly than explicitly represented for example in 'being ready' to step up to the next series along a sporting development pathway.

Comparing Gagne's (2004) intrapersonal catalysts i.e. the traits and goal management of the individual drivers demonstrated that the physical characteristics required for a driver were accepted by the drivers as a must-have basic requirement for competing however the mental characteristics could be an enabler or, more likely if not managed, a constraining factor particularly with the more senior drivers where control of temperament, personality and resilience were all noted as factors impacting on success. In terms of goal management motivation was very apparent, as one might expect from the calibre of the individuals in the study groups and what they had already

achieved however levels of awareness of themselves and others and their autonomy as performers was not greatly evidenced. For example, their consideration of enabling and constraining factors was often about process achievement rather than behavioural sophistication and the impression given was that they lacked awareness of how to best exploit their relationships to maximise the contribution they brought to their development.

From the results we can also see evidence of much that correlates to the literature describing the rocky road (Collins & MacNamara, 2012; Collins, MacNamara & McCarthy, 2016a & 2016b). For example, constraints can be seen in downturns where drivers can suddenly be left without funding to compete or select the wrong team and upturns where funding is secured, and the right decisions made on team and car selection. This is an attribute of motor sport which takes on a greater significance in larger teams and is potentially related to the sport's commercialism and appetite for technical supremacy. Teams are large, up to hundreds of people, and therefore interpersonal skills, relationships and a sophisticated awareness and ability to adapt and connect with those impacting on the driver's future, can breakdown outside the control or influence of the driver leaving the driver derailed. All the driver can do is seek to make his best influence on everyone to ensure that does not happen and to be prepared with alternative strategies if it does.

In a similar vein, the findings from the study also highlight the non-linearity of the journey these young drivers are taking akin to that proposed by Gulbin, Weissensteiner, Oldenziel and Gagne (2013). Even at this young age they have experienced, or are expecting to experience, varying rates of progression whether determined by availability of funding or pathway decisions.

4.6 The Significance of Relationships and Interpersonal Behaviour

4.6.1 Emergence of Interpersonal Factors Throughout the Results

The fact that this research has shown an almost ubiquitous and profound dependency on interpersonal relationships to achieve success from the driver's perspective means that relationships with all those in the driver's network, the parent, the engineer, the team manager, the coach, the team mate, the sponsor, need to be optimised for direct (i.e. on track) and indirect (i.e. off-track) contributions. Only in this way can the driver fully exploit the development opportunity the knowledge, experience, and contributions of this input at the appropriate time. (i.e. what to do, how to determine what to do and how that relates to improvements in performance). The driver must ask themselves 'to what extent am I getting what I need and what I want, if not, how can I modify my behaviours to get it and, in doing so, determine whether they have the right people around them giving the right support at the right time.

4.6.2 'Real life' Support / Practical Examples of the Importance of Interpersonal Factors

In considering factors such as the need to deliver performance and results on the track, there is an underpinning demand for a good relationship between the driver and their engineer. As noted in Chapter 1 the engineer is considered a major force in delivering the results on track however engineers cannot work in isolation from the driver and effective interpersonal relationships will ensure good high-quality communication between them. Also, the backing and support of parents in the developmental years must be managed with good interpersonal skills as the driver transitions to externally funded professional driving – as noted by the ASN director parents can create a significant constraint.

The implications of money in achieving success demand finding synergies between commercial needs and the exploitation of marketing benefits that a driver or team can give. Personal relationships are reported to play a significant part in finding and keeping a sponsor and, given the critical nature of finance found within this study, the ability to have an awareness of one's own behaviours and adapt them to maximise sponsor relationships, would be a valuable tool in the driver's toolkit.

In conclusion developing the ability to build on the enabling and mitigate the constraining factors emerging from the two umbrella themes requires, in the first instance, a degree of self-awareness, creating the basis from which to develop either through self-reflection or self-disclosure (i.e. finding out through learning interventions of any type), or through responding to feedback from others around them created through critical observation (Horine, 2013; Luft & Ingram, 1955). This can, and will, apply throughout the support mechanisms for drivers and teams. The potential impact of getting the interpersonal side correct can range from the marginal gain of a fraction of a second per lap to the tipping of a sponsor into providing career enabling funding.

4.7 Summary and Next Steps

Starting with an outline of the context and focus of the thesis, Chapter 1 explained the objectives of the thesis and the research questions. Chapter 2 thereafter provided a rationale for adopting a pragmatic research philosophy. Chapter 3 then set out an overview of the features of talent development and the interplay of an individual's attributes and skills together with a description of the literature concerning facilitative environments and programmes. Against this Chapter 3 went on to describe how talent development is approached in motor sport and described the unique organisation and culture of the sport and how professional drivers have found their

route to the top. This exposed some gaps between knowledge and practice and, in particular, questioned what developmental support might exist to facilitate young drivers taking full advantage of factors that may help, and mitigate against those that may hinder, their progress.

In this chapter I then took the first and important step of identifying and exploring what these enabling and constraining factors are through using focus groups with young drivers and interviews with senior motor sport professionals. The drivers were at an appropriate stage in their development and part one of the study explored their experiences and perceptions through four focus groups. The findings were supplemented by triangulating interviews with senior and appropriately skilled professionals from the sport. The findings have demonstrated that interpersonal relationships play a critical and substantial role in developing through the stages and effectively managing the transitions, both normative and nonnormative, and trauma encountered in young talent development to elite performance in motor sport. The commercial nature of motor sport and, in particular, its hunger for money demands young drivers learn how to develop strong relationships with many people in both sporting and business contexts and therefore this dependence upon interpersonal behavioural skills applies in many routine circumstances.

As these young drivers are still very much developing their psychosocial skills (e.g. Greenberger, 1984) it would appear logical to support their development with learning that includes psychosocial skills such as developing a sophistication in interpersonal relationships. This would be an additional development consideration that would build on the psychological skills, such as the PCDEs (Hill, MacNamara & Collins, 2019) and focus on the relationships with those around them. In doing so it would seek

to enable the driver to exploit their relationships to a greater extent, gain more from their support network and build on enabling and mitigate the constraining factors identified in this chapter.

In Chapter 5 I will explore the use of a behavioural model and psychometric tool, reported to be used extensively and successfully in business teams and in some sporting environments. It is a tool that has been designed to develop interpersonal skills and build sophistication in relationships that leads to increases in the effectiveness of relationships. At ESP we have used Discovery with a number of groups and individuals and, anecdotally, have found it to be useful without embarking on understanding why this might be so. In the following chapter I will review the ways in which it may hold potential for use in talent development in motor sport in the context of the findings of this study.

CHAPTER 5: INSIGHTS DISCOVERY, A TOOL TO SUPPORT INTERPERSONAL SOPHISTICATION

5.1 Introduction

In reviewing the literature on talent development knowledge in Chapter 3 and, thereafter, going on to look at the current approaches and future needs of motor sport, gaps were found between knowledge and practice. More specifically it was identified that drivers need to have a range of psychological, behavioural and interpersonal skills to deal with the challenges of developing in motor sport and that current training practice and coaching tends to focus on short term goals such as winning and results rather than longer term skills development. This was unsurprising as little research was found to have been carried out in motor sport training and development which, as outlined in Chapter 3, has often been ad hoc and unregulated. With any problem the initial and critical first step towards a solution requires the problem to be defined and Chapter 3 explored the enabling and constraining factors impacting upon young aspiring elite drivers in motor sport. Through qualitative research it emerged that interpersonal relationships play a significant part in many of the enabling features and mitigating the constraints in a drivers' route to the top. This was evident from micro to macro levels, from direct one-to-one relationships at trackside for example, between drivers and their engineers, who have direct impact on their performance, to long term relationships with career funding sponsors and even drivers' relationships with their parents. Each relationship potentially demanding different communication styles and psychosocial behaviours.

This leads on to the consideration that an intervention or tool that can assist in supporting the development of interpersonal sophistication, through creating

awareness and understanding of the impact of effective and ineffective behaviours in personal interactions, would be a valuable aid. The theoretical rationale is that the young age of these drivers means that, as noted In Chapter 3, they are still developing psychosocial skills and learning in this field would be a beneficial 'life-skill'. From the practical perspective the rationale is that these young drivers need to exploit the relationships in their network to ensure that they are equipped to build on the enabling and mitigate against the constraining factors identified in Chapter 4.

One such potential tool, used predominantly in business, has been developed by The Insights Group in Scotland. Their core product, Discovery, offers a framework for self-understanding and personal development and has been used by over four million people globally ("Our global offices, delivering a global reach - Insights", 2019). Discovery has received acclaim in the business community as a tool for developing personal effectiveness and has had recent use in other sports. Discovery, ostensibly, therefore has the potential to provide a platform or tool for developing interpersonal skills that could help drivers counter the constraints and build on the enablers identified in Chapter 4.

As noted in Chapter 1 and, again from the ontological perspective outlined in Chapter 2, my own belief is that behavioural development is a critical enabler of change and development. Indeed, this was instrumental in ESP choosing to use Discovery within driver development programmes. Thus, the purpose of this chapter is therefore, as a precursor to addressing the research question *What are the ways in which the use of Discovery might impact upon the development of young elite drivers both on and off the track?*, is to critically understand where Discovery has come from and what it offers to practitioners and to performers in motor sport. For example, to consider any potential

that exists in applying the Discovery methodology to address the enabling and constraining factors identified in Chapter 4. In doing so this chapter will investigate details on its origins, psychometric properties, and development. Specifically, I will firstly describe what the Discovery model is, where it comes from, what it produces and what it offers. I will then report some recent applications in elite sport consider and reflect on the considerations and limitations of the model, what it can and what it cannot do. Finally, I will appraise its application in a motor sport context and explore what can be done next and why.

5.2 Insights Discovery: Where it has Come From and What it Offers

In my role as a consultant working with senior level teams in business and motor sport I was originally drawn to Discovery through its promise and potential for replacing a number of other tools and constructed models, such as the MBTI system, Strength Deployment Inventory (Porter & Maloney, 1977), Organisational Culture Types (Handy, 1999) etc, with one single system with multiple applications. As a consultant using a multitude of disparate models often leads to confusion when working with individuals and groups. A single system, therefore, holds great attraction because of the savings in time and effort it could generate during the consulting process. My eye, as that of the practitioner, was attracted to this possible increase in efficiency however the challenge was to determine its efficacy. After a year of developing understanding of its provenance and how, exactly, it might replace the miscellany of constructs I was using and achieve this objective of greater efficiency and efficacy, I undertook the training to become an accredited practitioner of Discovery. I have, during the period of this doctoral programme, delivered over five hundred Discovery profiles and used the model with teams from boardrooms to pitlanes, with chairmen and entrepreneurs and with race team managers and drivers. This immersive experience has given me a depth of

knowledge about the product and exposed me to the very practical, and some theoretical, challenges it can face in delivery. These have come from the micro level of working with one individual to the over-arching issues that can arise when working with groups. The findings in Chapter 4 that strong interpersonal effectiveness can assist so many impactful relationships in young drivers' careers led to the decision that Discovery could be a useful tool to use in training and development support programmes. However, in line with the strategy at ESP to use practice that is grounded in knowledge, meant careful and thorough consideration must first be given.

5.2.1 Background to Insights

The Insights Group Limited was founded as Insights Learning & Development in June 1993 by father and son, Andi and Andrew Lothian in Dundee, Scotland. Andi Lothian, a successful entrepreneur, had developed a deep interest in the works of Carl Jung and wanted to create a method by which his belief in Jung's work could be converted into a merchantable product. Andi Lothian believed that an understanding of Jung's principles of behavioural psychology could help to improve people's performance, particularly in business, where personal interactions were pivotal. The core product, 'Discovery', was developed in collaboration with Jeff Davis at the University of Westminster in 1998 and, several versions later, is available in thirty languages in over fifty countries. As a business Insights' growth to its last reported turnover, in 2018, of over £53.5m has been largely due to the success in the business world of this Discovery model supported by expansion of materials and resources. These resources cover a range of topics pertinent to the application of Discovery in areas such as team effectiveness, transformational leadership and other product extensions

and used as tools in consulting practice. In total it provides a holistic system for consultants and practitioners.

In developing the Discovery system for use in business Insights have also created a number of stand-alone and integrated constructs and learning resources to meet the needs of the corporate environment. These resources use the basic system identified in the Discovery model and applies it to sets of situational needs to form relevant content and processes for working with individuals and groups. For example, in defining team culture the use of Discovery becomes a lens through which meaning can be given to various situations and characteristics of team culture. Discovery thus presents a framework for understanding which can help development.

5.2.2 Underpinning Goals

Discovery is a framework model based on the principles of developing an understanding of self and others and exploring a number of potential improvements in interpersonal relationships, interactions and communications that can be thus derived.

In basic format it looks at the behavioural characteristics that underpin an individual's ability to connect with others and considers and offers alternative interpersonal strategies for adapting behaviours and attitudinal functions. The desired outcome is to adapt and connect around a common behavioural model and a common shared language in order to perform collective work tasks more effectively. In this respect it would appear to meet the needs of providing a system for developing interpersonal sophistication identified in Chapter 4.

The Discovery model is derived from the work of Carl Jung and Jolande Jacobi (Jung & Jacobi, 1942). Consistent with Jung's work Discovery utilises the construct of personality consisting of both conscious and unconscious structures and that individuals

differ in the way they orientate themselves to the world, absorb and perceive information and make decisions. This being the cumulative interaction of four mental processes (thinking, feeling, sensing and intuition) and two personality attitudes (introversion and extraversion).

Although Jung was categorised in his era as a psychiatrist and psychoanalyst the modern meaning attached to these words are perhaps more generally accepted to be aligned to medical practice. In the context of this thesis I am only considering Jung's observations and theory on behaviours as foundations for the Discovery model from which practical meaning and tangible outcomes can arise. Jung's typology for understanding human cognition, interpretation and behaviour was not intended to produce an absolute description of personality type or category but to suggest that an understanding of typology may act as an indicator of preferred behaviour and perception (Beauchamp, MacLachlan & Lothian, 2005). The Discovery model does not seek to suggest any suite of 'optimal' behaviour for any given role or type but does seek to create a platform of understanding whereby communication behaviours and styles can be adapted for individual and group benefit. (*Insights Discovery Technical Manual Supplement*, 2019).

Over the past decade, the work of Carl Jung has attracted increasing interest as people seek to improve interpersonal dynamics in both personal and professional domains. The research conducted by Insights themselves in the development and application of the Discovery system appears to demonstrate that Jung's original typology theory together with Insights' ongoing research to enhance it, has both strong psychological foundations and delivers a modern more 'scientific' application. On this

basis it is worthy of further investigation in terms of what Discovery may offer to the young developing driver.

5.2.3 Suitable Theoretical Base

Since Jung's death in 1961 analytical psychology has advanced significantly. It is in following on from this that the question moves to the suitability of Jung's seminal work as an appropriate scientific base. Jung held that his work was scientific in that he had discovered an objective field of enquiry (Fordham, 2018) however since then modern personality psychology has moved away from theories of human nature to focus mainly on individual differences (Larsen & Buss, 2010; Buss & Penke, 2015). This more modern approach has presented a large amount of cross-cultural evidence that demonstrates that individuals differ on at least five major dimensions of personality. This is typified by the 'Big Five Factor' model of extraversion, agreeableness, conscientiousness, emotional stability, and openness (John, Nauman & Soto, 2008; McCrae, Costa, Ostendorf, Angleitner, Hreickova, Avia & Saunders, 2000). This taxonomy of personality traits in the five-factor model is, of course, based on the associations held in language and the meanings of words and not on neuropsychological experiments, much like Discovery, and thus is reliant upon interpretations. Moreover, individuals differ in intelligence, cognitive abilities, attitudes, world views and other characteristics which can contribute to personality differences (Buss & Penke, 2015). The challenge of any trait based taxonomy of personality is therefore to understand the trade-off between the simple mapping of traits and conceptualising the differences in individuals (Denissen, van Aken, Penke & Wood, 2013).

Further to this, and all impacting on the psychology of personality, are other areas of science which seek to build knowledge and understanding. For example, there

is the emergence of cognitive psychology, describing how people think and perceive, developmental psychology, tracing the course of an individual's psychological construction, biological psychology, exploring the underpinnings of behaviour in anatomy and social psychology, concerning how people respond to and affect the behaviours of others. All these branches of psychology bring depth of study and understanding to the modern meaning of personality and therefrom comes the question: In the light of this depth of knowledge does Jung's personality typology represent psychology or is it more akin to philosophy and, therefore, does it provide a suitable, appropriate and modern scientific base on which to build a personality profiling tool?

5.2.4 Other Jungian Based Psychometrics

It is generally reported and accepted that, within other performance environments, Jungian preferences as a conceptual model for creating an understanding of personality has been deployed with success: management (Gardener & Marinko, 1996), leadership (Yammarino & Atwater, 1993), organisational communications (Allen & Brock, 2000). One of the most used Jungian preference instruments is the Myers-Briggs Type Indicator (MBTI) (Myers 1962; Myers et al 1998) which has been used extensively within business performance development environments. This system identifies the dominant and less dominant attitudinal functions and also the degree to which these preferences are deployed in the performance environment. Both MBTI and Discovery require applied practitioners to obtain the necessary level of training and accreditation that enable the use of the instrument. Although there has only been a limited amount of research on the psychometric validity of the MBTI in organisational development applications, the MBTI has long been advocated as a practical mechanism

by which employees and managers can build more effective and productive interpersonal relationships through having an understanding of their own behavioural preferences and extending this knowledge to the behavioural preferences of others with whom they interact (McCaulley, 2000; Myers, McCaulley, Quenk & Hammer, 1998). This creates the positive opportunity to have a consolidatory conversation about the implications of interactions between individuals and the impact thereafter on performance. On a practical note this is an important goal for any team operating multiple processes and delivering tasks in disparate locations such as found in motor sport.

There are other Jungian based psychometrics developed more recently, such as the Singer-Loomis Inventory of Personality (Loomis, 1982) which questioned the validity of Jung's bipolarity assumptions and indicated that more accurate profiles could be obtained if the functions were measured independently rather than by forced-choice options. This need for independent evaluation of the four functions to achieve accuracy resonates with an issue found in using Discovery in giving explanation to the functions of sensing and intuition. Rather than measuring sensing and intuition against a scale, the Discovery model implies sensing and intuition as existing in each rational function and relies on Jung's observation that sensing is at its strongest in introversion and intuition at its strongest in extraversion (Jacobi, 2013). This point is further emphasised by Metzner, Burney and Mahlberg (1981) who point out that, whereas, Jung's typology of attitude (extraversion-introversion) has credibility among scientific psychologists, the typology of functions has less credibility and are seen to be rather vaguer and more ambiguous. Other work on psychometrics such as Eysenck's tests of extraversion in the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) have concluded similarly on the typology of attitude (Metzner, Burney and Mahlberg 1981). In contrast, study of

the Gray-Wheelwrights Jungian Type Survey (Wheelwright, Wheelwright & Buehler, 1964) has concluded that the Jungian scales of introversion-extraversion and sensation-intuition demonstrate reasonable construct validity and that the thinking-feeling function showed limited validity (Davis & Mattoon, 2006). The challenge to achieve some quantitative, scientific solution to the conundrum of the validity of Jungian theory of personality has been attempted by Wilde (2011). Although oriented to the Myers-Briggs Type Indicator, this work provided a quantitative theory based on two postulates concerning extraversion and the psychological functions for judgement and perception. It offered a corrective instrument for the MBTI and listed implications for the Singer-Loomis test and the Five-Factor Analysis based on Wilde's work on placing Jung's concepts on an axiomatic base. To what extent this has been considered by Insights in their development of Discovery is not known however Wilde's intent to re-energise Jung's theories on personality is notable.

5.2.5 Choosing Discovery

Discovery offers a different and perhaps truer representation of Jungian theory and the latter works of Jacobi Jolande (Jacobi, 2013). One example of this is that Jung himself said that someone cannot be solely an extravert or an introvert (he is purported to have said such a person would be in an insane asylum!). What Discovery advocates is Jung's postulation that one cannot be introverted and extraverted at the same time, hence why Discovery replicates that discriminating choice in the evaluator questions. The inference is that one simply will have a habitual preference that will occur in most situations along a scale between the extremes of each pairing of preferences, hence arriving at a certain Discovery wheel position. That is not to say, however, that an

introvert cannot exercise extraversion or a person that prefers thinking cannot suspend that and make a decision using feeling.

This leads to allaying, in part, a potential criticism of typology (Mendelsohn, Weiss and Finer, 1982). Discovery does talk about distinct personalities in the manner of 4 colour energies and 8 distinct types. However, Discovery also expands into sub-types, where secondary and tertiary preferences have a co-determining influence on how we consciously think and behave as do the intellectual functions of sensation and intuition – Jung’s irrational functions. The premise of attitudinal function couplets and of archetypes goes much further than simply “being a Fiery Red” with Discovery. The individual is provided with a unique mix of all four colour energies, which expands to a much greater number of types with the notion of type mobility around these four colour energies present.

It is often easy to dismiss the old as unfashionable however Jung’s work was observational and, much like Sir Isaac Newton observed and quantified gravity long before science defined the universal force of attraction, the principles and concepts would appear to be relevant today if viewed as foundational to, rather than representative of, modern psychology. In as much as Jung’s typology has descriptive meaning that is accurate then it can potentially be a useful starting point for building a system such as Discovery. To achieve such a system though there must be a substantial rigour in development to ensure that all applications and outcomes can fall within the scope of the model. I will, therefore, now focus on the practical aspects of Discovery to explore and understand this further.

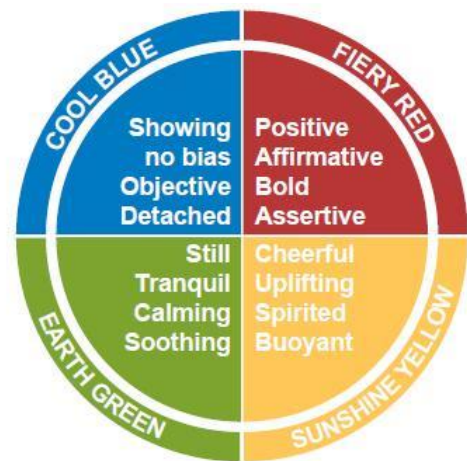
5.2.6 The Evaluator

The Insights Discovery Preference Evaluator (IDPE) is a personality assessment tool developed by Insights in the context of the Jungian typology. The relationship between any specific individual and the model is deduced in the IDPE from a twenty-five-part evaluator which sets out to record the individual's behavioural preferences in the workplace. In the evaluator carefully selected words, chosen for their meaning, breadth of meaning and also their implied polar opposite, are highlighted by the individual as those which most and least describe their preferences (i.e. it is not an absolute measure but a relative one). Within each of the twenty-five frames of the four-word pairings the most and least are supplemented by a relative positioning of the others, between two and five, so that six categories of distinction are made including the 'least' and 'most'. The programme and algorithms that process the IDPE and the choice of words and language are closely guarded by Insights and form the major intellectual property of the company. This computer programme constructs the Discovery Profile from the answers inputted to the IDPE.

The IDPE output provides a graphical illustration of the respondent's position on the three Jungian dimensions (introversion-extraversion, thinking-feeling, and sensing-intuition) for both 'conscious' and 'less conscious' modes. This is designed to reflect Jung's conscious persona, as the identity we wish to project, and the unconscious persona, which bears influence on our personality but which we cannot directly access.

The IDPE also enables individuals to be scored into 4 type categories which are colour coded and related to the first two pairings of the Jungian model. Namely, red for extraverted thinking, yellow for extraverted feeling, green for introverted feeling and blue for introverted thinking. These constructs are termed ‘energies’. In line with Jung’s definition this is a heuristic term referring to the intensity of the psychic process and not a metaphysical concept. Further, Insights attach additional meaning to the energies by giving each a descriptive adjective to form the type categories as Fiery Red, Sunshine Yellow, Earth Green and Cool Blue (see Figure 5.1). The respondent can also be categorised into 8 further descriptive categories (Reformer, Director, Motivator, Inspirer, Helper, Supporter, Co-ordinator, and Observer). This is based on the participant’s second preference and creates the distinction between Jung’s rational and irrational types. This then breaks down into 16 more finely divided and defined types representing the influence of sensation and intuition. Ultimately the Discovery wheel provides a conceptual map of the output (see Appendix 5) which embodies 72 types, adding in Jung’s creative types, where participant’s second preference is the opposite of their first, and three further subdivisions made up of Focussed, Classic, or Accommodating variants. These latter three distinctions depicting the intensity of the pairings of the four mental processes and how the evaluator predicts you can readily access these. Further aspects of the model include the development and application of the principles used in the model to give a framework for understanding and groups to review situations,

Figure 5.1 Discovery Wheel



These colours are measured by the Discovery evaluator; a 25-frame questionnaire of 100 word pairs, which when completed produces the Insights Discovery Personal Profile. Designed by Andi Lothian in the early 1990's, Andi, and son Andy, founded Insights Learning & Development Ltd in 1993.

circumstances, and behaviours. This is the basis of the shared language that Discovery provides.

By positioning an individual in such a way suggests that others' perceptions of events and situations, because of their preferences, will cause them to take different meanings and act differently to any given situation. Key to the process of applying the system is therefore the understanding that any given reality will appear to different people in different ways, according to Covey (2013):

Each of us tends to think we see things as they are, that we are objective. But this is not the case. We see the world, not as it is, but as we are – or, as we are conditioned to see it. (p. 36).

Consequently, individuals will infer different meanings and take different actions based on their perception of any event or circumstance (Argyris, 1967).

This, together with the Discovery Wheel, creates the basis for discussion around the behaviours of individuals and their preferred styles of interpersonal engagement within their environment and how this may be enacted consciously or less consciously dependent upon circumstance and situation. The primary instrument of this is the Discovery Profile which will be considered in more detail in the next section.

5.2.7 The Outputs: The Discovery Profile

As noted above the output from this interpretation of Jungian theory is a Discovery Profile. This is a circa 40-page document, in addition to the Discovery wheel and preference intensity graphs (see Appendix 5) also includes narrative chapters constructed from the scoring in the algorithm. These chapters offer feedback and topics for consideration in the participant's areas of personal and workplace interaction.

The narrative in the evaluator is delivered in five chapters which offer feedback created from a large generic base of behavioural trait information by the evaluator algorithm. This is also a well-guarded and valuable element of Insights' intellectual property as they claim that, in the four million profiles produced, no two Discovery Profiles have ever had identical narratives. This would suggest a depth and complexity of the computer algorithms behind the profile production ("Comparison of Insights", 2019). The chapters are:

a) Foundation Chapter

A series of statements designed to provide a broad understanding of the individual's work style which is designed to be used to gain a better understanding of the individual's approach to their activities, relationships, and decisions.

b) Management Chapter

A short series of statements designed to promote relevant conversation around the potential areas in which the individual may have more specific needs for example, environment, management style, both in managing and in being managed and motivation.

c) Effective Selling Chapter

A chapter designed to support the development of interpersonal skills related to a nominal six-stage sales process based on the preferences identified in the evaluator.

d) Personal Achievement Chapter

A chapter designed to focus on several important aspects of personal development through providing some generic statements on setting goals and defining purpose.

e) Interview Chapter

This chapter lists several questions which are derived from the evaluator as situations in which the individual may feel less comfortable in addressing and it is recommended that they are used alongside questions specific to the individual's job and targeted at establishing levels of self-awareness and personal growth.

This compendium is designed to facilitate structured observation, constructive feedback and dialogue on behaviours at many levels and in differing situations. This is a feature which is of particular use in the ESP field of work developing the skills of young drivers as we deal with a range of groups and individuals at differing developmental as well as competition levels.

In addition to the Discovery Profile Insights have created several packages of resources to guide the participant, or participating groups, through a journey of behavioural development to improve the effectiveness of their inter relationships. These include manuals to support the development applications which are aligned to the model and Jungian typology. Currently these are: 10 practitioner guides, for example, the Glossary of Insight Terms, 8 facilitator and coach notes, giving ideas and resources for development work, 40 self-help learning guides and individual workbooks. The learner also has access to an on-line learning library and there are guides for transforming teams, individuals, and organisations. These materials give users a host of resources with which to effectively introduce the model to participants and take them on a Discovery-based development journey in workshop or independent settings. Broadly the learner is given information on the background to the model, the constructs and descriptions of the various types and the practitioner receives an extended version of this with notes, tips and exercises to introduce each stage of the suggested learning process. This forms a platform of resources for the management consultant which can

be drawn upon however it is of note that none are specifically contextualised into a sporting environment.

5.2.8 Evidence of Reliability and Validity

5.2.8.1 Reliability and Validity

The first key question to answer on the validity of the system is does the evaluator measure what it says it is measuring, and, further to this, does each item in the evaluator perform consistently and give consistent results over a period of time – broadly the reliability of the system. In these areas Insights publicise the findings from their own and independent validators. This is unsurprising as Insights are obviously keen to present as sound an academic base for their system as possible to present an authenticity which aids marketing. Looking into their published data they have used confirmatory factor analysis, measured error variance using Cronbach Alpha coefficients and measured the Spearman correlation coefficients for the same people taking the test at 1-6, 7-18 and over 18 months. From this Insights conclude that they have good evidence of the construct validity and reliability ("Validating Insights Discovery", 2019). In short, they present a fair statistical case.

In 2005 the University of Westminster's Business Psychology Centre performed an extensive study on the IDPE English Version 3.0 where statistical analysis was used to assess the evaluator's item analysis, norm data and validity (Benton, Schurink & Desson, 2005). In the summary findings the Discovery construct was observed as being statistically valid and reliable. One final note worth making is that the constant evolution of language means that the Discovery Evaluator has to continually evolve. In response to this Insights employ a research team at their main offices to monitor the IDPE in its 30+ languages on an ongoing basis.

From an external perspective in 2017 Discovery was awarded the Occupational Test Tools Certification Mark from the global quality assurance and psychological test assessors Det Norske Veritas GL. Discovery is also endorsed by the British Psychological Society and carries the British Psychological Society's Psychological Testing Centre kite mark for uses in work and occupational, counselling, advice, guidance and career choice (as a preference-based assessment tool only) and general health, life and well-being. ("Insights Discovery Preference Evaluator | PTC", 2019).

5.2.8.2 Rigour in Development

That Discovery has had rigorous development is probably not in doubt with the caveat that much of this has been driven by the commercial needs of Insights' business ("Validating Insights Discovery", 2019). The comprehensiveness of the evaluator and the diligence in attaining the level of ecological validity it publicises will have taken considerable investment of time and money. Add to that the wealth and volume of supporting resources that make up the world of the Discovery system and the quality of being extremely thorough appears manifold. However, much of the supporting materials are a contextualisation of best practice management techniques into the four-colour system. For example, The Insights Group published a Transformational Leadership reference book entitled 'Insights Transformational Leadership' in 2009. This work, at 495 pages, defines, and contextualises transformational leadership in eight dimensions positioned around the Discovery Wheel. The eight dimensions describe on how leader's psychological preferences impact upon leadership and how they might develop and deploy capabilities. Each dimension is defined by five facets of leadership that holistically cover actions of leadership – each of these forty facets were created after qualitative and quantitative research with the University of Westminster Business

Psychology Centre and would certainly appear to represent good if not best management practice. Each facet then subdivides into five related capabilities, termed essentials. This then becomes a comprehensive training manual of good practice through the four-colour lens of Discovery. It is, of course, not the intention here to validate the provenance or worthiness of this work. It is however, to demonstrate an example of a thorough and rigorous contextualisation of the Discovery model into a business management context. This is a particularly relevant point in this thesis because it is this diligent merging of good or best practice with the Discovery four-colour model to create a usable learning resource and the incorporation of a system of perspectives on the content that holds promise for the practitioner in motor sport. Particularly so when it can align to personality and behavioural preferences which can be developed to counter the constraints and build on the enabling factors associated with successful development. The stark question then becomes is Discovery a good thing or a bad thing and that ultimately depends upon the use to which it is being put.

In summary, the above are examples of perspectives of validity and rigour in development which, ultimately say that Discovery does what it says it does. However, to draw an analogy, Discovery says it is a red bus and these investigations and accreditations say that it is, indeed, a red bus. To know whether the bus will take us to our destination we need to understand more about how suitable the bus is to our needs. In short, we need to understand the specificity of application in order determine its suitability.

5.2.9 Evidence of Successful Application

Moving on now to look at applications of Discovery in other elite sports it is of note that its use in sport is of increasing popularity ("Insights for Sport", 2019). In using

Discovery within sports teams, it is clearly understood that certain attitudinal preferences are not better than others nor that certain personalities are more likely to succeed in sport. However, it is suggested that if group members, under the guidance of suitably qualified sport psychologists, can begin to understand how their preferences might complement or conflict with those of others, they might function more effectively both individually and as a team (Beauchamp, MacLachlan & Lothian, 2005). The use of Discovery in sporting teams would therefore seem a logical commercial extension to Insights market.

In the UK Discovery is used in the public sector extensively by the NHS and in the private sector by blue chip companies such as Philips, Danone, Wolseley, and Technip. It thus has a penetration across many sectors and industries with global reach. In sport it is used by, amongst others, the England and Wales Cricket Board, British Swimming and British Cycling plus specific teams such as Bristol Rugby and the V9 Academy in football ("Insights for Sport", 2019).

One use of the Discovery model in a sporting context is with the V9 Academy. The V9 Academy, a well-respected footballing organisation ("V9 Academy - Football Academy by Jamie Vardy", 2019) was founded in 2016 with the intention of gaining non-league football players contracts at professional clubs. The process it utilises involves holding residential five-day programmes that assess circa 40 applicants for technical, tactical, physical, and mental competence but also gives every applicant an individual development plan to help progress their game further. A number of professional clubs are represented at the V9 Academy with the objective of talent identification. The staff at V9 Academy have used Discovery in all their selection and development events and,

in interview Curtis Fleming (former International footballer, First Team Coach at Middlesbrough and V9 Coach said:

Anything that gives you an extra one percent in a competitive sport is very, very important...and there is no doubt that Discovery can do that because it gets you to know yourself more and understand your teammates a lot more. ("Helping footballers succeed on and off the pitch", 2019)

Jordan Broadbent (former Sheffield FC Manager and V9 Coach) commented on Discovery: "If I'd have had this ten years ago I'd probably have been a better player and I know I'd have been a better coach" ("Helping footballers succeed on and off the pitch", 2019).

Improvement opportunities such as these can be important to the motor sport driver. As noted in Chapter 2, F1 races or world championship rallies can be won by margins of fractions of one second even after several hundred kilometres of competition. Thereby even very small gains in performance can create winning margins. Lee Tucker (former professional footballer and Head of Recruitment at the V9 Academy) went on to build on the point raised about coaching:

With coaches buying in, the coaches seeing the benefits of it all, I think that is proof in itself and evidence in itself that this is a necessary factor that can contribute to team success at the highest level ("Helping footballers succeed on and off the pitch", 2019).

In British Cycling Kevin Stewart, Coach for the Great Britain Cycling Team says he is a better coach through the awareness of behavioural preferences created by using Discovery. In public interview Kevin said: "Realising how low I was and how high everyone else was in cool blue – and if I wasn't aware of that, like, I don't believe I'd be

sitting in the position I'm now or progress as a coach" (*British Cycling trusts Insights to develop its academy athletes, 2016*)

Sophie Capewell, a member of the Great Britain Cycling Team in public interview said "it'll improve our communication and we get more out of our conversations now than I did before" (*British Cycling trusts Insights to develop its academy athletes, 2016*) and Kevin Stewart summed the benefits of Discovery as:

Discovery is a really valuable tool and I'd almost go as far as saying it is essential for any successful programme to use. I think if they are not using it already they're not as successful as they could be at understanding how a team and how individual people work. (*British Cycling trusts Insights to develop its academy athletes, 2016*).

These latter quotes indicate that it is important not just for the performer to have the benefit of knowledge provided by Discovery but also the coach. As noted in Chapter 3 the engineer can often take on the role of coach which increases the relevance of these comments.

The use of psychometrics in sport, as in business, could be viewed an inevitable consequence of the ever-increasing effort to achieve increasingly smaller gains. As winning margins reduce in size smaller gains in performance attain a new and important significance. It is therefore not surprising that anything that can be perceived to create a competitive advantage will be seized upon and anything that delivers any opportunity to improve will be valued. It thus becomes important to understand where that value may come from and ensure that the solution is matched to the problem it seeks to solve.

5.3 Matching the Benefits of Discovery to the Challenges Reported in Chapter 4

In this section I will consider the criteria of matching Discovery to the enabling and constraining factors reported in Chapter 4. Firstly, I will consider the relevance of use, then explore further detail in specific aspects associated with the use of Discovery. Finally, I will reflect on the areas of interpersonal behaviour which Discovery may assist in developing and consider some aspects to be addressed in aligning Discovery to the context of motor sport.

5.3.1 Relevant Use

In summary Discovery presents an attractive and potentially relevant tool to the practitioner who is concerned with the impact of an individual's personality and behaviour on others. It focusses on the social and cultural effects when considering individuals and groups that have to perform coherently, effectively and efficiently. In short, team development. In its relevant application and interpretation, one must ensure apposite contextualisation of any resource used and that, as a practitioner, one invests in a deeper understanding of Jungian theory. To ensure that the application can be delivered with appropriate deference to its theoretical base is, therefore, challenging because of the knowledge and fluency in execution demands it places upon the practitioner. Particularly if challenged by a learner who has a curiosity that drives for understanding on, for example, the functions of sensing and intuition.

In matching the Discovery to the problem, the practitioner must also realise and act upon the fact that Discovery is a tool and not all the tools. Whereas it can help unpick problems and assist in building relationships in considering the application the practitioner must also reflect on the depth of interpersonal challenge faced. Where this is significant then there may be more effective solutions to be found in more modern

and specialist, if appropriate, psychological practice. Besides from these exceptional circumstances, of course, is the opportunity that it may provide a very useful coaching tool in sports where facilitation of effective relationships is important.

In alignment to the findings in Chapter 3, where interpersonal relationships were noted to play a pivotal role. Discovery offers the potential to play a facilitative role in building better relationships for example between the driver and engineer, the driver and coach or the driver and team manager. The importance of effective communications within teams, as a critical element to successful functioning in sport, has been highlighted by many theorists and practitioners (e.g. Carron & Hausenblas, 1998). Therefore, a system which appropriates this in an effective manner across the support network of the driver, can obviously be of value. If the system can be used consistently across a number of situations and contexts, then even greater benefit can be ascribed through providing a common language with shared understanding of meaning (Eccles & Tenenbaum, 2004; Filho, Tenenbaum & Yang, 2015).

5.3.2 Specific Use in Motor Sport Talent Development

In moving from the broader topic of relevant use to the specifics of application in motor sport this section considers ways in which Discovery might be introduced to address the interpersonal behaviour challenges identified in Chapter 4. As noted, this has pertinence not just to the driver but also to the team and therefore the reach and influence of any training intervention to address enabling and constraining factors must be considered. That is if the driver learns any particular behavioural tool or skill does the team, or the relevant person or persons within it, require training for the desired outcome to be achieved or can the mere influence of the driver be sufficient? Further it would be wrong to burden the learner with inappropriate subject matter about the

instrument itself and thus the application must be tailored to the situation. Therefore, the prime objective in application should be to create encounters which do not confuse, intimidate, or overload the driver or anyone in the team. The methods used will, of course have to be based on exploiting the positive attributes (pros) and mitigating against the negatives (cons) and these will have to be considered in advance. These characteristics are expanded upon later in this section.

In considering the Discovery tool and supporting resources for use in a motor sport environment the challenges described in Chapter 4 must be the yardstick against which opportunity can be gauged. As summarised in Chapter 4 the enabling and constraining factors identified can all be significantly impacted upon by interpersonal behaviour and there are a range of possible beneficial outcomes that an increased sophistication in relationships could achieve. For example, in being more like-minded and engaging with a sponsor to encourage goodwill or in building a deeper connection with others in the race team, such as the engineer, to achieve higher levels of performance. Against this range of potential outcomes, the presentation of Discovery must be considered. Simply, as a tool designed for business, does the way in which it is presented and applied in a sporting context impact differently upon the outcome it seeks to achieve? Another way of looking at this is from the perspective of what is trying to be achieved, that is, in considering what is the objective of the intervention with the driver or the team and, therefore how can Discovery be applied to assist in attaining the desired goal? To understand this requires consideration of what Discovery may offer. In this section I will therefore now consider the principles of setting out potential use against the findings of Chapter 4.

5.3.3 Discovery: What it can Offer

The first consideration of ways in which Discovery can add value is in the creation of greater self-awareness and the provision of a model to enable individuals to more effectively 'adapt and connect' with others. The profile provides content that promotes constructive feedback, and the debriefing process provides a language in which events and situations can be approached and opinions and beliefs discussed in a non-confrontational way. There are three relationships from Chapter 4 that are worth considering in terms of how this feature might bring benefit. Firstly, that of the driver and the coach in terms of deploying feedback in an appropriate way. Secondly, that of the driver and specialists such as the engineer when engaging on specific technical input given and received in a framework and style consistent with the model. Thirdly in the broad range of communications and relationships a driver has with the many people, both internal and external, in their support team and network. The areas from which potential benefits may come can be grouped as:

- Identification of 'behavioural types'/'behavioural styles' and the creation of self-awareness. This can be used to promote the exploration and understanding of differences in behaviours between individuals.
- Characteristics of self and others identified through Discovery assessment. This can provide a framework and a perspective from which to explore each other's differences. For example, asking and discussing why a driver and the team manager, and others, might hold different positions on the Discovery wheel.
- Characteristics of professional types within the motor sport environment. This can be used to explore, for example why engineers might exhibit Cool Blue

behaviours and drivers Fiery Red or Sunshine Yellow and explore when and how these might bring conflict.

- Demonstration of potential of preference in behaviours in self and others. This can promote a discussion and understanding of the underpinning like/dislikes that might lead to conflict between individuals in the team.
- Benefits of adapting and connecting. Quite simply encouraging and demonstrating a liberal attitude to understanding the others' perspective.
- Benefit to interpersonal relationships in terms of the short-term nature of motor sport team relationships, for example from high levels of labour turn-over. Indeed, a potentially more esoteric point is that the sum of the above points, say in a team with new members, holds the opportunity to open discussion on behaviours, rather than processes, in a forming team.

A real situation where consideration and application of some of the above could have made a difference is in the example of Driver C, a talented young racing driver from Europe, who we were working with, who had a history of winning in one of the secondary feeder series for F1. When on a guided visit to an F1 meeting had a chance encounter with a senior member of staff of an F1 winning team. Unable to frame the conversation or adopt suitable behaviours to leave an impression on this individual – who could have a significant impact on Driver C's future – Driver C was unable to communicate effectively in the situation he found himself in. With a deeper understanding of interpersonal communications and behaviours and an awareness of both his behaviours and those demanded by the situation, a much more fruitful exchange could have occurred.

However, this example also highlights a benefit and a challenge in just 'doing Discovery' in a superficial way. It is in the applied context that the real benefit is

manifest because it brings relevance to the learning and value to the application. In short just 'doing Discovery' brings the real risk that it won't work, because it has to be contextualised and made relevant to the situations and events experienced by the individual. With appropriate grounding to bring relevance to the examples above though it does hold opportunity to address the enabling and constraining factors found in Chapter 3. To do this more specifically I will now consider the contextualisation of Discovery as a resource in more detail.

5.3.4 Contextualising Discovery Resources

The translation of Discovery models and systems into the context of motor sport performance could have many successful applications when applied to the enabling and constraining factors identified in Chapter 4 although, as noted, the content should be modified to suit the application and the context of the talent development environment as discussed in Chapter 3. Examples of this would include the wording and constructs in a number of Discovery resources such as: Team Culture; Team Development, Talent ID, Dealing with Stress; Managing Change, Approach to Risk, Managing & Being Managed, Assertiveness and Negative Emotional Dynamics.

Taking the first of this list as an example, Insights have developed a comprehensive package of team development tools under the heading of team effectiveness. In this model they introduce a framework for assessing, defining, and deploying actions that lead to performance improvement. For brevity and to avoid overly long explanations, this framework draws on the principles of the behaviours clustered into the four colours and offers a perspective on each that facilitates team members thinking about the team as a cultural entity and how, within that, liked and disliked behaviours can be either constructive or destructive or aligned, or not, to one's

individual preferences. The description of the roles in a team and the language used to describe goals, actions and resources is written and constructed in a frame work aligned to organisation teams in business, for example talking about 'profit' and 'interdepartmental' working methods as goals which is incongruent with the domain of the driver in the motor sport team.

However, the principles of interpersonal behaviours are common and, with changes to the language, there are certainly opportunities for the challenges identified in Chapter 3, to be addressed once the physical resources are modified. Simple things like talking about 'drive' as a characteristic of Fiery Red whist readily understood in a corporate team has rather a different meaning in motor sport! The resources provided must then be carefully edited to ensure appropriate wording without changing principle or meaning.

5.4 Additional Benefits

As I have mentioned in the introduction to this chapter, the principle of considering the Discovery 'four-colour' model as a template for creating an easily accessible tool with broad applications for developing interpersonal skills is an attractive one. The use of a 'four-colour lens' through which to create motor sport specific training resources could therefore be a practical way to enhance the learning experience for drivers in specific situations where no Insights resources are available and interpersonal relationships form an active contribution to success. In this section I will explore where some of the opportunities may exist.

5.4.1 Use as a Tool for Coaching



Figure 5.2 Discovery Based Coaching Model

Two examples of stand-alone coaching tools using the four colour lens are ‘PACE’, a model for constructing a plan for a debriefing session and ‘ICES’, a model for undertaking a questioning session such as a coaching review (Figure 5.2). Use of a simple, easy to access construct to explore areas that may be less comfortable for either the coach or driver to discuss thereby enables a more complete and appropriate coverage of any given performance.

5.4.2 Use as a Tool for Supporting Sponsorship Training

One of the personalised outputs within the Discovery Profile is an incremental chapter of information derived from the algorithms in the evaluator titled ‘Sales Effectiveness/Effective Selling Chapter’. This chapter uses the four-colour construct to explore the individual’s potential preferences and actions against each of six stages identified within the selling process namely:

- Before the sale begins
- Identifying needs

- Proposing a solution
- Dealing with resistance
- Gaining commitment
- Follow up and follow through

Whilst this is aligned to a business context, within motor sport and the training we provide it aligns closely to that of seeking and obtaining sponsorship and therefore the conversion of this material into a motor sport language would provide a useful model for understanding how to use interpersonal relationships to be more effective in that area.

Other potential off-the-shelf modules which would have the potential to develop the interpersonal skills of drivers and teams include; how the driver approaches and develops leadership skills within the team; an understanding of the team culture and team effectiveness through a four-colour lens leading to how behavioural change can improve performance.

Finally, it is in the consideration of these latter challenges that the strengths of the tool in providing focus to interpersonal relationships may hold potential in being extended to new constructs. These would include motor sport specific activities where a more effective interaction with others brings experiential or processual learning or other benefit. In particular, the consideration on a micro level of an individual performers and their team including parents and their supporting network. Examples of these would include; effective behaviours within a team debriefing process, relationships between driver and engineer say during testing or on a track walk, relationships between drivers and their coach for example during SIM work and even between the driver and the many others involved in their planning and preparation.

5.4.3 Other Constructs Using Discovery Principles

Other examples of where the use of Discovery might be applied to benefit include the approach to motor sport processes, such as pre-event planning and preparation, testing, qualifying, track walking, SIM work, debriefing etc. In these cases, the driver's approach to the activity and their interactions with the individuals involved might be compared and contrasted to the type of action that the task required. Each process might demand, or align to, a particular set of preferences for example, debriefing involves reflective thinking and extensive data work with the engineer, potentially favouring the introverted thinking of Cool Blue however qualifying, with its constraints of time in which to deliver results and the fast and focussed actions of the pit crew, may align more closely with Fiery Red. This raises two questions to which Discovery may offer the opportunity to develop answers: firstly, how does the preference of any individual relate to the needs of these processes and, secondly, how might the perspective of a different preference impact, positively or negatively on achieving a better outcome. For example, an extroverted feeling approach to debriefing might lead to innovative thinking.

Whilst sounding great in principle the drawback to this approach is in the depth of knowledge and investment in time and resource in ensuring the end method derived is valid and delivers authentically to both Discovery principles and to the underpinning typology of Jung. It is, nonetheless, an interesting opportunity which could contribute to performance improvements with the driver or within the team by addressing some of the motor sport unique performance challenges not identified as enabling and constraining factors in Chapter 4.

In summarising where opportunity may exist the basic model alludes to the concept of developing an expert learner (Ertmer & Newby, 1996). The model can be learned by the driver through application in one scenario from which it may be adopted or adapted by the driver to apply in another. This then creates autonomy and enables the ability to select strategies which empower the driver to control their own development by controlling and managing their own learning in relationships. This, however, needs grounding in real experiences and therefore, as noted above, it becomes important to contextualise the content of the resources provided by Insights in support of Discovery. In short, there is potential in creating material that uses Discovery in motor sport to address some of the unique challenges however this brings with it some significant challenges in execution.

Considering all the above, bringing this level of focus and relevant design for application resonates well with proposed concepts of best practice both in design (Collins & Cruickshank, 2017) and also in the translation into practice of research (Collins, McNamara & Cruickshank, 2018). The use of Discovery in other sports contexts may give some guidance on if and how this might be done however it is important to first summarise the pros and cons of using Discovery and, indeed, Jung's typology of personality, in motor sport.

5.5 Delivering Discovery in Motor Sport: Key Considerations and Limitations

5.5.1 Taking Advantage of Discovery's Pros

In deploying a system which has the potential scale of Discovery across any programme of learning, development or change requires a rethink of the learning objectives and therefore the design of interventions. In using Discovery, we are considering personality as, potentially, a learned cognitive skill that can be developed,

or modified, to meet the demands of incremental improvement. This requires answering the principle question of 'why?' in the minds of the subjects. The big 'pro' in this respect is the ease of completion of the IDPE and the dissemination of the Discovery Profile through the debriefing process. This makes it relevant to the drivers because, during the process, examples can be drawn from real life experiences of the drivers to ground the factors expressed in the profile. For example, the similarities and gaps in relationships between themselves and others and the difference in perceptions of events and reactions to them. The promotion of discussion around this creates the opportunity for expert input, say from the coaches present in the debrief, to peer review, feedback and sharing and learning from experience framed in the context of the Discovery model. Going further to use the Discovery support resources, which merge good practice with the four colour lens, brings a system that can be used across a number of applications with teams, for example in seeking improvement through the team culture content, and also drivers, for example with the 'Sales Effectiveness' content. Albeit that these must be language checked and edited to suit the motor sport context. As examples these can then be added to give an integrated, holistic, and systematic approach (Martindale & Nash, 2012) to talent development, and performance, as a facilitation of the personal interrelationships that provide it.

5.5.2 Mitigating Against Discovery's Cons

Addressing the cons, as noted above, brings more responsibility on to the shoulders of the practitioner. In the specific cases within this thesis the challenges of understanding Discovery and Jung's underpinning theory the author is reasonably well equipped however that is a con that needs to be remembered in any conclusion on outcomes from the studies. The pigeon-holing of individuals must be restrained as far

as possible that is 'you're a Fiery Red' dialogue must be policed although the description of 'that's a Fiery Red behaviour' can be encouraged to embed learning.

This leads on to another con that will need sensitive and diligent policing and that is the potential for negative emotional dynamics. Participants may justify a behaviour they wish to use simply by the excuse of 'well, I'm a Fiery Red [so it's okay to behave this way]'. Mitigation of this can only be through carefully constructed challenge at the time to unpick the behaviour and the motivation behind it. It is of note that Insights have a 'Negative Emotional Dynamics' resource that can be used to expose such behaviours and this should be specifically included in any programme utilising the model.

Taking this point even further, and to avoid a potential con of becoming too focussed on the behavioural aspects, it is worth remembering that, behind all of this, there are very important tasks to deliver. It is important to retain a balance of focus on the tactical and technical aspects of performance, and, in short, not to become so focussed on the means that the end is lost sight of. Therefore, in all cases the use of a performance needs construct, such as that of task, team and individual (Adair, 1973) would allow the benefits of behavioural change to be more fully reconciled against the specifics of enabling and constraining factors identified in Chapter 4.

Finally, in consideration of both pros and cons, and reflecting back to Chapter 3 in particular, linking behavioural aspects to a developmental framework brings more challenges when considering how, practically, the objectives can best be achieved. For example:

- Defining the most appropriate method of delivery/deployment within the demographic and psychosocial range of our target drivers. For example, taking

reference from Chapter 3, considering at what stage of competition are the drivers performing and how developed are their psychosocial behaviours.

- How material and content is developed to integrate Discovery and make it relevant both in theoretical and applied ways to the challenges the drivers and teams face
- How, in each deployment or application, there can be an assessment of longer-term impact on learning and sustainability of behaviours. In short, we want to achieve long term benefit as outlined in Chapter 3.
- How to evaluate performance benefits when used as an individual or team development tool. Yes, we ultimately need faster on-track performance, but, as noted in Chapter 2, we need to consider process goals in behavioural terms for example in setting tasks and targets in improving relationships or in defining how more is achieved from them.

Broadly it is not just about exploiting the pros and mitigating against the cons, it is also about considering the wider impact and relevance within the talent development environment.

5.5.3 Summarising the Challenges

The illustrious comments from professionals in the domain of other sports inevitably draw some scepticism. Can Discovery really be that good? As a practitioner for many years in the coaching and delivery of change management at a senior level in companies I can see virtue in any system or construct that provides a framework for meaningful discussion about development. However, although there can be similarities, the transfer of a system designed for one context to another requires further investigation to understand whether it is appropriate and that the assumptions it makes, including the underpinning mechanisms, will work in the same way. Therefore, in

addition to some of the practical and theoretical aspects raised above in the comparison to MBTI it is appropriate to reflect on a broader canvas of considerations and limitations. Only then can we move on to critically consider how the application might be able to work constructively in a different context – in this case to work in the world of talent and elite performance development in motor sport.

As noted in this chapter, there is much more to consider than just this, or the practical comparison to another system such as MBTI, before it can be concluded that Discovery can deliver consistently and with some guarantee of efficacy as a tool for practitioners to measure, interpret or work with its outputs. The criteria of ecological validity, suitable theoretical base, rigour in development and relevant use must all be scrutinised with favourable conclusions (Collins & Cruickshank, 2017). This appropriate suite of characteristics against which Discovery has been assessed in this chapter leads to some very practical considerations which I will now expand upon.

Although there is no advocacy of putting people into “type boxes” from a personality base, reflecting Jung’s typology, the model does present itself in a way which can all too readily be interpreted as a discrete categorisation (i.e. Fiery Red, Cool Blue etc). Whilst this may represent a distortion of Jung’s theoretical base constructed in the interests of creating an applied solution (Collins & Cruickshank, 2017) it more importantly presents more complex issues that demand more detailed scrutiny under which, three challenges appear.

The first is the obvious categorisation that the simple Fiery Red, Cool Blue etc model presents to the participant. The good side, from a practitioner’s perspective is that it is easy to remember and engage with, which means the learning is easy to imbed. The bad side is, well, exactly that also, as it becomes a flag of convenience under which

meaning and excuses can be given to desirable and undesirable behaviours (Collins & Cruickshank, 2017). To what extent this becomes a limitation of the instrument is potentially a moot point to the practitioner because it also contributes greatly to its popularity, and usability, in practice. It is less of a moot point in considering the application of Discovery as a true representation of Jung's personality typology where Jung expressed energy as a direction and intensity, for example in introversion or extraversion. In defining this energy as a preference Discovery changes the meaning to a behaviour, or behaviours, in which the individual feels most comfortable and natural with. To the practitioner this may not be important however it starts a tangential journey which leads to the next challenge.

The second challenge this brings to the practitioner in making the true message clear, as pointed out by Collins and Cruickshank (2017), is avoiding the 'you can be what you want to be ...but you're still a [colour]' trap. It is stressed in the Discovery accreditation process that this categorisation is to be avoided however it requires great diligence, and depth of knowledge of Jungian typology, for the practitioner to avoid it and therefore introduces risk to the application of the theory or the credibility of the Discovery system if the naïve practitioner falls into the trap and gets caught out by a group or individual. That it is so easy to fall into this trap is an inherent limitation.

The third challenge is closely related to the first two and may unveil a more critical limitation in the construct. The four colours are a clever summation of Jung's thinking-feeling, introversion-extroversion couples in which, less cleverly, exist Jung's information processing functions of sensing and intuition. Whereas the evaluator makes a measure of the former two the latter is implied. This creates the problem of 'how much' that is, although it can be deduced that a Fiery Red might lead with extroverted

thinking the evaluator does not measure the extent to which sensing, or intuition are preferred. Other than by following Jung's guide that intuition is at its strongest in extraversion and sensing at its strongest in intuition the practitioner is left with the options of going into a deep and probably off-putting explanation or, as is perhaps more likely, papering over the cracks.

5.6. Summary and Next Steps

The primary purpose of this chapter was to consider any potential that exists for applying the Discovery methodology to address outstanding enabling and constraining factors from Chapter 3. Discovery presents a framework of behaviours in which differing views of the world can be explored. Discovery also provides a language with which alternative behaviours, driven by the need to align perspectives, can lead to benefit through increasing the contribution of others. This resonates well with the need to mobilise social support in dealing with non-normative or trauma-based change (e.g. Savage, Collins & Cruickshank, 2017) and in building resilience assisted by socio-cultural influences (Galli & Vealey, 2008). However, whilst interpersonal sophistication can help to mobilise the support network it does not necessarily follow that it fully equips the driver for future encounters with a degree of readiness that reduces the impact (Cho & Park, 2013; Stambulova, 2003; Taylor & Ogilvy, 2009). This brings back into focus the question of the ecological validity and reliability of the Discovery model and the suitability of the theoretical base on which it is constructed. In exploring this it would appear that there is much to be cautious about with Discovery. Most notably the challenges to the validity of its theoretical base and the limitations uncovered within its depiction of Jung's irrational functions. Beyond this there is the real and ever-present

risk of stereotyping personality traits through participants, or practitioners, falling into the designation-by-colour type bear trap.

It is, however, not all doom and gloom. Discovery is a successful, commercially packaged product for use in business organisations, but its findings appear verifiable by observation and experience rather than by theory or maybe logic. In reviewing these critical aspects there are few who use Discovery who are vociferous in their criticism of it. Quite the contrary, most appear to have glowing praise and the question arising from this test of face-validity therefore is 'why?'. The answer may be in a combination of factors. Firstly, in the rigour and in the validity of Insights in developing their IDPE and the broader Discovery system. This potentially combines with two other factors, the integration of general good practice in their constructs and, importantly for this chapter, in their interpretation of Jung's observations on personality. In considering the theory, Jungian theory is forward looking, it presents thinking on future direction, engaging with the world, and then acting on that. It is not focussed on the past. It seeks to decipher the direction the psyche wants us to follow and presents functions and structures to give it a sense of meaning. As such Jung's work may be considered foundational and Discovery presents an interpretation of that for modern society and popular (management) culture to reflect on and consider relationships with a vision of future benefit. Although, as a trait, personality is not a cognitive learned skill an awareness of other's perception can allow individuals to temper or modify behaviours that is from a state perspective. Discovery presents a model of how, and why, doing so can reap future benefit. Given the acceptance of the Jung's work as a foundation, and also the limitations evident when considering more modern psychological science, it could be considered appropriate to use Discovery to a point. Specifically, in the context of this thesis and the following chapters, as an assistive tool in building a framework for, and

competence in, self-reflection and consideration of psychosocial behaviours and interpersonal relationships. The objective being to maximise the benefit that can be taken from any relationship and especially those in a team working environment.

In the next chapter I will explore the use of Discovery with a group of elite young drivers. All of whom have faced, are facing or are yet to face, some or all of the challenges reported in the study in Chapter 4. They are all currently active, competing with motor sport teams and have significant individuals around them who form their support network. The study in the following chapter seeks to evaluate the impact of using Discovery and explore the extent to which Discovery might add value to drivers in developing interpersonal sophistication.

CHAPTER 6: APPLYING INSIGHTS DISCOVERY IN AN ELITE YOUNG DRIVER

SUPPORT PROGRAMME

6.1 Introduction

The gap between knowledge and practice in talent development in motor sport was highlighted in Chapter 3 when activities in motor sport were compared to best practice from research. The summary of the main themes from the literature on talent development offered a comparative insight to motor sport and demonstrated some critical gaps at a number of levels, from the strategic, for example in not having long term coherent pathways (Martindale, Collins & Daubney, 2005) to the more operational with focus in coaching young drivers directed at winning rather than development (Abbott, Collins, Martindale & Sowerby, 2002). Chapter 3 thus highlighted a lack of alignment to the knowledge of best practice in the talent development pathway, demonstrated by the prevalence of subjective training which resonates with the thoughts of Collins, MacNamara and Cruickshank (2019) in terms of the research-practice divide. Chapter 4 then conducted research into the understanding of enabling and constraining factors which could impact upon the competitor's development journey. This brought sharply into focus the need for strong interpersonal skills and awareness of self and others as a valuable enabling skill that could also mitigate against some of the constraints. The critical consideration of the Discovery psychometric model in Chapter 5 then promised much in terms of building interpersonal sophistication into relationships based on its widely publicised success in business contexts and in a small number of sporting fields. However, a more in-depth consideration of what Discovery can, and cannot, do in Chapter 5 suggested that, to incorporate it as part of a development programme would require an amount of contextualisation at macro, meso

and micro levels. More specifically, as examples of this, it cannot be presented as a 'just do Discovery'. At a macro level it must be integrated across the content of the learning platforms to provide models that build the understanding of relationships into the context of development in motor sport. At a meso level the practitioners must be ready and capable to support with a depth of knowledge about Discovery and also the Jungian concepts behind it to deliver it authentically. At a micro level the practitioner must work diligently to avoid getting caught out in details such as the bear trap of 'they're a red' type categorisation. These are some of the aspects that must be considered and worked upon in effectively using Discovery to complement and enhance a driver development programme. Then reflecting back to the enabling and constraining and factors in Chapter 3, the demands on young elite drivers and the interpersonal relationships with those who support them becomes a critical consideration. For example, where interpersonal relationships play substantial role in driver development through the performance stages and in effectively managing normative and nonnormative transitions and any trauma encountered.

Moving forward, in this chapter the study undertaken seeks to address Objective 4 and apply and understand Discovery in an elite young driver development programme held over the course of one year. The specific research question, as described in Chapter 1, is to find out *What are the ways in which the use of Discovery might impact upon the development of young elite drivers both on and off the track?* Reflecting back to Chapter 3, and the identification of the critical nature of interpersonal behaviour, this would then offer opportunity to specifically understand how Discovery might contribute to the enabling factors and mitigate against the constraining ones.

The group chosen for this study was the FIA Young Driver Excellence Academy ('YDEA') programme which was described in the second half of Chapter 3 as one of the

'best practice' programmes within motor sport globally. Further, as described in Chapter 3, this group provided drivers identified by their regions and selected by the FIA as a global elite for their age group (between 17 and 23 years old). As ESP were the designers and deliverers of the programme this presented an ideal opportunity to optimise the use of Discovery within the programme

6.2 Methodology

6.2.1 Research Context

In terms of specific design, the study was designed to fit around the modules of the FIA YDEA programme. The FIA YDEA course was designed and run by Elite Sports Performance and Test and Training International using a team of two performance managers, two motor sports coaches, two driving trainers and a number of sports specialists, such as sports psychologists, sports physiologists and trainers, who were engaged as the curriculum demanded.

The course consisted of five, one-week modules held from December through to the following October and a number of ad hoc coaching interventions, where identified as necessary during the course, between modules. A copy of the outline curriculum is attached in Appendix 7. This provided the opportunity to engage in research with all the drivers. Discovery was introduced via the IDPE and drivers were provided with a full Discovery Profile and debrief in workshop one (December). The early introduction to Discovery and the incorporation of the Discovery system into the coursework meant that the drivers became increasingly exposed to the model and built a level of familiarity with its constructs. The two coaches and one performance manager had completed the Insights practitioner accreditation training. All other staff on the programme had

completed an evaluator and received a debrief to ensure familiarity and consistency of use as contemplated in Chapter 5.

6.2.2 Design

Reflecting the aim of the study to develop practically-meaningful knowledge, the approach in the study was driven by the pragmatic research philosophy described in Chapter 2. Aligned to this, methods were selected on their suitability for the specific research question and not aligned to any pre-established epistemological perspective (Giacobbi, Poczwardowski and Hager, 2005). As this study was exploring a little-known subject which was complex and with many potential variables in outcome, the decision was made to use a combination of focus groups plus interviews with the drivers (Powell & Single, 1996; Wimmer & Dominick, 2013). Focus groups were held towards the end of workshops three and four when all participants (n=18) were present. Two focus groups were felt necessary because drivers had had significant and varied exposure to the ID model in the period up to workshop four and thus this enabled capture of their developing experience. To address the research question across the range of interpersonal encounters in a consistent manner a single, semi-structured guide was designed (Appendix 8) which used a variety of core questions on how the participants viewed their interpersonal skills and their experiences of interpersonal behaviour. Probes and prompts were created that explored specific situations and impacting factors.

As this thus presented similar focus group research to that in Chapter 4 much of the underpinning design rationale is common for example, type of knowledge, assumptions and practical issues (Kitzinger & Barbour, 1999; Krueger & Casey, 2014; Morgan, 1997; Wilkinson, 1998); numbers and size of focus groups (Guest, Namey & McKenna, 2017; Krueger & Casey, 2000) and identification of all prevalent themes and

achievement of data saturation (Kreuger & Casey, 2014; Stewart and Shamdasani, 1990; Vaughn, Schumm and Sinagub, 1996). For brevity I shall therefore not repeat the rationale of design.

To enable a greater depth of detail of finding (Stokes & Bergin, 2006) individual driver interviews were held at the end of workshops three and five. As noted in Chapter 4 interviews enabled more in-depth accounts in particular where personal experience was recounted (Braun, Clarke & Weate, 2016). This had the effect, with the drivers, of strengthening and assisting in understanding the complexity of the subject (Tracy, 2019)

In a completely separate study addressing the same research question a group of significant others from the immediate support network of the drivers were interviewed in a mixture of face to face and telephone interviews at the end of the YDEA programme. These followed a similar semi-structured guide (Appendix 8), enabled more sensitive and private issues to be explored and provided a different, and potentially triangulating, perspective. Again, this followed the design rationale articulated in Chapter 4 and accommodated for the potential benefits and limitations of use of telephone interviews as discussed in Chapter 4.

6.2.3 Participants

All YDEA participants (drivers) (n=18) were invited, and agreed, to take part in the study and asked if they had any others close to them in their racing, for example, engineers, team managers, parents, who would be prepared to contribute to the study. Drivers were aged between 17 and 23 at the start of the course (average age 18.4 years, SD = 4.45) and were all at that time semi-professional driving in international series ranging from the European Rally Championship to Formula 3/GP3. They had all experienced different sporting pathways through a variety of race and rally series in America, Europe, and Asia-Pacific. They comprised of fourteen different nationalities

with seven of the eighteen having English as their first language – the remainder speaking moderate to fluent English, a potential problem which I will explore further below.

Of the 10 invites that went out to significant others, 4 stated their interest to take part. Response was influenced in some part due to the international nature of the course introducing a barrier of language and geography. This was supplemented by the programme managers (2) and driver coaches (2) to make a pool of 8 additional perspectives that being the two programme performance managers, the two driver coaches, two fathers and two team managers.

One performance manager was a former world champion in his late forties who had competed at world championship level for six years and, since retiring, held senior positions in a regional ASN and with the world governing body. The second performance manager was a multiple Le Mans winner with ten years' experience competing in F1 and, after retirement, became chairman of the Grand Prix Drivers' Association. The two motor sport coaches were qualified UK Level 4 sports coaches with motor sport specialisation – one an ex professional rally driver and the other a British Touring Car and GT Series winning driver.

6.2.4 Procedure

Following approval by the University's research ethics board, all 18 participants confirmed, by way of completed information and consent forms, to take part in the study. The focus groups included all 18 participants, ran for 90 minutes and, as they were held at the end of a multi-day workshop, drivers were relaxed and familiar with each other enabling open and interactive discussion. As noted, the same semi-structured guide was used for both focus groups which were held approximately nine weeks apart.

The broad questions in the guide included how drivers considered their interpersonal skills and how effective they believed they were at getting the most out of their supporting team. They were also asked what negative experiences they had had with Discovery and, again, what happened and what was the outcome. Following on from this they were asked about how they perceived Discovery had impacted on these skills and asked to give examples of what they had experienced and what was the outcome. For example, there are a number of distinct processes that drivers undertake in preparation prior to, during and post-race meetings such as SIM (simulator) work, track walks, sponsor presentations and debriefs. As noted in Chapter 3 these are contributory to their success and therefore were used as probes to explore how each driver's personal behavioural preferences might have impacted upon the effectiveness of their approach to these tasks.

The tools used for data collection were as used in Chapter 4, and deployed with a similar rationale, to the focus groups in Chapter 4. Drivers were encouraged to reflect on their experience, make personal notes to share on charts, discussion points were noted by myself, including notes on personal observations, a colleague acted as an assistant and the group dialogue was audio-recorded.

After Worksop 3 and at the end of the YDEA programme two sets of one-to-one interviews were conducted with the drivers with nine drivers being interviewed in the first round and nine in the second. All interviews (n=18) were audio-recorded and lasted between 12 and 77 minutes (average 28mins) (Note one interview was interrupted at 12 minutes and recommenced after a break). Following the same rationale for procedure as expanded upon in Chapter 4 interviews were very productive from a time and depth of content perspective largely due to the rapport described earlier. Some were particularly focussed to yield specific content for example in one interview covered

valuable content relative to one driver and the relationship with their team manager. In all interviews I took notes on observations and on the topics raised to capture salient points and any significant non-verbal cues.

In conducting the second part of the study at the end of the programme the coaches, performance manager, parents and team managers were interviewed (n=8) to provide external perspectives on any changes observed in the behaviours of the participants and to explore to what extent any changes were viewed as effective or ineffective. Interviews lasted between 23 and 63 minutes with an average of 48 minutes and all were audio-recorded. The same semi-structured interview guide was used as that with the drivers (Appendix 8) and deployed open ended questions to encourage dialogue and the expression of ideas, observations, and experiences. The interviews with one driver coach and the team managers, one from Germany and one from Slovenia, were held on the telephone for geographical reasons. Noting the implications of using telephone as a method for interview outlined in Chapter 4 (e.g. Gillham, 2005; Fielding & Thomas, 2008; Sellen, 1996) the interviewees were advised in advance of the nature and content and questions to allow a more informed and similar mitigations to those in Chapter 4 used.

Within the data collection process with both drivers' and significant others' data gathered was observed to reach the point of diminishing returns nothing new being added. The replication of data with no new issues arising regarding any category of data suggests that data saturation (Glaser & Strauss, 1967; Bowen, 2008) had been reached.

6.2.5 Data Analysis

Given the lack of previous research in this field, an inductive content analysis (Cote, Salmela, Baria and Russell, 1993) was deemed appropriate for both the drivers group and, as a second study with the significant others. Similar to the data analysis in

Chapter 4 analysis followed three key phases, preparation, organisation of data and assimilating into report form. In the initial stage each focus group and interview was listened to several times to note the essential features coming from it (Sandelowski, 1995). Recordings were then transcribed, and an inductive content analysis undertaken (Cote, Salmela, Baria & Russell, 1993). Specifically, in this second organisational phase, through a process of reading and re-reading the transcriptions, raw data units were elicited and organised into thematic hierarchies. This process involved grouping data into themes using characteristic words and content of similar meaning and using the constant comparison method (Corbin & Strauss, 1994) to compare findings to each theme and integrate themes and their properties to establish distinct factors, with notes recorded on the emerging ideas and evolving thinking (Corbin and Strauss, 2008; Cote, Salmela, Baria & Russell, 1993). This process was reiterated as far as possible without losing the meaning of the theme. In the third phase higher order umbrella themes were created to furnish an overarching description of the data.

A second, completely separate inductive content analysis was undertaken on the data from the second group of significant others to provide a second part to the study. This used the same data analysis process (i.e. an inductive content analysis (Cote, Salmela, Baria and Russell, 1993). The objective of undertaking a separate analysis was to achieve an external perspective of the impact Discovery on the development of interpersonal behaviour that could be compared and contrasted to the findings from the internal perspectives of the drivers. Thus, it was important to analyse the two data sets independently.

6.2.6 Addressing Trustworthiness

As emphasised in the equivalent section in Chapter 4, in any research it is important to consider trustworthiness at every phase of the study; preparations to the

study, data gathering, content analysis and result reporting (Elo, Kaariainen, Kanste, Polkki, Utrianen and Kyngas, 2014; Nowell, Norris, White & Moules, 2017). The approach to addressing trustworthiness was, therefore, very similar to that expanded upon in Chapter 4; for example in addressing the challenges facing the researcher discussed in Chapter 2 (e.g. McGannon, Smith, Kendellen & Gonsalves, 2019), the methods used (Elo, Kaarlainen, Kaniste, Polkki, Utrianen & Kyngas, 2014; Smith & McGannon, 2017; Sparkes & Smith, 2009; Tracy, 2010), and during the data analysis process (Davis & Meyer, 2009; Faulkner & Sparkes, 1999; Nowell, Norrris, White & Moules, 2017).

In addition to the approach taken in Chapter 4, several steps specific to this study were taken in response to the recognised criticality of the trustworthiness of the data accumulated. As the quality of the outcomes from the interviews are shaped by the level of trust and engagement with the participants (Sparkes and Smith, 2009), these factors were enhanced through three key actions. Firstly, each driver's career to date was fully researched and understood to gain an appreciation of their sporting journey to date including performance and any setbacks encountered. This was mirrored in the second part of the study in interviews with the significant others. Secondly the drivers and other participants were fully aware of my role and history and therefore the empathy which was created through this knowledge nurtured a high level of rapport and encouraged many hours of discussion outside the interview periods. Thirdly, as one of the principle staff in the YDEA the author developed a high degree of mutual trust and respect with all the participants and therefore openness and frankness of conversation was a key feature and was witnessed in the brevity of some of the interviews where pointed questions were met with focussed and pertinent answers.

In terms of working with the same group to avoid 'groupthink' (Janis & Janis, 1982) I acted in the role of devil's advocate to explore different perspectives and ask questions from a variety of positions (MacDougal & Baum, 1997). Within the data collection process, the ability to conduct focus groups, as noted above, created the opportunity to gain access to social interaction as a tool for negotiating meaning in context (Braun, Clarke & Weate, 2016) and also acted as an effective counter to the problem of the majority of participants having English as their second language. As noted above 'groupthink' was avoided through frankness and challenge. Indeed, all participants were engaged and enthusiastic in finding out in detail each other's experiences. The driver interviews also served to provide a triangulation of the findings which both confirmed the findings and gave confidence in their dependability.

Finally, to underpin the authors' assumptions and provide a critique of the developing themes, the performance manager was latterly consulted in the role of critical friend (Faulkner and Sparkes, 1999).

6.3 Results: Driver Group

The purpose of the study was to explore to the extent to which Discovery might impact the development of interpersonal behaviour, both on and off the track, from the perspective of: (a) young drivers; and (b) a selection of significant others in these drivers' networks. To explore the impacts from each perspective focus groups and interviews were held with the drivers group and a series of interviews with the significant others.

In this section I will present some brief summary observations of the overall study and then, taking the groups in turn, each of the developed themes are expanded upon to present what has been learned about the use of Discovery. Quotes from the data are given to illustrate the themes and demonstrate the depth and richness found in the data (Braun and Clarke, 2006). For brevity, however, example quotes given are

limited to one or two that, in each case, typify responses relevant to the specific lower order theme. Each quote is labelled with a tag indicating the origin within the data. The results are presented in two sections with this section, 6.3.1 *et seq* reflecting the group of drivers, and the group of significant others in the following section, 6.4.

6.3.1 Driver Group: Perceptions of the Overall Impact

The analysis of the drivers group identified 182 raw data units which were ultimately grouped into fifteen low order sub-themes, six higher order sub-themes and two umbrella themes as shown in Table 6.1. It becomes apparent within the first umbrella theme that drivers had used the Discovery model to build an ability to recognise behavioural types or styles in themselves and in others and understand the implications of the dominance of any single type of behaviour. This appeared from both their self-reflection of the attitude they adopted towards tasks that they had to do and also in how they interacted with others currently within their support network. The first umbrella theme, *knowledge of benefits of greater interpersonal sophistication in relationships*, emerged from the demonstration of an understanding of differing perceptions, either of themselves or others, and in how better outcomes from current relationships might come about through adapting behaviours to match the behavioural styles and needs of others. The third umbrella theme, *developing capability to change behaviours to achieve better outcomes*, arose from the reflections and actions of drivers and their considerations of how using greater self-awareness and interpersonal skills could enable them to achieve more from themselves and from their interactions with others in the future. The following sections takes specific quotes from the data units to elaborate on each theme to demonstrate the depth within the data and expand on the relationship between higher and lower order themes.

Table 6.1 Impact of Discovery as Perceived by Drivers

Lower Order Sub-themes	Higher Order Sub-themes	Umbrella Theme
Recognition of own behavioural styles and preferences	Understanding personal behavioural styles within the Discovery model	Knowledge of the benefits of greater interpersonal sophistication in relationships
Understanding how own behavioural style preference impacts upon approach to tasks		
Recognition of differing behavioural styles and preferences in others	Understanding others' behavioural styles within the Discovery model	
Understanding how other's behavioural styles impacts upon relationships		
Attaching meaning to observations of family, coaches, team, engineers and others	Understanding the relevance and impact of differing perceptions	
Reflecting on how own behaviours might be perceived by family, coaches, team, engineers and others		
Awareness of how differing perceptions may create conflict or suboptimal outcomes		
Predicting how others may think, make decisions and behave differently	Understanding opportunities in adapting own behaviours	Developing capability to change behaviours to achieve better outcomes
Understanding of how to adapt behaviours to benefit interpersonal relationships		
Understanding the limitations in adapting behaviours		
Reflecting on how immediate changes made in behaviours and approach to tasks may achieve better outcomes	Developing alternative approaches to tasks and problems	
Reflecting on and making how changes in behaviours and approach to future tasks/problems may achieve better outcomes		
Reflecting on and making behavioural changes that address current issues or problems in relationships	Developing alternative behaviours for better interpersonal relationships	
Reflecting on and making behavioural changes to improve current relationships		
Consideration of behavioural changes that hold potential to get better outcomes from relationships in the future		

6.3.2 Knowledge of the Benefits of Greater Interpersonal Sophistication in Relationships

Starting with the first umbrella theme, the knowledge of behavioural preferences expressed by the participants arose from three second-order themes. Namely *Understanding personal behavioural styles within the Discovery model*, *Understanding others' behavioural styles within the Discovery model* and *Understanding the relevance and impact of differing perceptions* which are now described.

6.3.2.1 Understanding Personal Behavioural Styles Within the Discovery Model

Understanding the behavioural typology of Discovery was included in the debriefing process for the Discovery Profile and so it could be expected that drivers would be familiar with the typology. The drivers later identified their own behavioural preferences in the context of their motor sport. For example when approaching tasks related to performing there was *Recognition of own behavioural styles and preferences*, that is the attitude they adopted when faced with having to undertake certain motor sport related activities, described within the four colour model, such as in a preference to use cool blue behaviours; "I like doing this [race debrief] as it is all about information" (D86), or fiery red; "[I give] short direct messages" (D121) and sunshine yellow; "[I] love social media" (D124).

One element reported was an increase in self-awareness and self-reflection. There was a recognition that one's own behavioural preference would have a bearing on how one might approach certain tasks – that is *Understanding how own behaviour impacts upon approach to tasks*. For example, one driver, reflecting on his preference for sunshine yellow (extraverted feeling) commented; "[I] may not focus enough and miss certain points that could be important" (D142). Contrasting this another driver, with the opposing cool blue preference (introverted thinking) commented; "[I like] to look into the data" (D98). Others commented on areas where they realised that they

may be focussing on one type of approach to certain tasks for example in “following the decided plan” (D148) or “not consulting others as much as I need to” (D150) because they were acting in a cool blue, introverted thinking, style. Drivers also expressed specific problems arising through one of the four colour energies being either overwhelmingly prevalent in their approach or in being absent or lacking. For example in SIM work it was expressed that cool blue preferences (introverted thinking) undermined the SIM experience as using a SIM was “not realistic” (D97) and that it did not compare to information acquired during races; “SIM data is not realistic versus real data and video footage” (D100).

6.3.2.2 Understanding Others’ Behavioural Styles Within the Discovery Model

In terms of *Recognition of differing behavioural styles and preferences in others*, reference was consistently made to individuals in the family or in the team. For example; “Yeah, like my mum, I know she’s green and yellow, nothing blue” (D3) and “the new team manager...I’ve just been in contact with him on the phone and I think is also pretty blue” (D42). Drivers were also able to identify when an individual would be seen to adopt a different set of behaviours; “[My father is] red. When he is calm he’s blue. So I know...like he changes so I know...even from his face, each colour. Probably red or blue”. (D2). They could also recognise specific characteristics of Discovery type in individuals, for example giving examples of when sunshine yellow, characterised in the Discovery model with descriptions such as ‘enthusiastic’, ‘sociable’ and ‘demonstrative’, such as; “With our work [with sponsor’s guests] it’s a very dynamic group of people and we have a lot of people that like to listen to a story” (D22). Also in describing working with engineers where cool blue behaviours were seen for example; “I work around a lot of engineers as well so they are very, very detailed; they want to tell you every single point” (D179)

This demonstrated that drivers were quick to pick up and identify this typology of behaviour, and use the descriptive-colour language however, as noted in Chapter 4, there was a tendency is to articulate the specifics as 'he is a ...(colour)' which is a shortcoming I will expand on later in this chapter. However, they could recognise their own attitudes and behaviours and also those of others. Also, such as in the case of the sponsor's guests and the engineers, they could recognise different contexts in which specific types of behaviour appeared.

In addition to how behavioural preferences had an impact on approaching tasks the drivers also recognised the impact on interpersonal relationships. Firstly, however, it is important to note that, in terms of relationships, there was evidence that an awareness of the implications of different behaviours had existed before the introduction to Discovery. For example, one driver noted the advice of his father:

I don't want to spend time on things that are wrong. I want to say, 'Right there, you did this wrong.' And then he'll fix it next time. It's the same – my dad used to say you get these people who note things down all the time and have a whole book of things they still have to do. Where, once I get something in my mind I want to finish it now otherwise there's a whole list of things I still have to do. I'd rather finish one thing now and finish the next thing and finish the next thing, try and get it out of my line very quickly. (D27)

This is a vague description compared to the more precise wording in Discovery however it is an example of where the language used in Discovery gives a framework and meaning that enables a more effective description of observed behaviours.

In considering *Understanding how behavioural style can impact upon relationships* lower order theme, drivers used the language of the Discovery model to

categorise other's behaviours and consider their own response to them. For example, as one driver described their teammate and their reaction to them;

I think right now he's faster than me so I can't directly confront him but it's a matter of time. I think right now, he's a more built image in Europe as a driver, I'm a bit quiet as of now...so being more reflective, being more blue. [Teammate Name], I know is more sunshine yellow. But on the track he's more red, he tries to influence you with things that he says to make you drive differently. I just mind my own business until I can bite back. (D35)

Also, when speaking about a team manager;

He was definitely a fiery red. He was like – he was really to the point and he was straightforward...but he was also a little bit of cool blue because he wanted to have some numbers, he wanted to know what I could offer him in numbers. (D48)

There was also the understanding of the implications of personal behaviour on relationships with sponsors with whom they would have to consciously demonstrate “understanding of what they like to see and hear” (D132) in order to build and maintain their relationship with them.

In summary this showed that, in reflecting on relationships, drivers could recognise and align the behaviours that they observed in themselves and others to the Discovery model and also consider their response to different behavioural styles.

6.3.2.3 Understanding the Relevance and Impact of Differing Perceptions

Underpinning the second order theme of the relevance and impact of behaviours were three first order themes; *attaching meaning to observations of family, coaches, team, engineers and others; Reflecting on how one's own behaviours might be perceived*

by family, coaches, team, engineers and others and Awareness of how differing perceptions may create conflict or sub-optimal outcomes.

Considering each of these in turn in *Attaching meaning to observation of family, coaches, team, engineers* drivers expressed a number of instances where they used the four-colour model to interpret and put a framework around the actions of others. This included all the key people engaged in the everyday aspects of their performance and their development and included family, coaches, teammates, team managers and engineers (n=17). For example, in considering a father:

But I figured out he is blue as his nature but at different situations and different times he'll change to some colour and another will be coming out. On a Sunday he's one colour, when he's angry he's one colour, when we go for a movie he's one colour, so it keeps changing (D12)

...and in considering their relationship with their coach:

There's not been any racing happening now so when I was here in my city, we meet up, whenever we're off racing he's on a different behaviour so I can understand because now he's more yellow because he's not...he traces back to the previous story, obviously how to improve and all that. But when we're in the season and bang-on, he's like, 'We're doing this set up with (your car), I want you to get this time because this is what I think is the best for you and I have to go there and complete...' he's being direct. 'I'm doing this for you, come back and tell me what this does to you, this does to you.' There's more direct behaviour, there's more thinking behaviour, more getting it done – red and more blue in terms of the information. (D13)

In *Reflecting on how own behaviours might be perceived by family, team, coaches, engineers* drivers reported a realisation that they were now able to reconcile

to the Discovery model how others were perceiving them for example; "I know the things that my family have told me before about myself, it sort of starts to add up" (D31) and when considering the team; "[I] may be seen by others as not concentrating even if you are but you have to have a bit of fun in order to take it in and not lose focus" (D143). Further they were able to identify the ways in which the behaviours seen through the four-colour lens impacted upon their relationships. For example, one driver referred to his relationship with his father. The Discovery profile suggested the driver had a preference for sunshine yellow, extraverted feeling, in contrast to his father whom the driver perceived as having cool blue, introverted thinking, preferences:

I think also my dad might also see me as I don't care about life, I'm not serious about life in general and I think he's also said it to me a few times, like life is serious and he's actually said to me, 'You are not taking life seriously' (D43)

Drivers also considered the differences in perceptions and beliefs that others may hold as potential blockages to effective relationships. For example, as one driver put it:

I do feel that because when you come from a strong perspective yourself. When you get someone else's perspective it's very hard to understand why they believe they're right. The biggest thing for me that I initially got from Insights was understanding that people have different opinions and they all believe their opinion as hard as you believe yours. It's real hard to get your head around because you're sitting there-- Maybe for me, I sit there logically and go, "This logically makes sense for you. Like how can you not see this?" (D65)

Which leads then to how differing behaviours can, in addition to causing blockages, also create conflict and sub-optimal outcomes. In developing *Awareness of how differing perception may create conflict or lead to sub-optimal outcomes* it was

noted that, once drivers were aware and had a framework for articulating their thoughts about their own behaviours and those of others, the implications of different perceptions became easier to explore. For example, in conflict with a teammate:

I don't know, I think the team, the type of team that sort of focuses on – like my teammate is extremely red and yellow, he's just really like...I think he wants everything around him, around him, around him and I'm kind of red and blue so I want all the information, I'm not wanting to talk to him. And usually the team does respond well to him being like that or me being like that. (D34)

Drivers also reflected on how differing behaviours and perceptions led to frustrations. For example, with their coach; “Actually yeah, when you think about it, sometimes you can really feel that they are a different colour, especially with [Name], our coach” (D51) and also with parents;

I don't have a lot of patience with my parents and stuff, when they are telling me a story or something I don't like...so I was a bit – not in dinner table talk but when I was racing or something serious, I would get frustrated if they don't get the point and don't repeat it twice’ (D32)

In the race team this was noted in frustrations with the engineer;

[I was] struggling with car and not being able to get on top of it...got to the point of saying my point of view in an aggressive forward way [which was] Negative [and caused] tension between myself and my engineer (D166)

Also when required, by the team manager, to speak with sponsors a driver noted; “Team manager [was] pushing me to contact some sponsors which I have already did I just contact them again but I felt I was annoying them [which was] Negative...I felt negative because is not my character to annoy anybody” (D167).

6.3.3 Developing Capability to Change Behaviours to Achieve Better Outcomes

This second umbrella theme emerging from the data summarised the development of a capability of the drivers in using the model to seek future benefits. It resulted from three higher order sub-themes; *Understanding opportunities in adapting own behaviours*, *Developing alternative approaches to tasks* and *Developing alternative behaviours for better interpersonal relationships*.

6.3.3.1 Understanding Opportunities in Adapting Behaviours

The understandings in three previous higher order sub-themes are followed by considering where potential might exist in changing behaviour, even slightly for, instance in being more tolerant of the behaviours of others, in order achieve better outcomes from the relationship. This draws on two lower order sub-themes, that of *Predicting how others may think, make decisions and behave differently* and then *Understanding how to adapt behaviours to benefit interpersonal relationships*. It also emerged that drivers felt that there were boundaries in how far they were prepared to change their behaviours to accommodate the needs of aligning to others. This is reflected in a third lower order sub-theme of *Understanding of the limitations in adapting behaviours*.

In terms of demonstrating how the behaviour of others could be foreseen and *Predicting how others may think, make decisions and behave differently*, drivers pointed to examples from relationships with teams, teammates, family, sponsors and coaches for example with the team and teammates;

If I'm at a race weekend, that race with DTM, and I know a couple drivers in there so I'll probably just be more sunshine yellow, meeting the team, meeting the team bosses and things like that. It's important to get that worked out. (D69)

And with family; “Like, for example, my mam is the type of person who would show up like 'oh yeah, the car...' a very geeky type of person and I don't like the stories, she's very sunshine yellow, she likes stories. Yeah.” (D33). There was also a degree of stereotyping in terms of potentially making assumptions about individuals based on the roles they played. That is their function required certain types of activity which aligned to a behavioural type as described by Discovery. Considering the engineer's function in the team would imply importance to characteristics such as data, process and detail which would be attributable to the role and not the person. However, this was perceived by the drivers as presenting a singular characteristic that is, not making a distinction between personality driven preferences for behaviour and those demanded by their position. For example, in commenting on a new team one driver commented; “I haven't met the other people but, for sure, the engineers are going to be not fiery red, for sure” (D54). This sort of block characterisation was also given to sponsors; “I mean, especially when you are talking to sponsors and people that have something to do with business, for me, they are pretty much always the same colour: they are fiery red and cool blue” (D46)

Drivers reported an *Understanding of how to adapt behaviours to benefit interpersonal relationships* with family relationships being cited such as “I know how to adapt with the people. I try to figure out each one, even between my family” (D1) and expanding on that; “So I'm adaptable so I can change and have no problems. I've learnt more how to adapt easier but it wasn't categorised in my mind like blue, red, but now I can see – 'He's green, he's blue'” (D6) and also, with others such as the team manager “... starting from the team manager or the company managers here. I know how to get to (him), how to put myself in his mind or to connect – I'm looking for the word! To connect.” (D10).

This was also noted when considering interactions with sponsors; “They [Sponsors] are fiery red and cool blue and you always have that in mind, that they are those two colours. And then you might have to really learn how to adapt” (D174) and;

So when I go and talk to someone I can understand through the hints he's giving what kind of person he is and change my approach to him. So he understands better and he gets the conveyed information I'm giving. (D177)

Also drivers recognised a number of small specific changes which would be beneficial such as; “[I] take notes and keep it [debrief] short” (D88); “Be quite calm and collected, might not be assertive in some positions” (D93) and “Be more factual with information” (D96).

Considering the *understanding of the limitations in adapting behaviours* lower order sub-theme, the first, and obvious, limitation was in the drivers’ observations of the interactions between others where they felt powerless to do anything, such as a driver’s father and their team manager;

And I think now, more than ever, I can work with [Team manager] and I can work with my dad but for some reason [Team manager] and my dad don't work that well together. And now I'm realising it more than ever, what they are doing on, ... difficult to get them to connect. (D23)

There was also evidence to suggest that drivers might use the Discovery profile as an excuse for perpetrating certain types of behaviour rather than just an explanation of their existence for example in the case of one driver who behaved in a certain way with his parents and used the Discovery Profile to justify not adapting his behaviour to align to his parents’ needs:

So it just really adds up to what was said in the book [Discovery Profile]. And I don't think I was able to change my attitude so much because of being aware but I told my parents now that it all adds up so now they expect it, they know that's part of my personality. And we talked about it for like a day and my dad is exactly like that as well. (D182)

Of course, there is one apparently good outcome from this in that the driver reported talking to his father about the behaviour for a fairly lengthy period of time which, one must assume, had some benefit. However, the question of 'at what point should anyone stop trying to adapt behaviours to align and connect to others?' was brought up as a limitation of the concept of modifying behaviours to achieve better relationships. For example, in considering the team one driver commented;

You can only dial up a lot of green but you kind of committed to dialing out fiery red The type mobility thing, you're on the move into that space quite a lot when you're with them. The only issues I have though, is sometimes everything takes too long. (D66)

and with sponsors;

I quite like to get involved because that's what they want me to do as well, but there does sometimes come a point and I'm like, "All right guys, we have talked about the rugby match the weekend five times. (D67)

Finally, the point was raised that, although benefits in adapting behaviours could be seen, the model was not that simple to learn as reported by one driver; "I mean, I'm still not 100% into it, it's difficult to know 100% about it but I mean, I think it's good when you are talking to sponsors, I think it's really good." (D50)

6.3.3.2 Developing Alternative Approaches to Tasks

In probing into the distinct processes that drivers undertake in preparation for, during and post-race meetings such as SIM (simulator) work, track walks, sponsor presentations and debriefs, as noted above, a high number of data units (n=29) were reported in their reflections of their own attitudes towards these tasks which led to behaviours which could impact positively and negatively on their performance. Underpinning the development of approaches to tasks were two lower order themes; *Reflecting on how immediate changes in behaviours and approach to tasks and problems may achieve better outcomes* and *Reflecting on how changes made in behaviours and approaches to future tasks and problems may achieve better outcomes*.

In expanding on *Reflecting on how immediate change made in behaviours/approach to current tasks may achieve better outcomes* drivers recognised a number (n=21) of modifications in approach to motor sport processes. These were in the approach to debriefs, SIM work, track walks and working with sponsors for example; “Take notes and keep it short” (D88) and “being more factual with information” (D96) (debriefs), “practice race starts” (D109) (preparations) and “use real world data as reference” (D113) (SIM work), “may be thinking too much about what happened last year instead of looking at data etc” (D145) (track walk); “use email” (D117) (communicating).

Discovery also led to some structured reflections on specific performance for example in one driver’s articulation on how he would approach actions during a race;

So for the first laps, you might have to dial up something different to what you what you would dial up normally for your longer status, but definitely, I think If you drive quite logically with a lead preference of blue - and this is very stereotypical or stereotyping. I think you have a braking point, and then you chip

away at it and you chip away and you chip and it can take five laps to get towards the limit. Whereas if you go out with a more intuitive style, and you trust your gut instinct and think right, I can brake there. Actually, you will be driving for a long time. You can make a pretty damn good guesstimation, where you can brake for what corner to the point where you're not going to spear into the tyre wall. Like you might miss your apex, you run a bit wide or something like that. If you do that on lap one, all of a sudden, you use your blue energy for lap 2 to go, "Well actually, I missed the Apex by a couple of feet. I'm going to dial that back 3 meters," and it's there. You're there straight away. (D57)

In considering how future tasks and problems may be approached the drivers, again, showed a number (n=11) of specific approaches they would consider from the perspective of a different position on the four-colour model arising from *Reflecting on how changes made in behaviours/approach to future tasks/problems may achieve better outcomes*. For example, in using more sunshine yellow to "practice radio communication" (D107). Also, the debrief was seen as a process in which changes in behaviours such as "setting time limits so you don't end up spending hours on one subject" (D85) and "take on assertiveness to get the point across" (D95) would be beneficial.

However they also expressed that they used the four colour model as a structure for considering potential improvements; for example by using cool blue energy in the SIM process they could work on specific technical and tactical elements such as "racing lines" (D98) or "look into the data" (D99), use fiery red to "set a [specific] goal, whether a racing line [and a] time, something achievable" (D103) or sunshine yellow to work together to plan a more effective "pitstop strategy" (D108).

In considering the probes on specific motor sport processes and tasks the drivers highlighted a number of changes to their practice based on considering alternative approaches. For example, with sponsors in becoming “very general and outgoing” (D123), in using others to assist them in preparation; “practice presentations with yellow person” (D125), and in being reflective and researching the sponsoring company in advance of meetings; “study company online - create questions” (D130). With track walks drivers considered changes such as “exploring the walk and using it as an opportunity to bond with the team and talk about the weekend coming up” (D139) and, in planning and preparation “flexible planning” (D158) and “planning with other people’s advice” (D156) were noted as beneficial changes in behaviour.

These findings demonstrated that the drivers’ self-awareness had increased to the point where they were articulating thoughts and enacting different behaviours to achieve better outcomes, across all the colour energies, in many motor sport processes.

6.3.3.3 Developing Alternative Behaviours for Better Interpersonal Relationships

The final higher order sub-theme arose from the lower order themes of *Reflecting on and making behavioural changes that address current issues or problems in relationships*, *Reflecting on and making behavioural changes to improve current relationships* and *Consideration of behavioural change that holds potential to get better outcomes from relationships in the future*.

The lower order sub-theme of *Reflecting on and making behavioural changes that address current issues or problems in relationships* was emphasised through having a high number of data units (n=28) reflecting consideration of existing problems in relationships with family, team managers, teams, coaches, sponsors and, in particular with respect to on-track performance improvement, race engineers. In addressing these

known problems through behavioural change drivers reported benefits for example as achieved with parents;

So I know that I'm red, I need to be a different colour, both of us [my father and I] argue, we have big problems. So it made a lot of changes actually, dealing with people. So I've adapted them and I have most of the colours over the line, three colours... It is much more relaxed. (D5)

Some of the most directly impactful actions in terms of benefit were associated with changes of behaviour towards race engineers;

As an example, before I knew about this my interaction and my communication skills with my mechanics and my engineer was not very good, you know. It was just..I used to come back and there used to be very less or non-communication from my side and their side and it really didn't go anywhere, it just stagnated with the performance. So now when I come back I can – I try to read my engineer, what of the four types he is, and hopefully figure out one which he predominantly is and then I would start a conversation and hopefully build it and make it better so that I can get information. (D74)

That's a time when you have to interact with your engineer a lot...and that didn't happen. He would just come sit and I gave the feedback to the team manager and I said there's a big disconnect... I was having to change my behaviours a lot to a different type, to change the way I communicated to him. [That affected my position on the track] a lot, from achieving nothing to getting to the top five, pace-wise. (D79)

and

Engineer didn't believe engine was pdp [not performing to specification] and wasn't being receptive. Talked to him and was honest with him, told him he had a stick up his ass in a nice way. Which was positive because he tried different things to get the car to work better. (D165)

In terms of *Reflecting on and making behavioural changes to improve current relationships* when asked to consider those around them one driver could see the potential for misunderstandings between themselves and any of the others around him; "Yes, definitely. I think me being a very yellow person it's very easy to get the wrong information on certain people and likewise, of people of me. So I've really adapted how I react in different situations" (D39). Whereas this lacked the specificity of knowing who it does indicate the awareness of the need for a deeper sophistication in multiple interpersonal relationships.

In considering how multiple changes could be made to deliver benefit with their network over a race weekend one driver reported;

With the information I learned I take it to a race weekend or I would try to figure out, I had my team, my engineer, my mechanic, my team manager so I would rather put myself in a position where they would like to be asked in a way they understand so I get the best answer out of them and I can use their feedback to excel in my race. So what I would do is I would try to adjust myself or change myself to a way they would prefer the way questions would be asked. In a way that they are comfortable in so I can extract the best out of them. (D73)

In terms of the specific relationships those with sponsors was one area where the model was seen to have been particularly useful;

I would say, my main sponsor. He probably would have thought that I'm all happy smiles and stuff and then I probably – he knows I work hard but he doesn't know

that I'm very...[much a] a thinker behind the scenes and stuff like that and I wanted him to see that and maybe appreciate me more. He's very, very blue, so he's looking for information and data and thinking and so I think in order to help him understand me I needed to change my colour so that he realised that I wasn't all happy smiles and I actually had a mind beyond it. (D41)

Drivers also felt that they could use the model to interact more effectively with their coaches for example when prompted about how they interacted with their coaches one driver reported:

Actually a lot better, I don't know [Coach 1] very well but I know [Coach 2] and he's blue so when I email him for something like – I just put numbers with pics and videos so everything is clear and so he can understand me easily. I don't tell him the story – 'I went into the car and the belt was...' I know he doesn't care...'just give me the facts.' So especially with him I can just say. (D9)

Finally, family relationships, especially with parents, predominantly fathers who were involved in the role of driver manager, were also seen to benefit:

I think he is, he is pretty much the same as me, he has three colours (above the line), blue, red and yellow. I think he's most red and blue, when I'm having to make some organisation with him, I always try to put the evidence up, like this is the numbers! When I hadn't done that before he's gone on and on and on with numbers. (D17)

In *Consideration of behavioural change that holds potential to get better outcomes from relationships in the future* a lot of focus was given to relationships in general;

Yes, I mean, since I've got the information now, I'm going home and trying it out, going home and understanding all of this in detail. So when I go and talk to someone I can understand through the hints he's giving what kind of person he is and change my approach to him. So he understands better and he gets the conveyed information I'm giving. (D11)

With many the realisation that all relationships would or could benefit from a deeper understanding and greater sophistication was a main benefit:

I'd say so, there's a lot of different people around me, especially this year – trainers and managers and coaches and everything. There is a lot more people around this year than there was before so you have to sort of adapt and connect to each one, you can't just take the same approach to every person around you. So I think it will help. (D25)

In terms of addressing potential future relationships with changes in behaviours drivers noted relationships with sponsors in particular e.g. “be detailed in communication” (D117) and “Speak with yellow or red” (D119) and considered more habitual changes such as “using email” (D118) to communicate with sponsors more formally and “make a plan(one pager typed with ideas)” (D120) to communicate with the team.

In summary the findings from the drivers highlighted many positive features however there were also shortcomings. These aspects will be expanded upon in the discussion section at the end of this chapter after presenting the results from the interviews with the significant others.

6.4 Results: Significant Others

As explained earlier, the second group in this study were significant others that is the performance manager and coaches for the programme, parents, and team

managers. This group was studied in a separate manner to give an external perspective on any changes and the impact of Discovery on the interpersonal behaviours of the drivers. The overall feedback from the interviews was that Discovery had been complementary to the learning of the individuals and also to their more general development. The structure of the findings, from the dataset of 121 raw data units, is shown in Table 6.2 below which highlights the fourteen lower-order sub-themes, six higher order sub-themes and three overarching umbrella themes. Each lower order sub-theme is then expanded upon in the following narrative with representative supporting quotes limited, for brevity, to those that typify the points arising from the data.

Summarising the first umbrella theme considered, *Observed benefits from intrapersonal sophistication*, the main findings emerged from the observations of greater self-awareness and self-reflection in the drivers leading to changes of approach and attitude which brought benefits in either solving problems or tasks and achieving, as perceived by the interviewees, higher levels of professionalism. The second umbrella theme, *Observed benefits from greater interpersonal sophistication*, arose from comments about how the model had been adopted and used by the drivers to both make sense of the behaviours of those around them and also how to reflect on how best to engage with others in order to achieve better outcomes. The third umbrella theme, *Requirements and Limitations in use of Discovery*, reflected that the coaches and practitioners required a full and robust understanding of the Discovery model and that, to obtain the optimum benefit, all the parties to a relationship should be familiar with the Discovery model and system and not just the driver. The following sections takes specific quotes from the data units to elaborate on each umbrella theme to demonstrate the depth within the data and expand on the relationship between higher and lower order themes. Quotes are tagged with the data unit reference from the analysis.

Table 6.2 Impact of Discovery as Perceived by Significant Others

Lower Order Sub-themes	Higher Order Sub-themes	Umbrella Theme
Developing a greater breadth of thinking towards problems	Increased self-efficacy and greater self-determination	Observed benefits from greater intrapersonal sophistication
Demonstrating greater self-efficacy		
Using Discovery framework as a tool for self-reflection	Increased self-reflection to improve outcomes	
Using Discovery framework to find more effective approaches to tasks		
Benefits attained from better relationships with others	Demonstrating more effective teamwork	Observed benefits from greater interpersonal sophistication
Benefits attained through influencing relationships of others		
Using a common framework and language for behaviours	Developing capability in interpersonal sophistication	
Identifying the behavioural styles of others		
Developing adaptability in behaviours (to match others)		
Diligence in understanding and applying Discovery	Knowledge required by coaches/practitioners	Requirements and Limitations in use of Discovery
Identifying when and when not to use Discovery		
Long term use of Discovery	Knowledge required by all parties in the relationship	
Challenges in accepting and practicing change using Discovery		
Other parties to the relationship must be familiar with the model to optimise outcomes		

6.4.1 Observed Benefits from Greater Intrapersonal Sophistication

Supporting this second umbrella theme are observations made on the development of the drivers through the period of study in terms of their own attitudes and behaviours and summed in the two higher order sub-themes of *Increased self-*

efficacy and greater self-determination and Increased self-reflection to improve outcomes.

6.4.1.1 Increased Self-Efficacy and Greater Self-Determination

In considering a *Developing a greater breadth of thinking towards problems* drivers were observed to generally taking a wider approach to the problems and tasks they were facing and the processes that they were using for example; “Yes, I would say that, and I would say that the processes they use—[and] If you can improve someone [in] the way they use their processes, they can then get a much better outcome” (O33). The development of this broader approach over the period of the YDEA course was noted by the performance manager as; “They’re all thinking and acting more and better about anything or anybody that shows up – or new situation that happens” (O122). This was summarised by a coach as; “[They are] prepared to try and listen to new things and ideas and discuss themselves. That, for me, is what makes drivers good to work with” (O121)

Additionally in terms of *Demonstrating greater self-efficacy* drivers were noted as building on their own self-reflections and observations to assist their own development for example; “Someone like [driver], in particular, has become more professional about his approach” (O79) and “What I've noticed with [driver] is a desire to learn a lot more” (O114). One coach referring to one particular driver noted; “I think the [Discovery] program, to [driver], has given him some self-confidence and given him some real drive and determination and it's given him a bit of stature in Costa Rica in that he's now quite a well-respected driver” (O78).

6.4.1.2 Increased Self-Reflection to Improve Outcomes

The Discovery model seeks to build self-awareness and drivers were observed to be *Using Discovery framework as a tool for self-reflection;*

He was coming in young, naïve driver. Lots of money being spent on him up to that point, in the millions of pounds invested, probably quite an inflated ego due to that amongst many other things. Ultimately, the Insights Discovery provided a template for [driver] to better understand his own self. (O32)

This self-awareness and reflection led to changes in intrapersonal attributes such as blaming others; “with [Name]. To begin with... if anything went wrong, there was a tendency to blame things for happening rather than taking any responsibility, which I think I saw a change in him” (O75). Also, coaches saw Discovery as a tool to breaking down mental barriers to learning and development; “Breaking a paradigm, breaking a mindset...especially in a high stress environment, big pressure and just the driver not wanting to get too bogged down” (O56)

Drivers considering how a person with different attitudinal functions, that is say from a fiery red, sunshine yellow, cool blue or earth green perspective other than their own might approach tasks or problems, created the opportunity to find alternative ways in which they could approach tasks. That is *Using Discovery framework to find more effective approaches to tasks*. One aspect of the model that assisted in this was its usability in differing situations; “the model is easily adaptable to any / all situations” (O03) however approaching tasks having considered a number of alternative approaches was seen as a particular benefit to drivers, for example;

Actually how he behaves and understanding that doing things one way because [driver] likes it that way, and actually [driver] realising that that just because it's [driver]'s way and it works for [driver] is not the way that works for everybody else. (O30)

In terms of building skills through training processes, as an example specific activities with sponsors such as season and event planning skills, and even in the

coaching process itself, the coaches felt that addressing behaviours with the elite drivers helped; “My personal opinion is we need to continue to talk about behaviours... I think coaching is more effective this year through talking of behaviours rather than processes” (O80).

6.4.2 Observed Benefits from Greater Interpersonal Sophistication

Underpinning this second umbrella theme are two high order sub-themes which have the potential for long term benefit to the driver. That of *Demonstrating more effective teamwork* and *Developing capability in interpersonal sophistication*.

6.4.2.1 Demonstrating More Effective Teamwork

Notwithstanding the limitations raised in 5.4.1.2 above, there were still *Benefits attained from better relationships with others*. Considering relationships within the programme, that is predominantly with coaches, a number of features of the relationship were noted to benefit from Discovery, for example as one coach noted; “it helped me to be more relaxed and comfortable with asking challenging questions, particularly with someone with a high [competition] standard” (O103) and; “Well, it [Discovery] makes them easier to coach. For me, what makes a driver coachable is when they take the resource to the max, and when the coach wants issues resolved, they are open-minded.” (O99). Broadly the performance manager reflected on this as; “Using Discovery makes coaching staff more consistent with drivers” (O06).

The most important relationship that came up repeatedly in the results was that of driver and engineer. This interpersonal relationship was seen as of prime importance; [The] engineer would be the first relationship. The level of driver that we're working with, generally speaking, the engineer is the most important person within that relationship, and they call the shots within the rest of the team. Once

the engineer is bought in and ingrained, then that can influence the wider team.

(O52)

Although not included in the Discovery element of the course, as noted above, in some cases the relationship with the engineer was vastly improved through the driver's use of the Discovery system, for example as reported by a parent;

He [the driver] could very non-communicative, he won't say anything. And he was very flustered and saying, 'my engineer never talks to me and I finished my session, what's going on? He's supposed to tell me stuff'. And I didn't go for that session, the first testing session of this car (a Formula 3...) And later I think he figured out and they got along famously and they'd go eat together. (O67)

In summing the number of relationships that the driver depends upon, the performance manager noted;

I think the racing driver these days has to be much more than fast. There's so much more to it. I think even those that we do [Discovery] with them it helps them massively in all the other areas so in terms of the teamwork, being part of a team, in terms of how you approach the decisions you have, and how you use, - the way you've marketed yourself, the way you understand how to learn, all those sorts of things. The Insights model that we've done with them helps them in those areas. (O96)

In terms of influencing others, an area which, as noted in 5.4.1.2 above, was limited due to others not being given any exposure or inclusion in the Discovery process, some drivers were still observed to be achieving *Benefits attained through influencing relationships of others*. As noted by a parent;

This is a team with a bunch of Asian mechanics which is particularly very different; Asian mechanics tend to be loud, but he [driver] tends now to be subtle. Even when he's saying it assertively, he's telling it in a nice, soft way. (O69)

Also, in working with teammates; "It's all about working with the teammate as well... It's given a multitude of different benefits." (O29) some examples of which are; "...with the media...commercial side and any of the human elements of connecting with people" (O106)

6.4.2.2 Developing Capability in Interpersonal Sophistication

In overall terms *Using a common framework and language for behaviours* was found to be a foundational step for individual change; "Insights Discovery provides a model of understanding for what works best for everybody and enables people to adapt their behaviour towards better working with others, but also to enable them to communicate what works best for them as well." (O37). This observation was reiterated by the performance manager where the model itself was, similarly to the previous quote, providing the basis for improving the working relationship with the driver; "I look at Insights as being an integral part to the development of a driver because it provides so much value to the working relationship we have" (O50) and also in providing a model on which to discuss and plan development activities and training interventions; "...actually with them [the drivers], and then with us [the performance manager and the coaches], it provides a model for a discussion and understanding to work towards" (O120)

In terms of the language the coaches found the terminology within the model a useful tool to use to communicate and describe different and alternative behavioural approaches to tasks to aid learning; "I think the Insights stuff helps explain that quicker and clearer, and perhaps on a slightly deeper level. To a certain extent it is accelerating

it and making conflict manageable and constructive” (O98) and “it's accelerated the learning. Maybe that's the point, because what Discovery's done... Discovery, in fact, gives you great language for explaining, and understanding” (O97). This was potentially considered as a result of more reflective learning arising from the emphasis on behaviours towards learning rather than just describing tasks with single or limited methods for effectively completing them;

There was a more self-realization [reflection] from this year than there was last year. I think that's come from discussing the behaviours. I think the differences between processes is the personal connection. When you start talking about behaviours, it's quite personal I think because if someone starts telling you about good behaviours and bad behaviours and you see them as a quite personal thing, but someone talking to you about processes and effective, efficient processes, it's not that personal to you (O81)

Being able to *Identify the behavioural styles of others* within the drivers' networks was noted as a benefit in terms of the drivers making sense of the behaviours of those around them, for example; “That's the beauty of it because it does make you understand that. It also makes you understand why your wife or partner are behaving in certain ways as well and a good model” (O22). This was noted to lead to some ‘quick wins’ in removing conflict from relationships;

You have some quick wins initially, but the quick wins are more about providing a reasoning for the behaviour that you're seeing. For example, if you have a bit of conflict, the model provides an understanding as to why that-- or lead to that conflict. (O18)

As an example of how this understanding helped one driver in his relationship with his engineer; “So, in [driver]'s situation, you know, if he has a strong preference

with sunshine yellow and the engineer wants a very detailed, bullet-pointed debrief of all the information from every single session, that's what he wants" (O116). Whether the engineer's needs are a process requirement rather than a behavioural or personality trait this example reflects how the driver perceives it and Discovery presented another perspective on how a driver might identify and react from the basis of understanding there is a difference in attitude. This benefit was summed as having long term value; "That's the biggest thing that I've got from insights. It's the understanding that people are different and how they can be different. Because I think that, for me, is one of the most powerful part of Insights" (O85)

Having identified differences drivers were observed to be *Developing adaptability in behaviours (to match others)* in certain situations, for example as expressed by a parent;

Yes, definitely, I think the way he is adapting himself to different people in different situations, in racing your fortunes change by the minute and it's never the same. And I think the ability to cope with that made the best out of the situation. (O65)

In managing situations in which conflict existed drivers were seen to be more involved and constructive for example;

I wouldn't say avoid conflict, but it manages conflict to be reasoning, constructive, and purposeful. It's not, "You're having a laugh" It's, "You're demonstrating some traits here, why is that? Can we do anything different in our behaviour? Do we need to adapt to it? Is there something wrong? You're very red." (O20)

Broadly it was recognised that the drivers had recognised that they had to find the way to obtain the outcome they wanted in the way that best suited them. As one coach described of a driver;

[Driver] explained it well, he was sort of saying adapting and connecting is not changing yourself to do what someone else wants. It's about understanding the way someone else is approaching something and what they want, and then trying to achieve their needs in the best possible way that you can be yourself.

(O108)

In summary the observed benefits from greater interpersonal sophistication were powerfully expressed through observations of more effective teamwork and in the drivers' development of greater autonomy in building successful relationships.

6.4.3 Requirements and Limitations in Use of Discovery

In addition to a number of notable requirements, which, by definition, if absent would be a limitation to the use of Discovery, a number of limitations emerged that formed boundaries to what Discovery could and could not do. In all cases these factors were articulated as a requirement of coaches and practitioners understand Discovery, know how to use the model and in being able to identify when situations arose for which Discovery did not provide a suitable solution. I will now consider each of the higher and lower order sub-themes in turn.

6.4.3.1 Knowledge Required by Coaches and Practitioners

The deployment of Discovery within the programme demonstrated the need for coaches and practitioners to have a greater understanding of the system than the drivers – a *Diligence in understanding and applying Discovery*. The analogy was drawn of knowledge of the Discovery system existing in a series of levels with the coach or practitioner required to have a greater level of understanding;

The Insights Discovery Model is great because it does provide a multitude of levels within it. As we said earlier, you've got the level one quite basic, and you've got the level two, and then the level three. As long as you've got an

understanding of level one, the model can be used, but to be a practitioner using the model with your driver, et cetera, that's why you need to have your in-depth stuff. Actually, you know what, your driver doesn't need to know more than-- I don't think more than a level two. (O15)

This requirement was of particular note with the use by coaches to avoid the complexity of the system confusing the drivers;

It probably actually gets a bit too confusing from an end user's point of view, but for someone who is using it to help change behaviours, et cetera, using it as a coach, you do need to have that layer of depth. (O16)

The requirement for the driver to understand to a basic level however was reinforced; "The coaches need to have a better understanding because they're the ones who are working with the drivers on it, but then equally, the driver still needs an understanding of the model" (O46). Further it was noted that the driver not understanding the basics and the coach or practitioner not applying the model could lead to a failure in its effectiveness;

I'd say the only times we haven't [seen benefit] or when the driver hasn't engaged with the full model moving forwards, but I don't think that can be at the fault of the module as such. It's probably more at the fault of how it's been applied (O42]

Attaining this level of competence in using the model was viewed as requiring a personal investment of effort on the part of the coach/practitioner;

If you're going to get to level three, you need to have an investment in time to get there. You also need, if it's not established, to help [the driver] develop that understanding. You need to be working with people who are competent, and understanding, and qualified to deliver the model and work with it (O59)

In terms of *Identifying when and when not to use Discovery* there was consideration that Discovery should not be the only tool used for example Discovery should be “used as a tool, not the tool” (O11) and that there are other attributes such as mental toughness which could be more directly addressed; “The resilience and what they call about mental toughness, these people who train you on how to deal with situations and all that. So I think some of that could go a long way” (O71). In breadth of application it was noted that; “It's a manual for you. The same model is applied whether it's in high-performing sport, high-performing business, or just everyday life. I'm sure it would work in the military or wherever else” (O23). Thus, indicating that it was viewed as having a much wider application than sport or business.

It was perceived that Discovery was valuable in addressing behavioural issues for example in “solving known [interpersonal] problems, yes, absolutely” (O13) however, the limitations of the system were brought into focus with one driver for whom introducing the model caused existing problems to be brought to a head. The driver was having personal difficulties with his engineer and had become increasingly distraught at the situation. This was impacting upon his performance because he felt the stress of the situation was overwhelming. As explained by his coach;

Nobody was stereotyping, but I think the case of [driver] was-- His engineer was blue and asking for lots of information and data and it was impossible for [driver] to be able to give that information in I think [a] yellow way. We talked about adapting and connecting. Adapting doesn't mean you completely change who you are and you go from being very yellow to being very blue just to do something with someone else. It means understanding what that person wants from you and how can you best satisfy that their needs personally and that way. (O88)

The use of Discovery brought this matter to attention through highlighting differences between the driver and the engineer however the ultimate effect on the driver was deeply demotivational and a sports psychologist was enlisted to work through the problem with the driver. As articulated in the second part of the quote, adapting does not mean that you need to completely change. In attempting to do so the pressure on the individual can be magnified. In seeking a resolution to this the coach quickly identified a deeper need and as the performance manager put it; “[Discovery] Allowed more effective use of specialist psych input when and where it was really needed” (O08)

The *Long term use of Discovery* was seen also to be of optimum benefit when used systematically over a period of time; “It is a model that's going to work. If it's used with longevity and purpose, it can be used to great effect” (O24). This was seen to be because sustainable behavioural change within individuals would take time;

However, for behaviour to change, you need to be using the model over for a longer period of time because you don't get behaviour change like click of the fingers. It's a development over a period of time. The model needs to be a constant factor. (O119)

This was even noted as being relevant over a period of several years by one coach;

That's continued since the Chamonix Workshop...years ago now, but that model of working still resonates to them. Even though we haven't done an Insights workshop, that still [there] when we're talking about our drivers and how we work with them, and ways of working with them. (O44)

6.4.3.2 Knowledge Required by All Parties in the Relationship

Challenges in accepting and practicing change using Discovery were identified from a number of perspectives. One key point made was that the driver had to accept the model as a precursor to any benefits being realised; "Then you've also got to have the buy-in from the driver and the driver thinking, "Okay." Until they actually understand it and the penny drops, sometimes you do have challenges" (O60). However, having accepted the model, there are challenges in specifically defining the ways in which drivers can adapt and connect. The Discovery method suggests that individuals should adapt, even a small amount to the point at least of considering the other's perspective. This in most cases is seen as a positive, for example; "[Driver] needs to adapt his behaviour to match, the mechanic, or the team management, or the other mechanic, or the other driver" (O31). The act of 'adapting' however, if taken too literally, can become a limiting factor for the individual; "The trouble is, there's a danger of, like I say, the person not being true to themselves. And that's what we don't want. You've got to stay very authentic and you've got to do things your way" (O111).

There was also a recognition that coaches and practitioners need to be aware that each situation to which Discovery is applied, requires some consideration for appropriateness. For example, drivers should not be allowed to hide behind the excuse of 'being a ...[colour]' such as; "You need to be careful that you don't use Discovery as a get-out-of-jail card all the time. Sometimes it's better to just have a, "You're being a bit of an ass here," type conversation." (O17) or when conflict arises or is exposed it is managed in a constructive way; "The model does provide opportunity for conflict, but in a constructive form. You may not necessarily have the conflict without the Insights model, but the conflict is being used to positive effect" (O53).

One final limitation which all parties in this study experienced is embodied in the lower order sub-theme *Other parties to the relationship must be familiar with the model to optimise outcomes*. In almost every case the programme was only working with one side of any given driver relationship and that, for the optimum outcome we would ideally be working with all parties in the relationship. Typical comments were; “The best benefits have been where team driver, everybody associated, or as many people associated to the driver as possible understand the model” (O49). This was expressed by the performance manager as being potentially limiting to the benefits being realised by the driver;

You can't have the behaviours without the processing and application... you need the people in the peripheral or in driver team, they need to have an understanding of the model, and actually at behave or at least be on this. (O51)

In the consideration of any future use this limitation was felt could only be fully removed by using Discovery with the whole of the driver's network; “if you're rolling it out into a new environment, you need to have everybody on board to do that” (O117)

6.5 Summarising the Results of Both Groups

Broadly the use of Discovery was an effective addition to the young driver support programme. From a driver's perspective there were advances in self-awareness which opened up a deeper consideration of how they interacted with those close to them. The drivers were quick to pick up on the language and structure of the model and this was undoubtedly helped by the early introduction of the IDPE and the debriefing process. The reconciliation by the drivers of their perceptions of the behaviours of others then readily fell into the four-colour model at a very generic level and one which triggered the 'adapt and connect' process for improving interpersonal relationships. In many cases the first relationship the drivers considered was that with their father and

this was invariably characterised by the parent, seemingly from the perspective of the junior, to be of fiery red or cool blue and them to be in some way opposite. This consideration did lead to reports of better relationships and, as familiarity with the model increased, the drivers applied the same logic and process to considering their engineer, team manager, coaches and even sponsors with similar results. This of course, was sub-optimal as it was a one-sided approach as we had no equivalent process deploying Discovery with the other person or persons in the drivers' network. Additionally, this was compounded by the fact that the drivers, all bar one, referred and mobilised the model with the other parties in their relationships, in a very rudimentary four colour mode only. This left the coaches and managers having to be constantly aware that drivers could undermine the credibility gained by the system through oversimplifying the model and making incorrect assumptions about meaning and preferences when referring to others. Even at this basic level this was an example of how the drivers had to invest effort into understanding the model, what it meant to them and how they might use it to consider relationships with others in order to gain greater benefits.

In terms of considering where their own personal preferences might present limitations, the drivers were also quick to reflect on motor sport processes that demanded certain types of behaviour, like the detailed process evaluations in post-race debriefings. Where they felt that they may not be fully engaged the model challenged them to think about other ways of achieving the same outcome but by behaving more in line with their preferences. For example, in this case, by managing shorter debrief sessions and doing post event notes in video rather than longer written formats. Whereas this type of thinking could be considered good practice, or good coaching practice, the model demanded this be thought about in an authentic and compelling

way and certainly prompted good quality coaching conversations within the framework of the model.

This observation was noted by the coaches that deeper and more meaningful interactions were happening with their drivers. In the group of significant other interviews, the coach and performance manager relationships stood out because, in this study, all parties were already familiar with the Discovery model and the constructs used and therefore could more readily access the benefits. However this was noted by the coaches as requiring a significant investment in resource and effort to reach the point where they knew sufficiently more about the model than the drivers, to either counter any shortcomings highlighted by the driver, or to continuously provide authentic and value-adding coaching using the model.

Embodied within the verbatims are a number of subtle but important messages. Firstly, there is the ubiquitous use of the four-colour terminology. As discussed, this is a good thing, it is fun, memorable and provides a quick and handy reference, and a bad thing, it introduces boundaries to behaviours which are unreal. Thus, descriptions used in this way, even with skilled and knowledgeable practitioners, holds the very real risk of undermining its own credibility. Secondly, the relationship between the driver and the engineer is repeatedly heralded as one where robust and effective behaviours bring on-track benefit.

6.6 Discussion

The objective of the study was to explore to the extent to which Discovery might impact the development of interpersonal behaviour, both on and off the track, from the perspective of: (a) young drivers; and (b) a selection of significant others in these drivers'

networks. Thus, ultimately contributing to building on the enabling factors and mitigating those that were identified as constraining in Chapter 4.

As the study approached the question from two perspectives, that of the driver and that of those around them, in this section I will firstly summarise the differing viewpoints to generate a more holistic understanding around how the umbrella themes support or align to key factors in talent development and then in team development. I will then review the key considerations for the continued use of Discovery by comparing and contrasting the findings on the practical delivery and pros and cons of Discovery against the messages in Chapter 5. This will create a deeper understanding of the impact across macro, meso and micro levels and inform thinking for the study in the following chapter.

6.6.1. The Relevance of the Outcomes for Talent Development

From the driver's perspective under the umbrella theme of the *Knowledge of the benefits of greater interpersonal sophistication in relationships* the drivers were quick to pick up the broad language of the four colours relating to Jung's dimensions of thinking-feeling and introversion-extraversion as outlined in Chapter 5. This had two positive effects, the first was in creating a shared language and understanding to describe behaviours, fiery red, cool blue etc, with their coach. This enabled the driver to understand and discuss relationships, and how to make them more effective, with the coach and those closest to them in their development environment such as managers and experts and those with impact in their macro environment (Henriksen, Stambulova & Roessler, 2010a). Secondly Discovery provided a system for building self-awareness and self-reflection which is a key building block to the PCDE factor of seeking and using social support (Hill, MacNamara & Collins, 2019)

From the perspective of the significant others there was a clearer distinction between interpersonal and intrapersonal behaviours. Additionally, supporting the umbrella theme of *Observed benefits from greater intrapersonal sophistication* those observing reported a greater degree of self-efficacy and their use of Discovery as a tool for broadening their approaches to problems and tasks through self-reflection and the consideration of alternative strategies. A factor which could contribute to building the mental skills and behaviours in the PCDE (MacNamara, Button and Collins, 2010a).

From a talent development programme perspective there is challenge in dealing with individuals in the adolescent years (10-20) who may be experiencing change in the 'big-five' related traits (Denissen, van Aken, Penke & Wood, 2013) however to provide a shared model which the drivers can engage with and adopt successfully could provide a stable format for development of interpersonal sophistication. Although, as highlighted in Chapter 5, Discovery presents a simple mapping of behaviours to conceptualise complex differences in individuals (Denissen, van Aken, Penke & Wood, 2013) it also introduces, right at the outset, the risk of falling into the 'bear-trap' described in Chapter 5, of generalising observed behaviours into the broad and inaccurate categories of 'he's just a fiery red' (Collins & Cruickshank, 2017). This means coaches and practitioners in talent development programmes must develop their sophistication in the use of the Discovery system.

The broader approach in behaviours and greater self-efficacy was also seen as an indicator of a greater degree of professionalism. This aligns to the fact that those around the drivers could see a much bigger developmental picture and the characteristics they viewed were perhaps more aligned to the next stage of performance and development (Wyleman & Lavalley, 2004). Given these drivers are at the top end of the performance

pyramid (Bailey & Collins, 2013; Tinning, Kirk & Evans, 1993) that would align to the professional behaviours seen at world championship level as described in Chapter 2. The self-reflection was, as with the previous group, attributed to using the Discovery model as a framework for the drivers to both reflect on their approach to tasks and problems and also, through considering a different attitudinal perspective, look for more effective approaches. This Discovery-facilitated challenge to established paradigms of behaviour is termed 'self-awareness' by Discovery but it questions and reassigns meaning to the driver's beliefs about their personal attributes and self-theories (Dweck, 1999). This opens the opportunity for behaviours which can change the self-belief they hold about their motivation and achievements and move more towards developing a growth mindset (Dweck, 2009 & 2009). Further to this the integrated design of the 'good practice' techniques and models of the supporting Discovery resources, outlined in Chapter 4, into the content of the course, may well have unconsciously contributed to influencing a change in mindset (Campbell, Craig & Collier-Reed, 2019).

In terms of long term benefit this building of an ability to evaluate and approach challenge, whether related to interpersonal behaviours or not, is a skill that can contribute to psychological resilience (Fletcher & Sarker, 2012; Galli & Valli, 2008; Sarker & Fletcher, 2014). In terms of not just creating and using support networks (Hill et al, 2015) this ability to improve the relationships within the support network could be expected to improve their ability to achieve more from them. That is the use of Discovery as a tool to seek maximum input from the talent development environment (Gagne, 2004) could enhance the relationships with other people and significant others as noted in this study. In providing a language and a shared mental model for behaviours it is likely that Discovery would, promote coherence if applied across the individuals in the TD environment (Gagne,2004). Certainly, it would appear to be a system that

encourages autonomy in learning and training (Martindale, Collins & Daubney, 2005) albeit at an elite level.

Finally, reinforcing the point made in the previous section regarding the supporting environment, considering the non-normative and traumatic changes contemplated in Chapter 2 (e.g. Collins, MacNamara & McCarthy, 2016) the ability to initiate better relationships could strengthen the approach to dealing with the change. Building on this point drivers were observed to adopt processes which contributed to growing autonomy in their approach and develop an ability to initiate behavioural change and better relationships without the intervention or support of their network. These all originated within the Discovery system; *Using a common framework and language for behaviours, Identifying behavioural styles of others and Developing adaptability in their own behaviours*. The intervention of the coaches in maintaining an adherence to the Discovery methodology and, as noted in Chapter 4, the underpinning Jungian typology, throughout would have played a key role in this and, as noted previously, this takes resource and effort and the 'buy-in' of the drivers.

6.6.2. The Relevance of the Outcomes for Team Development

Moving on to considering the relevance of the results to team development both umbrella themes from the perspective of the drivers bear relevance. Underpinning the drivers' perspective umbrella themes of *Knowledge of the benefit of greater interpersonal sophistication in relationships* and *Developing capability to change behaviours to achieve better outcomes* are the very practical lower order themes associated with learning about themselves and others and determining strategies for change that benefits themselves and, crucially, that ultimately benefit the team. As noted in Chapter 2 there are key relationships within the team, such as driver and

engineer, and results on the track are, ultimately the results of effective teamwork (Klarica, 2001; “Service Stations”, 2012). Drivers are therefore quick to grasp the potential for better performance and, perhaps, this partly explains their observed enthusiasm for the Discovery model.

From the perspective of the significant others the *Observed benefits of greater personal sophistication* was the product of higher order sub-themes that encapsulate better interpersonal relationships leading to beneficial outcomes – both directly with the drivers and in those that the driver could influence within their team. Broadly this led to more effective teamworking (e.g. West, 2012). However, although Discovery guides the parties through an ‘adapt and connect’ process it must also be recognised that the discussion that is promoted, say between driver and engineer, also builds the cognitive underpinnings of teamwork (DeChurch & Mesmer-Magnus, 2010). Considering further these underpinnings of teamwork Discovery does provide tools which proactively and reactively deal with conflict through the four-colour lens and this promotes mutual respect, willingness to compromise and developing behavioural norms that advocate cooperation. These are key attributes of effective interpersonal processes (LePine, Piccolo, Jackson, Mathieu & Saul, 2008) and, developing the skill to use these effectively enables the evolution of greater interpersonal sophistication.

In short, there are two key messages from the results for motor sport team development. The first is in the value of using Discovery in key relationships to align behaviours and enhance the effectiveness of the relationship and the second in bringing alignment and a common mental model of behaviour to the support network of the driver, essentially his race team plus parents and sponsors.

6.6.3. Considerations for Continued Use of Insights Discovery

In comparing and contrasting the umbrella themes from each group, the most apparent commonality is in the greater interpersonal sophistication the drivers were deploying. From the perspective of the drivers this was developed through an increase in self-awareness and self-reflection leading to a better understanding of others and thereby being able to achieve more from relationships. To the significant others this was observed as the use of processes, such as using a common language for behaviours and developing adaptability, that contributed to creating a more autonomous approach, that is, the drivers working out for themselves how to improve relationships. Additionally, the others' observations of the benefits drivers gained, as an outcome of direct relationships or in the influencing of others, aligned as a generic psychological characteristic, to more effective teamworking (McEwan & Beauchamp, 2014; Mathieu, Maynard, Rapp & Gibson, 2008).

In terms of the intrapersonal behaviours, the drivers used the Discovery model as a framework for self-reflection and the consideration of adopting different attitudes towards problems and tasks that did not necessarily involve others. One area in which the findings varied between the groups was in the knowledge and understanding of Discovery. Whereas the drivers were engaged with model and accepting of the principles in identifying and understanding the Discovery typology of different behaviours, the significant others were much more aware of the requirements of delivering Discovery within the programme and the limitations of its use.

This last point leads to the umbrella theme coming from the output of the significant others as the *Requirements and Limitations in use of Discovery*. The first sub-theme supporting this umbrella theme is the *Knowledge that is required by the coaches*

and practitioners during the course. The application of diligence in understanding and applying Discovery ranged from a continual checking every time the bear-trap phrase of 'he's a fiery red' arose to being able to explain, effectively and authentically, every time a question regarding distinctions on the sensing-intuition continuum. This was raised in Chapter 5 as a potential limitation of the Discovery system requiring a more detailed response from the practitioner. That achieved however, Discovery then facilitated a deeper understanding of problems at an observational level as described in Chapter 5. More importantly when an issue arose that was beyond the capabilities of Discovery or the coach, Discovery helped expose the issue and achieve a prompt solution with the relevant specialist, in one case a sports psychologist (who then referred the problem to a clinical specialist).

One other important feature which emerged as a requirement was to use Discovery over a meaningful (long) period of time. In considering the 'don't just 'do' Discovery' there is the potential for the driver developments contemplated above to bear impact on both the stages of performance they are in and also the, normative and non-normative transitions which they encounter in sporting, psychological, social, academic, vocational and commercial aspects (Henriksen and Mortensen, 2014; Pummell, Harwood & Lavellee, 2008; Wylleman & Lavellee, 2004). It is also at a micro level that these factors impact upon the driver and, as Webb, Collins, and Cruickshank (2016) point out, even a change in coach can present a non-normative transition. The mixture of individual, task and environmental constraints and challenges (Collins & MacNamara, 2012; Phillips, Davids, Renshaw & Portus, 2010) that can introduce complexities such as the constraining factors from Chapter 4 can potentially, with the rigorous deployment of a Discovery system be more effectively managed by the driver themselves. However, as noted in the section above, there is potential here for even

greater impact by involving all the parties in the driver's network. By not doing so a significant limitation is introduced.

Following on from the previous point, one returns to the impact on the drivers of developing the understanding that different perceptions exist and that, notwithstanding whether these come from behavioural preferences or not, conflict can arise when these different views of the world meet. That it promotes good conversations has been demonstrated in this study however it is not a form of cognitive psychology and its value, as noted in Chapter 5, comes from its alignment to behavioural observation. As such the explicit limitations identified in the study are added to by implicit limitations that are the consequences of the drivers accurately or inaccurately predicting how others may think, make decisions or behave differently.

Finally, there are many psychometric tools in the broad domain of sport and sports coaching (Collins & Cruickshank, 2017; Passmore, 2012) however most are very specialised or focussed on one topic for example in using Myers Briggs 16PF tool in coaching or the 'VIA Strengths Questionnaire' (Kauffman, Silberman & Sharpley, 2008). The PCDEQ2 (Hill, MacNamara & Collins, 2019) offers a valuable tool for developing the psychological characteristics of developing excellence and, thereby, is broader in nature. Discovery offers a different proposition which can be complementary to other psychometrics. As noted, before, it is one tool to be used and not the tool.

6.7 Summary and Next Steps

In achieving the objectives of this study, it has emerged that providing a driver with a more sophisticated grasp of interpersonal relationships and behaviours is only part of the opportunity presented by using Discovery. There are relationships, such as with their engineer and other, which hold the promise of yielding greater benefit if

exploited through and with the use of the Discovery model. Potentially extending to the whole team.

Further, if deployed within a whole team the use of Discovery has the potential to be effective in addressing problems which stem from differing perceptions, attitudes, and behaviours. This language and the Discovery framework can be applied to and by the team, and the driver, to remove confrontation and explore new and different approaches which can lead to more effective relationships and teamwork. In doing so Discovery promotes a pragmatic approach. Underpinned with good practice in learning it can offer much although it must be carefully scrutinised as to where these benefits are truly coming from against the developmental needs of the participants.

Whereas this presents opportunities in building on the enabling and mitigating the constraining factors found in Chapter 4, there are also some notable caveats that arise from this chapter. Notably the practitioner must invest in the knowledge and application of the system and be clear in their understanding of when and when not to use Discovery. Discovery must be used over a meaningful period of time and not just 'done' and, during that time, any coaching or training interventions should be contextualised to the Discovery model.

In the next chapter I will present a case study which matches some of these criteria. The team had young, and talented, professional drivers, it was experiencing poor performance on track and exhibiting a number of characteristics of bad teamwork such as ineffective interrelationships and poor coordination of logistics. The case study lasted for six months, the second half of the race season, and presents the opportunity to critically evaluate the real-world application of Discovery into a professional motor sport team.

CHAPTER 7: CASE STUDY: EVALUATING THE BASIS FOR BROADER USE, USING DISCOVERY WITH AN ESTABLISHED YOUNG DRIVER AND THEIR TEAM

7.1 Introduction

In Chapter 3, I overviewed the literature and applied practice in talent development with a particular emphasis on motor sport. Chapter 3 highlighted gaps between research and practice in a sport where many interpersonal relationships can impact upon talent development and individual and team performance. This finding led to the study in Chapter 4 which explored the nature of enabling and constraining factors facing young drivers in their development. One significant finding from Chapter 4 was the importance of the role played by strong interpersonal relationships in acting as a lever to extract the greatest benefit from relationships and build on enabling and mitigating constraining factors. Discovery, a system for developing interpersonal sophistication that has been used quite extensively in business and in some sports, was explored in Chapter 5. Although challenges to its theoretical basis were identified, the application of Discovery to the group of young professional drivers in the study in Chapter 6 resulted in some benefits. However, one of the key limitations identified in that study was that it focused on the driver without the same consideration given to its impact across the wider team. As such, it seems important to consider whether the use of Discovery could be extended to include the team that interacts with the driver.

Leading on from Chapter 6, the challenge becomes one of investigating the extent to which the use of the Discovery model can assist in developing or improving the performance of a driver in the context of professional team. In Chapter 3 I described the nature of personnel turnover in motor sport and how it is commonplace for teams

to change staff and drivers on an annual, or more frequent, basis. As a result, relationships and working practices could potentially suffer as a consequence of a lack of developed teamwork (Tuckman, 1964; Tuckman & Jensen, 2010). As a tool directed at improving interpersonal interactions in organisations, Discovery has the potential to complement a team development programme by mitigating constraining factors (e.g. by removing conflicting behaviours) and building on the enabling (e.g. building effective communication) ones. Evidence of the potential of Discovery was reported in Chapter 6; however, the conclusion was that Discovery could potentially deliver more benefit if applied to a whole team rather than just the driver. Reflecting the complexity and dynamics of a professional team, this chapter presents a case study of a professional race team in the British Touring Car Championship (BTCC) as they compete through one racing season and, part way in, face some constraining forces. The purpose of this study was therefore to understand the potential impact Discovery could have in improving whole team performance.

7.1.1 Background to the BTCC Series

The BTCC is Britain's premier saloon car racing championship and is contested by a mixture of professional and semi-professional drivers. Ten race weekends, each with practice, qualifying and three championship-counting races, are held around the UK and draw over 280,000 spectators. In addition, circa 230 hours of live and recorded television coverage is reported to be viewed by over 20m people worldwide. Thus, the series demands many of the characteristics found at the pinnacle of the sport in terms of performance on and off the track with professional teams, fully sponsored drivers and being subject to commercial and sporting pressures and other factors as identified in Chapter 3.

7.1.2 Background to the Team

In this season (2014), which was the inaugural season in the BTCC for this particular team, I was asked, after nine races of the 30-race season, to work with the team as a 'performance consultant' with the stated objective of improving their on-track results. The team owner believed that they were technically competent, that they had drivers who they felt were capable of winning and had a competitive car. However, after some early successes, including managing to field a four-car team and gain one podium, performance was deteriorating with mid-field results. The team attributed this to 'just getting a lot of things wrong' and 'unforced errors'. The lead driver in the team explained to me that the atmosphere in the team, which had been buoyant, had degenerated with an amount of bickering occurring between team members – as a result, this driver described how he felt 'it [the team] is ready to explode'. This created an urgency with the team owner who thought that a change in behaviours would have to be delivered in a systematic way although, at that time, there was no specific idea of what that change should encompass or how it could be achieved. In short, they had encountered a range of constraining problems (e.g. from poor race qualifying times to anger and frustration within the team leading to loss of concentration) but were unable to specifically point to any causal reason or group of factors.

As a practitioner, this project brought an overarching need to deliver performance improvements. However, the study also provided the opportunity to uncover the nature of the constraining factors that the team were experiencing at a meso and micro level. In addition, if considered appropriate, it offered the potential to use the Discovery model as a tool to assist any cultural and behavioural adjustments in delivering directly measurable performance improvement across the whole team.

At the outset of the project, the range of potential options or propositions for what could be expected from and done in the programme was discussed with the team owner and the team manager and the opportunity for using the Discovery model as part of the overall programme was presented and agreed to in principle. In addition to the potential benefits of using Discovery there is also an additional cost associated with using the evaluator to create Discovery Profiles and this had to be factored into the commercial arrangements agreed with the team owner. The purpose and objectives of the performance development programme included introducing the Discovery model and were agreed with the team owner as:

I. Purpose

- a. To increase performance on track through developing the race team for the remainder of the season

II. Objectives

- a. To create a common understanding of interpersonal behaviours
- b. To introduce methods by which this can be used to improve personal and team effectiveness and performance
- c. To create a sustainable, continuous improvement environment

This then produced the boundaries for the case study and the primary research question of finding out *What is the potential impact of the use of Discovery in improving whole team performance?* Answering this research question then breaks down into four sub-objectives, namely to:

- 1. Define the key issues within the team (i.e., the key issues that contextualise the case)

2. Examine the extent to which Discovery could help find solutions to the problem(s)
3. Examine the extent to which Discovery could impact on specific, problematical relationships (i.e., can relationships that are key to performance be improved by using Discovery?)
4. Examine the perceptions of the team about the extent to which Discovery impacted on their relationships and performance. (i.e., at the end of the season what does a review with the team say about Discovery?)

7.2 Methodology

7.2.1 Rationale for Study Design

In line with the pragmatic research philosophy adopted as described in Chapter 2 the aim of this study was to develop practically meaningful knowledge about the use of Discovery in a race team. Therefore, this study explored the experiences, perceptions and reflections of all those directly involved in the performance of the team and the driver on and off the track. In answering the research question the aim was not to create generalisable truths but to develop practically meaningful insights into the team's experience of the development process. Adopting a qualitative strategy (e.g. Denzin & Lincoln, 2008) could suggest engaging a programme of action research to study the complex social events (Lewin, 1946). Indeed, there may have been more opportunity for considering the generalisability of results from action research in terms of choosing the context that facilitates generalisability (McKay & Marshall, 2001). However, as noted above, the aim was to provide practically meaningful insights about the experiences of Discovery within the performance improvement programme rather than study the performance improvement programme itself thus suggesting a case study methodology as more appropriate. This demanded that the phenomena, the subject of

the research question, be specified prior to the study and drawing upon the participants as a source of evidence (Baskerville & Lee, 1999; Harrison, Birks, Franklin & Mills, 2017). Additionally, with case study research, there is an importance attached to the intellectual framework that the researcher brings to the study (Yin, 1989; Yin 1994). In this case that being the proposition of the impact of Discovery as a 'theme' (Blichfeldt & Anderson, 2006). In building on this a case study gives context-dependent knowledge that drives the learning process (Flyvbjerg, 2001). Notably the dissemination of these findings is primarily for the academic purposes of this study rather than for the team whose main concern is to attain the performance improvement (Blichfeldt & Andersen, 2006).

In applying a case study methodology two factors further reinforced the approach. Firstly, case studies have been defined as "...an in-depth description and analysis of a bounded system" (Merriam, 2009 p.40). Stake (2005) defined the case study as "an intensive, holistic description and analysis of a single instance, phenomenon or social unit" (p.27). These two definitions resonate well with the subject in this study; it is a bounded system and requires the case to be described within the race team over the fixed time period of the remainder of the race season. Secondly, in adopting this form of qualitative inquiry three approaches had the potential to best address the aim of the study; the realist, post-positivism of Yin (2017), the pragmatic constructivism of Merriam (1998), and the relativist, constructivism/interpretivism of Stake (2005). Stake's approach, underpinned by a drive to discover meaning and understanding in context and its dependency on the role of the researcher in experiencing the activity of the case, fitted very well with both the commercial objectives and activities of the performance development programme and the research study objectives. Underpinning this, as outlined in Chapter 2, my epistemology is constructivism whereby

meaning is constructed by interaction between people and their environment (Crotty, 2003) with diversity allowing people to make sense of the same reality in different ways. Experiences and accounts of the participants therefore help create knowledge and answer the research questions (Stake, 2005). Indeed, considering the researcher in case studies Stake (1995) believes that the most important role to be played is that of interpreter to build a clear picture of the case through integrated interpretations of situations and contexts. As my own position within the case was one of expert this reinforced the decision to adopt a case study approach.

It is of note that, during the consultancy programme, research was concurrent with development activity. Findings during the study led to action that generated an effective improvement to their performance while, at the same time, created a bounded case from which to build a case study reflecting on the of the impact of Discovery in the development programme. Finally, in the search to obtain a deep understanding it is important to have a holistic account from multiple perspectives, collecting data in a natural setting from multiple sources (Creswell & Poth, 2016). Therefore, I will now expand further on the methods of execution of the case study as a methodology, in the design section that follows.

7.2.2 Design

7.2.2.1 Research Design

This section describes the design and the plan for data collection and analysis. Since case studies use different research techniques within qualitative methods, such as document collection, field work, field notes, and interviews (Harrison, Birks, Franklin & Mills, 2017; Mills & Birks, 2014), I will describe these individually below as they apply to each phase of study.

This study is an exploratory, single case-study of the impact of Discovery in a performance development programme. As Yin (2014) pointed out, exploratory research is appropriate when a researcher has limited knowledge about the phenomenon. Whereas I have considerable knowledge about race teams, I have less knowledge of how Discovery may impact the process of improvement the team face.

In the design of the case study, it is important to set the boundaries of the study (Glesne, 2011). Case studies are bounded, meaning that the case has clear boundaries of time, place or other physical boundaries (Creswell & Poth, 2016). Stake (2005) suggests that the research question should frame the boundaries and focus the study by directing the looking and thinking. Therefore, the research question in this case study is underpinned by the four sub-objectives. The first of which contextualises and frames the study through defining the core issues faced by the team. The second directs attention to the use of the Discovery model to identify and resolve problems as a team. The third looks at the use of Discovery in two relationships within the team. Finally, the fourth reviews the perceptions of the team on the impact of Discovery in the whole performance development programme.

The primary research question of this case study was to explore *What is the potential impact of the use of Discovery in improving whole team performance?* In doing so it has potential, as noted, to build on the enabling factors and remove or reduce the impact of those that are constraining, as highlighted in Chapter 4. The design must therefore deliver an in-depth analysis of the issues confronting the team and an understanding of the implications of using Discovery. The view is to understand the impact of this incorporation of Discovery from the perspective of the team (Merriam, 2009; Stake, 2006; Yin, 2017). To do this required me to work closely with the team in

their working environment including at race meetings, test days and in the workshop (Creswell & Poth, 2016). Interaction between myself and the team was required to generate the data, which reflects my connection to and immersion in the case.

7.2.2.2 Methods

Multiple methods were used to capture data, aligned to co-constructing meaning, and included document collection, focus groups, interviews, observations, field notes and the keeping of a reflexive journal to provide a synergistic and comprehensive view of the impacts of using Discovery (Flyvbjerg, 2011; Merriam, 2009; Stake, 2005; Yin, 2017). Commensurate with this approach of using multiple sources and methods of data collection, and the practical objectives of the programme, the study was designed to be a versatile form of qualitative enquiry. The case however, had to be defined and boundaries set for the case study to focus and frame the research question and the data emerging from the sub-objectives. In line with the critical point of careful planning and preparation, together with a systematic structure for implementation (Flyvbjerg, 2011; Merriam, 2009; Stake, 2006; Yin, 2017), the study was broken down into four phases as the programme progressed (Stake, 2005) starting with careful observation of the team performing at a race meeting. The methods used were consistent throughout each of the phases, summarised in Table 7.1 and the description given in the procedure section below. To summarise these, I will now expand upon each in turn.

7.2.2.2.1 Document Collection

The analysis of documents gives a useful insight into self-representations to which participants have given thoughtful attention and used their own words (Creswell & Poth, 2016). However, documents can provide information not otherwise available

to the researcher (Patton, 2002). The main limitation is that they can be difficult to source (Creswell & Poth, 2016). However, in this study, the main documents used were the working files created with the team in 'performance development' workshops and, afterwards, published on their noticeboard. These covered thoughts and statements about processes and behaviours which they felt the team should either start or stop doing and provided a valuable contribution to defining the context.

7.2.2.2.2 Focus Groups

Focus groups provide a rapid and broad range of findings when the subject is little-known (Powell & Single, 1996). The social interaction within the group can often lead to greater meaning which is given in context (Braun, Clarke & Weston, 2016) and, with appropriate challenge and a varied approach to questioning, 'groupthink' could be avoided (MacDougal & Baum, 1997). The team in this study (N = 18), were an appropriate number for data collection and, as the study elements were aligned to the performance development programme, suitable time, in this case two hours, could be scheduled to hold the focus group interviews (Kreuger & Casey, 2014).

7.2.2.2.3 Interviews

Interviews were scheduled with the team owner, the team manager, the chief engineer and the driver with the specific purpose of achieving a greater depth and detail of their perceptions and experiences (Stokes & Bergin, 2006). All interviews followed a semi-structured guide which used open ended questions directed at their experiences with probes to explore their perceptions. In exploring the personal encounters of the individuals, these interviews allowed a more detailed and complex recounting of experiences (Braun, Clarke & Weate, 2016).

7.2.2.2.4 Field Notes and Reflection

As this study was aligned to a performance development programme extensive field notes were taken at all site visits to the workshops, to race meetings and to test days. These were subsequently reflected upon and additional thoughts and notes added. I captured field notes for both the performance development programme and the study. As a practitioner I take notes extensively when working with teams and individuals. These routinely include technical and operational observations which are largely performance related and, for the purposes of this study, I was careful to add notes that captured events, anecdotes, events, experiences, and emotions (Phillippi & Lauderdale, 2018; Yin, 2011). For example, when team members argued or behavioural responses to mistakes.

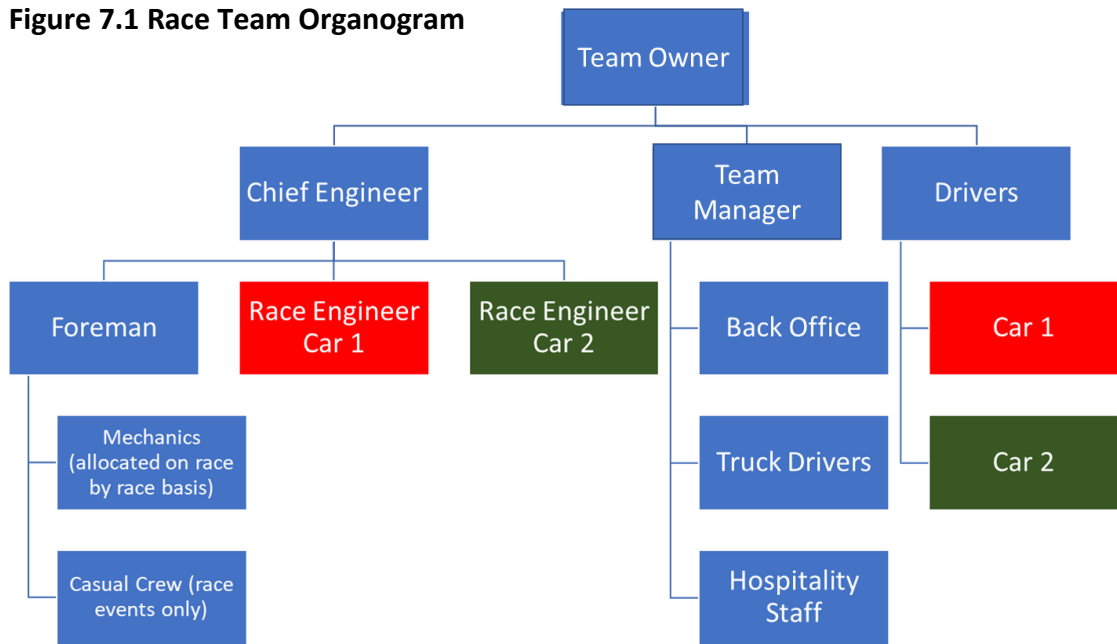
Finally, flexibility in approach and the ability to respond interactively to the practical demands and needs of the team were an important factor. This required the careful design and planning of all interventions using Discovery, and, to ensure effective application as noted in Chapter 5 and substantiated in Chapter 6, this required effort and resource in production.

In summary, the four-phase design, in answering the sub-objectives, sought to deliver a complete understanding through using a triangulation of findings from different methods in answering the research question of understanding the potential impact of Discovery in improving whole team performance.

7.2.3 Participants

The holistic nature of trying to understand the extent, symptoms and root causes of the problems faced led to a straightforward selection of the whole team (see Figure 7.1). The team were running up to four cars in the BTCC series and deploying a regular staff

Figure 7.1 Race Team Organogram



of 18 which included two drivers, the personal support network of one driver, sponsorship manager, engineers, crew chief, team manager, team owner, mechanics and junior team members (apprentices).

Ethical approval had been granted from the University’s ethics committee and all participants were made aware of the purpose of the study, that their participation was voluntary, and that the information that they provided would remain anonymous during the processing, write up and potential publication of the findings. All participants, including the team owner, engineers, mechanics, support staff and drivers, confirmed, by way of completed information and consent forms, to take part in the study. Describing in more detail the key individuals within the team:

- The team owner was a forty-year-old ex-cage fighter from East London. He had had a partly successful career and retired early to pursue his interest in motor sport through creating and running a race team. He had launched the team two years previously in national club series and had, this season, stepped up to the British Touring Car Championship.

- The team manager was a friend of the owner and they had worked together in the race team company from its inception. He was in his late thirties and had a background in retail and logistics.
- The chief engineer was a professional race engineer in his late forties with many years at high level in race and championship winning teams. He had started with the team after the beginning of the current season and was brought in as part of an attempt to achieve better race results.
- The two drivers included in the study (the other two cars of the four-car team were driven by part-time drivers not involved in this study) were both young – one approaching thirty and one twenty-year-old. Both had been identified by the ASN as potential elite and had been part of the Motorsport UK talent development programme. (It was the older of the two drivers who encouraged the team owner to approach me to seek assistance).

The rest of the team were appropriately skilled and experienced for the roles they had for example, the race engineers and mechanics were all professionals contracted into the jobs they held.

7.2.4 Procedure

As noted above, in considering the scale and complexity of the problem and the need to understand better how to introduce effective solutions, it was decided to use a multi-phase approach. From the perspective of the development programme this produced a series of ongoing developmental workshops, interventions and tasks based on exploration of problems, feedback, and definition and implementation of continuous improvement actions and solutions. From a study perspective it enabled performance

improvements to be more critically understood, that is investigating how Discovery was impacting upon behavioural change and other improvements. I will now expand on each of these phases.

7.2.4.1 Phase 1: *Define the key issues within the team*

The first phase commenced with an initial period of observation, personal dialogue with key team members at one race meeting covering free practice, qualifying and three races. In total the whole team (n=18) were observed at the race meeting and in the workshop. In conversation key open-ended questions about what individuals were doing, how they felt about the team, how they perceived the team's performance were asked. The team members were also encouraged to recount anecdotes and opinions for example: 'What did you see or experience? What caused this and what were the outcomes?'. This was followed up by a one-day visit to the workshops for meetings with the team owner and the team manager and a number of the key staff. Finally, the documented output of a four-hour team meeting that captured the perceptions of all team members of the situation and their performance was obtained.

7.2.4.2 Phase 2: *Examine the extent to which Discovery could help find solutions to the problem(s)*

Prior to this phase the Discovery model was introduced to the team. The team (n=18) all completed the online Discovery evaluator, and the group were debriefed using the standard Discovery four-hour format. Examples of behaviours were drawn from their own context and experiences to ground the Discovery methodology. In addition, the group were tutored through modules from the Discovery Profile such as in recognising type, how others can be different and how to adapt and connect for more effective relationships. As the tutorials were interactive the Discovery content was

contextualised into their domain through, again, grounding with examples of their own experiences of themselves and each other. In short, comparing and contrasting their own experiences where they resonated with the behaviours within the Discovery model. Additional exercises from within the Discovery Profile, were identified and specifically tailored to their needs. These were delivered as group and in individual coaching sessions and covered; personal strengths and weaknesses, individual's perceived value to the team and the ideal environment for management of individuals. Finally, a number of related training and development interventions based on the initial performance evaluation were delivered to the entire team (n=18). These used the Discovery model and were designed to build on the concept of self-awareness and behavioural preferences, recognising and appreciating the differences in others and understanding the value of modifying behaviours. Specifically, the contextualised modules covered were:

- Goal setting and prioritisation
- Task planning and approach
- People management
- Team development
- Physical and emotional effects of stress

Throughout this process any individual challenges relating to personal behaviours were explored through the Discovery four-lens system and also in peer feedback through exercises for example such as exploring the individual's value to the team using the Discovery Profile.

After the content above was delivered between two to three weeks was given to allow the learning to transfer into the workplace. A focus group workshop was then held with the entire team to collect data from exploring the effects that the intervention had had and to catalyse the learning into any further identified actions. The key question of the focus group was how they might approach the problems they were experiencing from each of the four colour positions on the Discovery model. Discovery provided a framework and a language to describe how they might reflect on different behaviours and approaches. The question for the focus group was simply ‘consider what potential enablers and constraint you face from how you perceive the perspective of....’ The objective was to make the individuals reflect on how they might consider or approach enablers and constraints from a fiery red, cool blue, earth green and sunshine yellow preference based on using this new-found Discovery knowledge and language. Open discussion was held around each point raised to ensure clarity of meaning and that the team had a common understanding of each point raised. Conveniently a £350,000 four door BTCC racing car provided the ideal workshop ‘flipchart’ on which to post individual’s ideas and suggestions for discussion in open forum (see Figure 7.2).



Figure 7.2 Focus Group Workshop

During this phase field notes were taken during visits to the workshops (2) and to race meetings (3).

7.2.4.3 Phase 3: *Can Discovery be impactful on specific, problematical relationships?*

Thirdly, contemporaneously with the second phase, two specific relationships were explored, that of one driver and their race engineer and that between the chief engineer and the team owner. Observations were collected by field notes made during the site visits to the workshops (2 days) and race meetings (3 meetings at 2 days each) and also from discussions with the drivers, engineers and others in the team. To present a complete description and a holistic view of the relationships the context and the procedures used are incorporated within the account in the results section below.

7.2.4.4 Phase 4: *Examine the perceptions of the team about the extent to which Discovery impacted on their relationships and performance*

In the fourth and final phase at the end of the season, and two weeks after the final race, a review of the impact of the process and changes was undertaken in one, ninety-minute focus group with the team and four individual interviews with the team owner, team manager, chief engineer and driver which lasted between 28 and 45 minutes.

The purpose of the individual and focus group interviews in this phase was to reflect on the period of the study and consolidate perceptions of the impact of Discovery on the performance of the team. The interviews followed a semi-structured guide with open ended questions and probes and prompts aligned to the findings from previous interventions. All interviews were recorded, and field notes made. After the interviews additions and thoughts arising from them was added to the reflexive journal.

7.2.4.5 Summarising the Procedures

In line with providing a logical and coherent argument for the varying research methods (Luck, Jackson & Usher, 2006) Table 6.1 provides a summary of the research sub-objectives in the phased approach.

Table 7.1 Summary of Research Phases

Study Phase	Research Sub-objective	Procedure	Data Collection	Study Outcome
Phase 1	Define the key issues within the team (i.e., the key issues that contextualise the case)	Meetings with driver, team owner and team manager Observations made over two days at one race meeting (i.e. from arrival to departure)	Field notes Reflexive journal Site visits	Decision to progress using case study methodology Broad intervention plan established including Discovery preparation
		Introduce practitioner and identify perceptions of the problems experienced by everyone	Documents from team performance workshop Field notes Reflexive journal	Inductive analysis of data collected to identify higher and lower order themes of issues
Phase 2	Examine the extent to which Discovery could help find solutions to the problem(s)	All team members complete IDPE Debrief of Discovery Profile	Field notes Reflexive journal	Participants all familiar with the Discovery language, framework/system
		Deployment of Discovery contextualised into working processes	Field notes from individual and subgroup work Reflexive journal	Improvement actions identified in operational processes and interpersonal behaviours
		Semi-structured guide using the Discovery framework to determine perceptions of enabling and constraining factors	Focus Group Field notes Reflexive journal	Hybrid thematic analysis and categorisation of findings of enabling and constraining factors
Phase 3	Examine the extent to which Discovery could impact on specific, problematical relationships (i.e., can relationships that are key to performance be improved by using Discovery?)	Using the Discovery Profile to undertake coaching in pairs (Driver & Race Engineer; Team Owner & Chief Engineer)	Field notes Reflexive journal	Two examples of using the Discovery Profile to illustrate the role of the Discovery model

Phase 4	Examine the perceptions of the team about the extent to which Discovery impacted on their relationships and performance. (i.e., at the end of the season what does a review with the team say about Discovery?)	Programme review with Individual interviews with key team members to reflect on impact of Discovery	Audio recorded interviews (semi-structured guide) Field notes Reflexive journal Focus group	Inductive/deductive analysis of impact of Discovery
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Recorded sessions were transcribed plus supplemented with field notes due to the problems caused by ambient noise in workshops and in the pits at race meetings and testing. In summary focus groups, observations and interviews were the dominant data collection method as preferred by Stake (1995).

Finally, as a point of note, individual driver race performance, for example, qualifying times, race lap times or positions, as a quantitative measure, were recorded throughout the season. This was done with the purpose of presenting a macro picture of the ultimate outcomes of the development programme at the end of the year rather than to inform any action or intervention during the performance development programme and study period.

7.2.5 Data Analysis

Although the summary findings of the previous chapters that led to this study might suggest that a deductive approach could be adopted for the analysis, for example to categorise the impact level of behaviours on performance and code the data against these features (Hyde, 2002), that does pose some potential shortcomings. Starting with a hypothesis and testing the data against it in a top-down manner could fail to unearth additional information or could mask any other underlying factors that arose from the use of Discovery in the whole team environment. It was therefore important to analyse the data with methods which could detect any differing patterns or themes (Tracy, 2004). The multiplicity of methods of data capture led to the generation of large

amounts of field notes, observations, and reflexive journal notes. However, at each stage specific analysis methods were used which I will now expand upon.

7.2.5.1 Phase 1: *Define the key issues within the team*

This phase was undertaken over the period of four weeks from starting the performance development programme. In this phase the field notes taken during meetings with the team owner and team manager and the field notes taken during observing the race meeting were combined with the anonymised data from the documents collected from the performance workshop. The documentation from the meeting consisted of copies of notes, materials such as flip chart records of the discussions in the meeting and lists of behaviours and processes that they should 'keep, stop or start' doing to improve performance.

With the field notes a process of highlighting significant, interesting, or unexpected quotes and observations, affixing codes, and reflecting upon and triangulating data, was used to check meanings. The assembled data was read and re-read to gain a fuller understanding. The data was then tagged with meaning units (Tesch, 1990). These tags were refined as the analysis progressed and grouped into themes using characteristic words and content with similar meaning in an inductive content analysis (Corbin & Strauss, 2008; Cote, Salmela, Baria and Russell, 1993). To be specific the same procedures as reported in Chapter 3 were used to analyse the data.

7.2.5.2 Phase 2: *Examine the extent to which Discovery could help find solutions to the problem(s)*

In this phase the data collected from multiple methods was analysed using a hybrid approach that incorporated two contrasting philosophical methods of reasoning that is from a deductive, top-down approach (e.g. Crabtree & Miller, 1999) and an

inductive, bottom-up process (e.g. Glaser & Strauss, 1967; Corbin & Strauss, 2008). Whereas there is an epistemological and ontological difference in coding from deductive and inductive approaches this analysis takes the 'pre-made' findings of the umbrella themes in phase 1, *Good management practice* and *Psychobehavioural skills* as a high-level generalisation (i.e. accepting them as *a priori* knowledge). The data from the study was then inductively analysed using the process in the previous phase (i.e. Cote, Salmela, Baria and Russell, 1993) to understand, interpret, seek patterns and construct the lower order themes. The final stage was to test the lower order themes against the high-level umbrella theme for fit, that is did the meaning of the theme support the umbrella theme.

7.2.5.3 Phase 3: *Can Discovery be impactful on specific, problematical relationships?*

The two examples of interpersonal relationships articulated in Phase 3 are a report of the collected field notes. These are included to illustrate aspects of the case relevant to the third research sub-objective, and convey the findings (Stake, 1995). To provide a thick description (Tracy, 2019) and to help compare aspects of interest in the use of Discovery from the observations the two relationships are described through providing responses to three sub-questions: firstly, what was observed? secondly, what did Discovery say? and thirdly, what was the outcome? The relationships are presented as vignettes to help the reader construct the meanings in the case (Stake, 1995).

7.2.5.4 Phase 4: *Examine the perceptions of the team about the extent to which Discovery impacted on their relationships and performance*

Finally, Phase 4 uses a combined deductive-inductive, or abductive, approach, very much in alignment with the pragmatic approach of this thesis. This is posited by some to yield a better prediction of the truth through providing a multiplex of

perspectives (Kovacs and Spens, 2005; Mitchell, 2018; Taylor, Fisher and Dufresne, 2002). This abductive analysis, was appropriate because the concepts being studied were obvious from the outset, that is in investigating the extent to which Discovery impacted upon the outcomes, and therefore the hypothesised relationships between Discovery and the improvements achieved could be stated before the data gathering commenced (Hyde, 2000). The data from the focus group was read and reread to ensure familiarity and compared to notes taken on anything that may have influenced meaning. In short, an inductive content analysis, using the procedure reported in Chapter 4 was undertaken. The themes from the data were then grouped into the four categories of:

1. Was the benefit of Discovery explicit in the data?
2. Was Discovery a potential contributor to the improvement but not explicitly mentioned?
3. Was Discovery explicitly mentioned in a deleterious way? and
4. No connection between the theme and Discovery

7.2.6 Addressing Trustworthiness

Within this study much of the approach to addressing trustworthiness is common to the preceding studies. That is in addressing the challenges facing the researcher discussed in Chapter 2 (e.g. McGannon, Smith, Kendellen & Gonsalves, 2019), the methods used (Elo, Kaarlainen, Kaniste, Polkki, Utrianen & Kyngas, 2014; Smith & McGannon, 2017; Sparkes & Smith, 2009; Tracy, 2010), and during the data analysis process (Davis & Meyer, 2009; faulkner & Sparkes, 1999; Nowell, Norrris, White & Moules, 2017).

In looking for credibility or correctness of findings (Maxwell, 2012) in qualitative research Maxwell (2005) illustrates the use of notes, journals and several different methods of collecting data including interviews, to build credibility through triangulation. The relevance to this study comes in the use of field notes and reflections plus the collective alignment of maintaining detailed and organised records to provide a chain of evidence over the duration of the study and thus underpin trustworthiness. In terms of the process, the collection of data did not interfere with the role of anyone in the team or their normal approach and routine. This, in part was due to my 'being part of the team' for the study period. Very quickly from the start of the study I built a relationship and rapport with the team which assured me that the participants were telling the truth as they knew it. This allowed me to capture the viewpoints as expressed by the participants, predominantly in their own words, and enabled me to interpret whether the observed behaviour was a systematic one or had occurred by chance – a key element in dependability. The relationship to the team members also reinforced that the observation of events was not influenced by my presence – the participants just behaved as they always had done. To ensure that reporting of incidents and behaviours were reflected upon and communicated and captured accurately, interventions, such as focus groups, were conducted, uninterrupted, immediately after test sessions, qualifying or races. The triangulation of data from on-event observations, field notes and interviews added to the accuracy of the data. Throughout the programme and the study these notes were repeatedly reviewed, evaluated and reorganised and compared to interview and session transcripts. Finally, to ensure confirmability during the focus groups semi-structured question formats were used with encouragement to expand and seek concurrence of the points raised.

During the data analysis recorded interviews and sessions were relistened to together with re-reading transcriptions and field notes to ensure meaning was interpreted correctly. Further, throughout the study, a reflexive journal was written keeping notes, thoughts, and observations on both the developmental and research elements of the study (Maxwell, 2012; Ortlipp, 2008). This reflexive journal and revisiting my own thoughts and observations also ensured that I limit any biases.

The selection of the most appropriate method of data collection also contributes to the credibility of the content analysis (Graneheim & Lundman, 2004) and the mixture of methods and procedures contributes alternative perspectives to the content. Finally, although there are undoubted limitations with member checks (Thomas, 2017), the process of iteration with the team meant that meaning and interpretation were subject to checking and challenge to validate or seek additional information. For example, the outputs from the focus groups were shared with the team owner and the team manager along with the more directed action list of developmental tasks. These were shared on the notice board in the workshop tearoom and also formed part of the ongoing performance development discussions with team members thus allowing continual feedback on the points raised upon which notes were taken. No changes were specifically requested however this could have been because they were focussed on the developmental improvements rather than the study criteria.

7.3 Results

The objective of this study was to understand the potential impact Discovery could have in improving whole team performance. In order to address this objective, the results from each research phase are described in this section and followed by

examples from the interviews, field notes and observations to evidence them. These are limited, for brevity, to those that exemplify the points raised in the data.

7.3.1 Phase 1: *Define the key issues within the team*

To frame and contextualise the case study it was important to meet the first research sub-objective through establishing the nature and characteristics of the constraining factors and influences on the team. The findings from the inductive content analysis of the observations, field notes, documents, interviews, and focus group, are presented Table 6.2. Following the data analysis steps 138 raw data units were created from which thirteen lower-order subthemes, four higher order subthemes and two umbrella themes were evident. This demonstrates the team’s perspective of the root causes of their poor performance that is, the constraining factors.

Table 7.2 Key Issues in Race Team

Lower Order Sub-theme	Higher Order Sub-theme	Umbrella Theme
Respecting my relationship with the workplace	Ineffective interpersonal skills	Psychobehavioural skills
Respecting my relationship with my workmates		
Respecting relationships with others outside the team		
Effective logistic interactions	Ineffective teamworking	
Effective communications		
Effective relationships		
Organisational structure and protocols – the way we work together	Poor orchestration skills	Lack of good management practice
Planning that is thorough		
Reviewing as a basis for continuous improvement		
Operational process effectiveness		

Social activities	Activities which contribute to the wellbeing of the team	
Work-life-play balance in activities		
Recognising and meeting individual needs		

I will now consider each of the higher order sub-themes in turn using exemplar quotations to evidence each of the sub-themes.

7.3.1.1 Ineffective Interpersonal Skills

Some behaviours reported by individuals within the team were viewed as having a negative effect on the drivers and generally the “atmosphere within the team was sometimes fraught”. For example, the drivers reported having heard the pit crew shouting at each other with high levels of anxiety at times when they felt it unwarranted and inappropriate: “they shout a lot if things go wrong even if the sponsors are in earshot” and, as driver two put it: “it’s inappropriate to be laughing and joking around the car – it’s fine in the bar after”. In terms of respecting the workplace a lot of disquiet was expressed over interpersonal activities such as: “people keep using other people’s equipment and tools then returning damaged or [they go] missing” and “being untidy – everything has its place” and “cleaning up at the end of the day” were common moans within the group but specifically summed by driver one as: “they have a bad attitude and are always stressed”. The rather more surprising factor arising from the data was the awareness and valuing of each other’s relationships. In respect to behaviours in front of people external to the team, for example the need expressed to “stop talking about confidential things in public [earshot]” and to “stop having arguments in front of the whole workshop and others”. This suggested that they wanted to convey the right impression even if, in reality, they did not. From field notes this behaviour was observed

as the result of personal frustration over incidents which they felt should not have been allowed to occur such as misplaced part or tools. Notwithstanding this frustration my field notes from the racetrack recorded the behaviours as being 'laddish' that is excitable, indiscreet, and flamboyant which are all words drawn from my observations at the first race meeting.

7.3.1.2 Ineffective Teamworking

Behaviours having a more immediate and direct impact emerged from three lower-order sub-themes. *Effective logistics interactions*, such as staying closer to the track and coordinating the inputs of people to ensure the right people were at the right place at the right time were frequently reported with a lot of detailed issues such as: "no truck packing list", "start loading the truck on Tuesday" and, as the team manager reported: "Where the bolts are kept keeps changing so no one knows where they are" and the engineer who commented that: "The team needs basic process skills and routines". Turning to the other sub-themes, *Effective communications* and *Effective relationships* emerged as a constraint for example: "communication – we need to start singing off the same hymn sheet" and, again from the team manager: "communications need to improve between the staff and the engineers". In terms of relationships working as a team was commonly reported as a generic failing with one engineer expressing: "we need to start working together more as a team – helping others when they're behind on work".

7.3.1.3 Poor Orchestration Skills

Comments about the effectiveness of their organisation were numerous, for example: "we must stop working for the sake of working, without a plan" and "we need to start forward planning and not working for this moment" indicating reactive rather

than proactive practice. A characteristic borne out by comments on lack of understanding of definition of roles “being more organised leading up to an event” and: “allocation of specific tasks to each individual” being expressed as desires. One driver believed there to be a gap between his level of expectation of the standard of preparation of the cars and the actual delivery condition of the cars at events. He felt that there was a lack of robustness in preparation and support and that their competitiveness and reliability was suffering because of this: “they never plan, they are never prepared...they are a team of mates and not professional”. As an observed example of this driver one, when asked what he was doing as he attended to some work on a gas cylinder, reported: “some genius has put the tap on the wrong side of the gas cylinder!” Clearly an inappropriate task for a driver to be given in a professional team and one that they were lucky that the driver was skilled to carry out. In my field notes I reported that the driver was clearly displaying anxiety at this point and, at forty minutes before his qualifying run, he should have been concentrating on preparation for his performance.

7.3.1.4 Activities which Contribute to the Wellbeing of the Team

The final theme to emerge, to some extent surprisingly but in alignment with the Discovery model suggestion that the team had a collective preference for sunshine yellow behaviours, was the more ethereal expression of things that would contribute to the wellbeing of the team either as social or group activities. They liked doing things together, expressing desires such as to be “having time to relax with everyone”, “having time away from the track” and “spending time with the team outside of work e.g. beer, dinner, party bus”. Some of these activities were aligned to work for example, the desire to have a ‘good work-play ethic’ and ‘working smarter’ and some were embodied in

individual characteristics such as the need to keep 'being positive' and 'enjoying living the dream'.

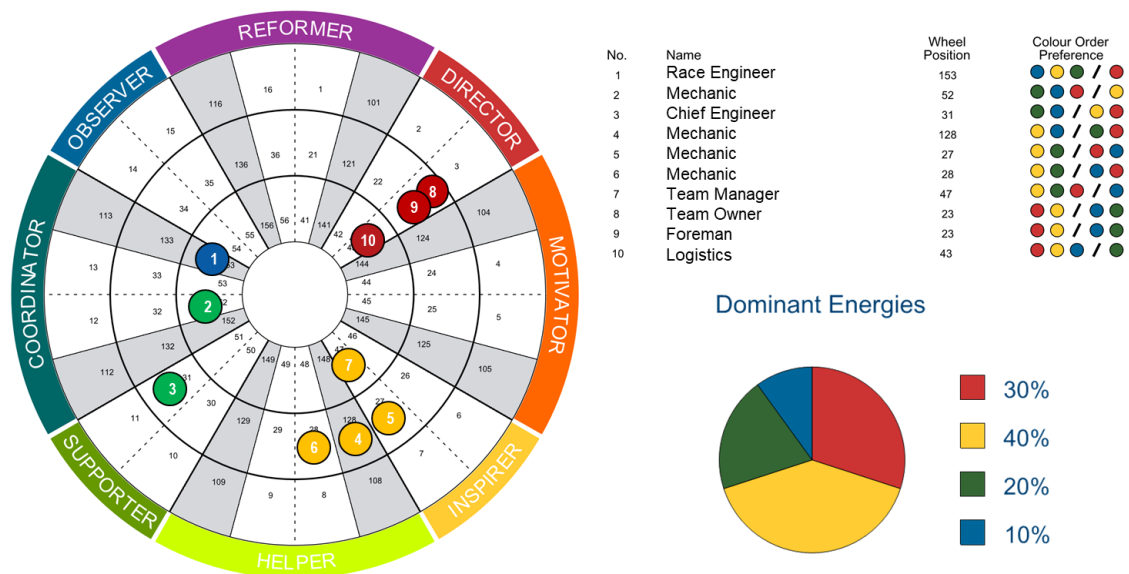
In summary, from a study perspective, the factors found could be grouped in two umbrella themes, those associated with psychobehavioural skills and those with good management practice. From a performance development perspective they could all be considered to be having a direct impact on track performance, for example unforced errors such as bringing an unprepared car to the race meeting, and those having an indirect effect by, for example, impacting on the psychological preparedness of the drivers such as giving them tasks to do that should have been carried out by a mechanic. Ultimately this could cause a lack of confidence that the car would perform to its optimum, simply because they had been seen to not focus on one task then how could the driver have confidence that they had focussed on any task. From a research study perspective, the results indicated that, underpinning the lack of performance, were issues stemming from behavioural maladies and some poor management practices. This then sets the context and key issues for the main research sub-questions on the impact of Discovery.

7.3.2. Phase 2: *Examine the extent to which Discovery could help find solutions to the problem(s)*

From a study perspective the first reconciliation was to explore whether the Discovery model could demonstrate any correlation with the themes emerging from phase one. To do this a Team Wheel, showing the relative positions of each member of the team, their order of colour preference and the summation of their dominant colours was produced (Figure 7.3). On this diagram, there is a noticeable collective preference for behaviours, expressed as 'dominant energies', which were embodied in extraverted

feeling (sunshine yellow), such as sociability, dynamic, and enthusiasm were present to high levels and those embodied in introverted thinking, such as being cautious, precise deliberate and formal, were at a much lower level. In overall terms this would support the findings that the team were not planning or organising well, lacking in, or avoiding, process skills and, as the team manager put it, ‘living the dream’ in terms of their desire and enactment of sociable behaviours at the expense of duly considered process.

Figure 7.3 Race Operations Discovery Team Wheel (excluding drivers)



Immediately after completing the debrief of the profiles, which exposed perceptions and preferences, there appeared to be a change in attitude towards more open and questioning, rather than confrontational, behaviours. This was reported by the team owner, the team manager and the drivers. The change in behaviours, even initially, went somewhat deeper than this. In my field notes I recorded an ‘opening up’ particularly in the sharing and discussion of personal strengths and weaknesses as well as attributes that could be generically identified and attributed to ‘the team’. For example, in providing a rudimentary description of the characteristics associated with the individuals’ wheel position, the team were noted to give and receive feedback on behaviours more readily and without fear of starting a conflict. This sharing experience

brought with it, for individuals, the risk of appearing 'weak' (my field notes reported 'shyness' and reticence' in two individuals) within the peer group however it also showed a degree of increase in trust for each other in assuming that this 'weakness' or risk would not be exploited by others in a demeaning way. In a similar vein some 'risky' issues were raised and opened up for dialogue in a non-confrontational manner such as approaching the person who was seen as being 'bossy' to explore why this was perceived and find a resolution to the angst this behaviour caused.

The alignment of team members to a common understanding of how any individual's behaviours could be interpreted by others, within and outwith the team, brought about an almost immediate demise of the 'negativity' widely reported during phase 1 by the team manager, the chief engineer and individuals within the team and was noted in my field notes. Put simply, using the Discovery framework seemed to allow them to spot any deleterious behaviours in others and, by using the Discovery language, expose and address what might otherwise have been confrontational feedback.

Finally, in phase 2, the results from the focus group set up to explore approaching tasks and problems from each of the Discovery colours (Jung's rational functions) is shown in Table 6.3. The categorisation is split between *Good management practice* and *Psychobehavioural skills*, the umbrella themes from the inductive analysis of the previous focus group data. Findings are then arranged into sub-themes from the data from each of the Discovery four-colour perspective. Examples are given in the table and further expanded in the narrative below

Of the enabling and constraining identified factors all but two were factors which had previously been identified. The two new factors both were constraints, one relating to the addition of an extra car and driver into the team and the other the number of

guests in the pit area during races. Curiously, the group, who the Discovery model indicated had, collectively, dominant extroverted feeling (Sunshine Yellow) preferences raised significantly more factors when considering enabling and constraining factors

Table 7.3 Areas in which Discovery added new perspectives on solutions

Sub-theme (example)	Perspective	Umbrella Theme
Planning (Prioritise car 1st – finish 1st, chat after)	FR	Good management practice
Goal setting (Friday or Saturday get an early finish Per car performance – get jobs complete don't leave)		
Preparation (Getting parts ordered quicker)		
Working methods ((Stop) starting jobs and not finishing them)		
Social planning (Team hotel and staying together)	SY	
Planning (Being organised so that Sunday mornings are more relaxed)	EG	
Working methods (Presentation)		
Planning (Keep creating job sheets)	CB	
Preparation (Be more prepared before the event. Equipment cleaned etc, Car prep attention to detail)		
Working methods (Non team personnel in truck/garage at times, Keep the good clean look of team and outfit, Keep the workshop in its tidy organised state, Stop being late)		
Trust (Keep trusting each other – with jobs given)	FR	Psychobehavioural skills
Responsiveness (Quicker decisions made)		
Attitude (Keep being positive)	SY	
Communication (Communication was better)		
Teamwork (Do things all together and working together)		
Being creative (Putting your ideas forward)		
Trust (Everyone looking out for each other)	EG	

Attitude (Talking in front of people negatively – staff and driver)		
Teamwork (Keep improving personally and as a team - one team)		
Attitude (Like to leave early)	CB	
Teamwork (Keep the good teamwork)		

from their opposite Discovery type, cool blue. Although this is not a quantitative analysis it is noteworthy that the simple calculation of discreet factors raised from a cool blue perspective was 44% compared to 16% from a sunshine yellow perspective. Fiery red and earth green being similar at circa 20% each. Perhaps knowing what to do and actually having the motivation and ability to do it is a distinction to consider in some future research! More relevant observations were that many of the enabling factors raised were already in process of being addressed for example: “being more prepared for the event, equipment cleaned etc” and “being organised so that Sunday mornings are more relaxed”. This indicates that change is not an immediate process and that, in effect, behavioural change can take time. Another important observation was that many of the issues raised relating to interpersonal behaviours were resolved or not mentioned as remaining as issues. For example, communication was noted as being “vastly improved” with people “keep improving personally as well as a team” and factors such as “making decisions without consulting or notifying” and “bad attitude...bitching and being negative” were not raised. Quite simply, once an issue had been aired and dealt with it was forgotten about. This was contrasted by some issues, however, that had not been addressed for example the team manager picked up on “talking in front of people negatively” as a constraint and one driver noted that the engineers should “prioritise cars first, finish first then chat afterwards”.

This latter point was symptomatic of a deeper, individual relationship issue that had appeared in my field notes as ‘can see tension in relationships between the team manager and the team owner’ and an observation of ‘the length of time the driver and his engineer spend in one-to-one debriefs without the others (team manager, drivers, engineers etc) – seems very engrossed’. These Relationships provide the subject content for the research sub-objective in phase 3.

7.3.3 Phase 3: *Can Discovery be impactful on specific, problematical relationships?*

In this section I am going to report on two examples of relationships in the team which were noted as problematical and had a constraining influence on the team. In presenting these cases I will describe the relationship to Discovery through answering three questions: firstly, what was observed, secondly, what did Discovery say about them and thirdly, a brief description of the outcome. Finally, in the discussion section that follows, I will correlate the observation and what Discovery said and, specifically, review the role of Discovery in the situation. In both cases field notes were taken during work with the individuals and the team in their workshops, offices, and at race meetings. This included specific quotes written in the notes and reflexive notes were added when later reviewing the journal.

7.3.3.1 Driver and Race Engineer

Before explaining this example in more detail, it is important to understand the setting in which the behaviours were observed. Therefore, I shall describe the format of the test session. From an early start the driver completed five laps to allow all the cars systems to get up to working temperature. The driver then pits to have new tyres fitted and goes back out to set a baseline for the test on lap time, track conditions (for example temperature, humidity, wind) and handling ‘feel’ (the word used to describe

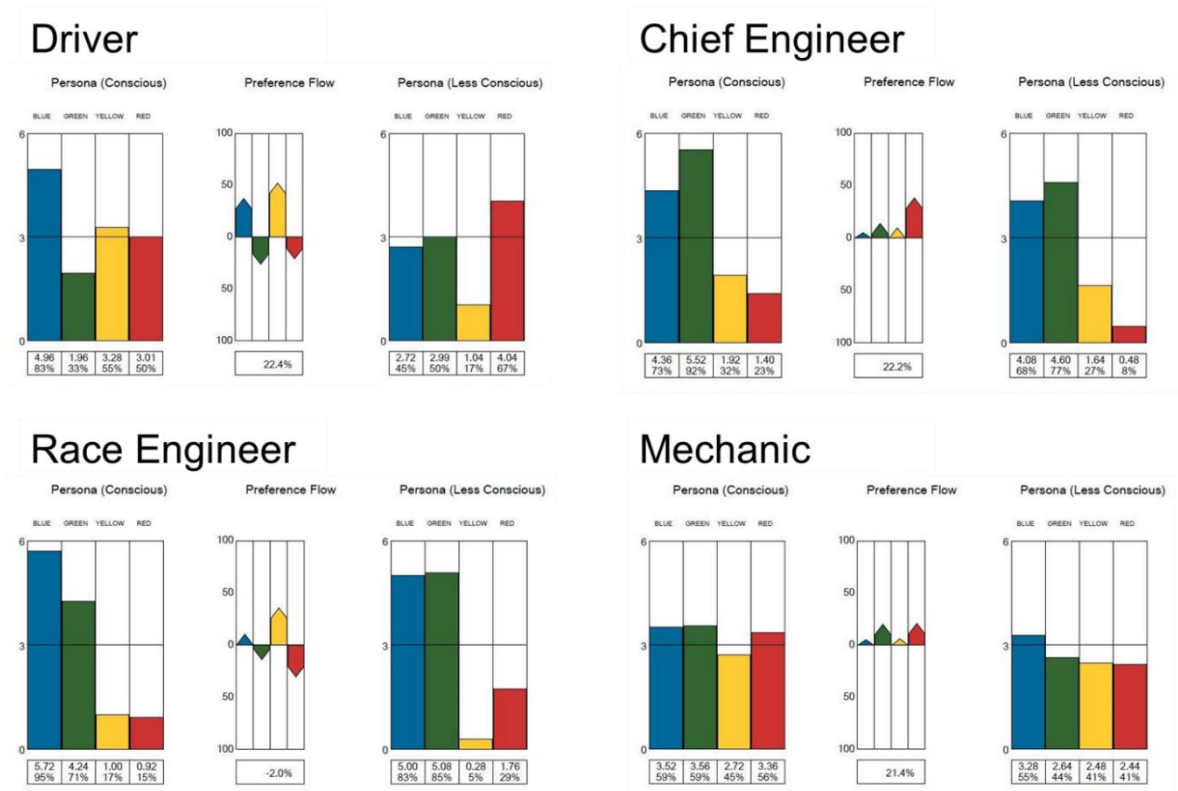
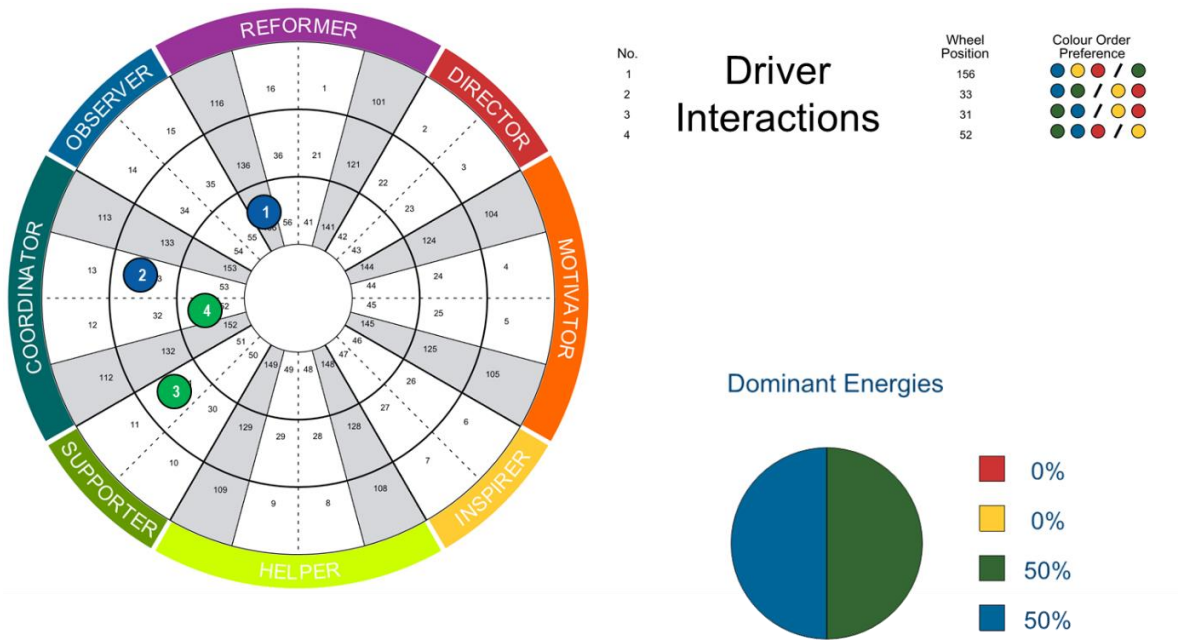
how the driver receives and interprets feedback from the controls and forces felt in the car). Multiple sensors on the car also log data relating to the car performance such as speed, g-force, steering input angle, brake-system pressure, engine speed, gear selection and other technical aspects. This data is downloaded and combined with driver feedback to give the race engineer information from which to decide on developmental changes to the suspension, geometry, and other settings to improve pace. These changes are then carried out by the race mechanics under the control of the chief engineer. The driver then trials the changes made on the track against the baseline established earlier. This process can go through multiple iterations over periods from half a day to several weeks.

7.3.3.1.1 What was observed?

The initial problem identified to me by the team owner was that “the car is just not getting developed”. In expanding on this the team owner expressed frustration to me at the fact that other teams were getting faster lap times as the season progressed and they seemed “to be going backwards”. The team owner also expressed frustration that he was “paying top money” for his engineers and his comment on the driver was “he’s won races so I know he can do the job”. Following up on these concerns the behaviours of the driver and engineer were observed over a two-day BTCC test meeting at Snetterton circuit during the summer break. The test had been arranged with the specific purpose of addressing some handling problems that were believed to be slowing the pace of the car. The test was attended by the team manager, the driver, his engineer, one foreman and three mechanics plus logistics staff. The core group who attended the test; the driver, his engineer, the team owner and the foreman, had been profiled using Discovery.

Summarising the observations from my notes, the driver and engineer continually sought more and more information to solve a problem they believed to stem from the rear-end suspension on the car. There were many iterations of the change-trial-review process in which data plot after data plot was overlaid, acceleration and braking traces, steering input and lateral forces, suspension movements and so forth. Additional sensors were added, and on-board cameras were fitted to observe suspension movement during the testing laps. Many hours were spent with the driver and race engineer reviewing the data from the car and discussing in great detail the driver's feedback against this data with a particular focus on the rear suspension. During the first day I had noted that the chief engineer had shown 'remarkable patience and compliance' to the continued requests of the race engineer for change and that there was 'very little grumbling' from the mechanics who were carrying out the changes on the car. The team owner, who had been in attendance for the first day seemed to lose interest. Several times I noted he made eye contact with me which I noted to be a marker of his frustration. I observed that he 'paced around', spent more and more time on his mobile phone and, towards the end of the first day summed his frustration up to me as "I can't f*ing watch this, they're going round in f*ing circles". He left at the end of the afternoon and did not attend the second day. Over dinner on the first evening the conversation continued with a progression of what I noted as 'logical ideas and process' set out for trial the following day. The second day was largely a repeat of the first. Many changes were made and tested however little focus was given to the time limits of the test or lack of results coming from changes and the deepening quest for more information yielding little progress. At lunchtime on day two I intervened, in my role as performance consultant, in an attempt to break the paradigm that had developed by introducing challenge to the behaviours.

Figure 7.4 Driver & Race Engineer Discovery Wheel positions and Race Crew preference intensities



7.3.3.1.2 What did Discovery say?

The Discovery evaluator suggested that the driver had a preference for introverted thinking followed by introverted feeling, cool blue and earth green. The race

engineer was similar however had a greater intensity of preference for cool blue, introverted thinking, which would be consistent with his role. Looking at the line that Discovery uses to nominally distinguish between a preference to use a certain type of behaviour and a reluctance both driver and engineer were much less likely to use fiery red of sunshine yellow behaviours. The relative position in the Discovery model is shown in Figure 7.4 together with the graphs that show the intensity of the preferences. As Discovery suggests that 'you are as much defined by what you are not as what you are' neither the driver nor the race engineer might be expected to show the characteristics of fiery red, that is, brevity, focus on outcome and results, productivity and efficiency (see Appendix 6). Considering this further and referring to Jung's observations that sensing is at its greatest in introversion and intuition at its strongest in extraversion, it is likely that both would look for the tangible and real world evidence rather than envision future concepts and, to use a common phrase, think outside the box.

The chief engineer was indicated by the Discovery model to have a preference for introverted feeling followed by introverted thinking, earth green and cool blue. This would suggest characteristics such as maintaining harmony and relationships, and focusing on stability, values, and support of others. Again, considering the intensity of preferences within the model, and the reluctance to use fiery red behaviours, as the opposite of fiery red, we could expect that he would not display characteristics such as being strong-willed and purposeful. Indeed, the model posits that he would see these behaviours as being overbearing and aggressive.

Finally, the team owner was depicted by the evaluator to have a particularly high preference for fiery red, extraverted thinking, followed by sunshine yellow, extraverted

feeling and a very low, reluctance, for earth green, introverted feeling. From this we could expect to see behaviours such as being determined and focussed, dynamic and demonstrative with very little patience and not having a relaxed approach. Further, and again considering Jung's sensing-intuition pairing, the team owner, through a strong intuition, could hold beliefs that a future state was possible and achievable without knowing, or having evidence of, the tangible steps that would need to be taken to get there.

7.3.3.1.3 What was the outcome?

Ultimately the problem on the car was not solved at the test. As it transpired many hours were spent before consideration was given, in the afternoon of the second day, to an altogether unrelated problem at with the front suspension which was causing the problem to apparently come from the rear. All admitted afterwards that if there had been more balance in their behaviours that is more fiery red to bring attention on the time pressure and drive for a conclusion, less cool blue striving for the answer from data and process, and more sunshine yellow and intuition to take them out of the apparent 'rut' they had got into. This, they thought would have re-energised them and potentially introduced some creativity to the problem solving in looking outside the narrow focus of solution they were considering.

7.3.3.2 Team Owner and Chief Engineer

It is worth recalling that, as Chapter 2 and the organogram earlier in this Chapter demonstrates, the team owner has overall responsibility for the performance of the driver, the cars and the team and is accountable to the sponsors. and the chief engineer has operational control over the engineers and mechanics and has a strong influence with the driver. Therefore, the interaction between the team owner and the chief

engineer is of paramount importance as disquiet between these individuals will percolate as a disruptive influence through the team.

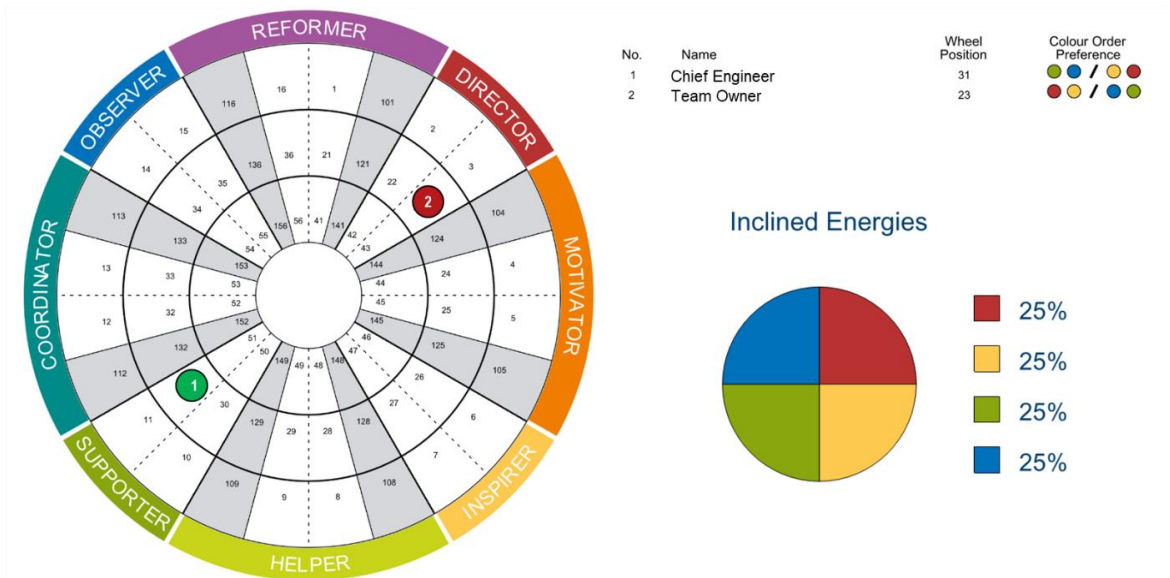
7.3.3.2.1 What was observed?

In my field notes I had made reference to instances where I felt the team manager and the team owner seemed 'very content avoiding each other'. The drivers both pointed out to me that they felt that the team owner and the chief engineer 'didn't gel' in fact one driver felt that they didn't seem to trust each other. When probed on this his thoughts were that the chief engineer didn't think the team owner could be trusted to allocate the funds coming in from the sponsor on what he perceived as 'the right things' for example, spending on hospitality in preference to technical development. When I discussed this with the chief engineer, he concurred that he felt the team owner was not being at all considerate of the resource and processes required to deliver success. He expressed that this led to opportunities for development being missed through an unwillingness to explore potential solutions between them. In short, he felt his potential contribution was being undervalued by the team owner.

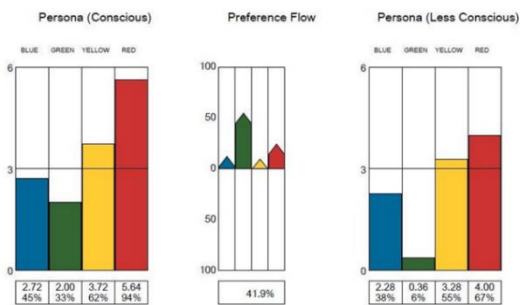
When I questioned the team owner about the relationship the team owner was more reserved commenting "well, he's an engineer isn't he" implying that he might expect him to be formal and precise if not a bit stuffy. The team owner was, however, expecting to see results on the track. He had seen improvements from better processes being introduced, such as packing lists for trucks and planning schedules for race weeks, however he was suspicious and questioning about whether the chief engineer would, or could, deliver better track performance and felt that he should "get on the team more" to "sharpen them up".

7.3.3.2.2 What did Discovery say?

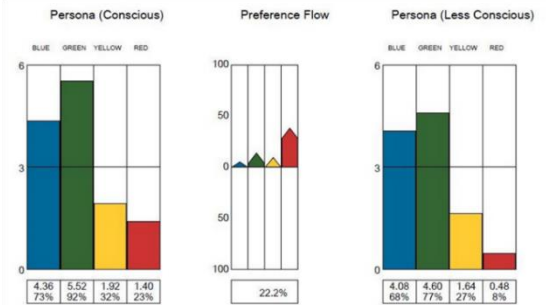
Figure 7.5 Team Owner & Chief Engineer Discovery Wheel positions and preference intensities



Team Owner



Chief Engineer



As noted in the first case above the team owner had predominantly fiery red and sunshine yellow preferences. The team manager showed preferences in the opposite type; earth green and cool blue (see Figure 7.5). In addition to the characteristics noted in the previous example, as opposites the Discovery model posits that tension will be created through misinterpretations and having differing perceptions and beliefs in where priorities should be given. If they are both aware of these differences and can adapt their own behaviours and interpretative skills to understand where each is coming from, then this can be a valuable strength.

7.3.3.2.3 *What was the outcome?*

After the awareness of these behavioural preferences had been created a much deeper relationship between the two ensued as both now understood and valued each other's contribution rather than being deeply suspicious of it. In my notes I commented that the relationship was 'more relaxed' and that the chief engineer felt that he was being left to get on with his job. I did also note, however, that although there was less tension between the two, the team owner appeared 'cautious' about the chief engineer's ability to deliver results which I commented on as 'being impatient'.

7.3.3.3 Summarising Phase 3

From what was explored in Chapter 2 and the findings from the studies in Chapters 4 and 6, many enabling, and moreso in the case of this team, constraining factors occur, or stem from, micro levels in the relationships between key individuals. In these two examples of relationships that are pivotal to performance, interpersonal behaviours demonstrating potentially constraining factors could be identified within the Discovery framework. The implications of this will be considered in the discussion below however now I will move on to the results from the final phase of the study, the review with the drivers and team of the impact of Discovery as seen from their perspective.

7.3.4. Phase 4: *Examine the perceptions of the team about the extent to which Discovery impacted on their relationships and performance*

The final data contained four categories with eleven underpinning themes from the abductive analysis. Further specific quotes to exemplify the detail within the themes are included in the following narrative in the order of categories from the findings in Table 7.4

Table 7.4 Areas in which Discovery was perceived to add value

Themes	Categories
Better and more productive interpersonal behaviours	Factors in which Discovery has played an identifiable part in delivering improvement
More effective teamworking	
More reflection and consideration before action	
Better planning and organisation	Factors which have improved where Discovery may have helped but could also be due to developing good practice
Better working practices	
Taking personal responsibility to the team – e.g. commitment, personal timekeeping	
Mischievous use of Discovery system as banter	Factors where Discovery may have been deleterious
Unwillingness to engage	
Confusion arising from (mis)understanding of sensation and intuition (from field notes)	
Increased attention to detail	Other impactful factors.
Having sustainability for the team	

7.3.4.1 Beneficial Factors Attributed to Discovery

7.3.4.1.1 *Better and more productive interpersonal behaviours*

The use of the Discovery framework and language was identified as being instrumental in a number of interpersonal improvements in behaviour. With specific reference to changes which led to better outcomes the team manager pointed out:

For me, that [Discovery] interaction with the team definitely helps. It gives people the opportunity to say what's on their mind or if they don't say exactly what's on their mind, it gives us an inkling of where they are going and who they are and what they are thinking.

The younger driver had also seen benefits and reported: “Everyone seems to be a lot more relaxed around each other which is showing in results as well, everyone is working better together”. The chief engineer attributed this in a more detailed level of personal interaction:

I think they can relate to people in general more. Understanding that people – it's (trying) just to explain to people why people are different, why they are going to react differently to certain situations, and they know in the back of their mind now that person.

He further went on to give a specific example:

When one of the red characters, I suppose we'd put it, starts to flare. Rather than get annoyed by it or upset by it, you just let them have their flare and then you say, 'right, let's calm that down, let's put a bit of water on that. Let's calm it down.' Now you've had your flare, you've had that. I know it's going to happen, I know it's coming so you can just let it happen, let them get it out of their system and then, okay – now let's move on... I know they are not specifically having a go at me or one of the other guys around us or whatever, it's just their nature. It's what their nature is, it's how they react. And the other thing is, like you say, the sunshine [yellow] guys, sometimes you've got to say, 'Come on!' You've got to give a pat on the back to say, 'Let's get going, let's stop chatting and having a talk with this bloke and that bloke.

7.3.4.1.2 More effective teamworking

Considering the feedback which attributed specific team improvements through Discovery the team owner could see high level benefits in identifying how the team was performing as a team and, from a management perspective, how his efforts could be

directed to improvement: “As a whole, it's been a giant filtration system for me to see where performance is, where the sabotage or the ill effect may be coming from, and it's just enabled me to identify what needs changing, what is working, what's not working. For me, it worked massively”. This included using the Discovery framework to help identify fitting roles and methods for people: “It’s finding the right colours that fit the right roles ... getting the job roles and responsibilities in place”. As the team manager put it:

Specifically the team has become – I just like to call it 'slicker'; everything they do is slicker, on a race weekend everything is – communication is better, the way they go about it. Obviously practice makes perfect but communication and knowing each other helps a lot more; you can see people knowing what should be done and if something has happened then someone else will step into someone else's role at the blink of an eye and understand what they've got to do to fulfil that role. For example, if one of the engineers who should be changing tyres has to open the bonnet and have a look, the other engineer will start changing his tyres as well as his own. So rather than just doing the two, he'll do the four, because he knows the other bloke is under the bonnet for a particular, specific reason. So he knows the job has got to be done so he just steps up and does that and doesn't think about it, just does it, understands what he's doing, we're just a slicker team. All round, a slicker team.

7.3.4.1.3 More reflection and consideration before action

Another key theme was the reporting of increases in self-reflection and consideration which was seen as the building of a skill. As the team owner observed:

What a lot of people have started to learn to do is think for themselves. Whilst we're one big team, they have developed their own understanding, their own goals, and their own individualism... What it's done is actually given people the ammunition to think for themselves

7.3.4.2 Beneficial Factors in which Discovery May Have Played a Part

7.3.4.2.1 Better planning and organisation

In considering better planning and organisation small but important improvements were noted such as 'making sure better spares and logistics back up for the cars and team' and 'being more focussed on timescales and deadlines' were highlighted. The team manager summed this as: "Yes, they are just better prepared. I think this was a case of they saw their flaws and saw that we could see their flaws". One driver saw this as a direct benefit on race days:

I think because everyone had their own jobs it was flowing a lot better, we weren't working so late into the night because it was all done before they got to the track...the whole atmosphere in the team got better. It's organisation more than anything...we've been getting better and better.

7.3.4.2.2 Better working practices

In terms of specific working practices, a number of small but significant improvements were noted such as 'problem identification', 'better at doing jobs' and 'better completion of jobs'. This was summed by the team manager as: "The team we started the season with is nowhere near as competent as the team we finished the season with...people are now starting to deliver".

7.3.4.2.3 *Taking personal responsibility to the team*

This theme summed the observations of individuals that they were doing more for the team. For example, in 'better personal timekeeping', 'keeping the workshop clean and keeping on top of my mess', 'keeping the boys up to date with information and social activities such as making 'the team meal on a Friday evening a must'.

7.3.4.3 Factors where Discovery May Have Been Deleterious

7.3.4.3.1 *Mischievous use of Discovery model*

Moving on to considering where the use of Discovery may have been deleterious the noted mischief of 'knowing how to poke the bear' as the chief engineer put it, was countered to some extent by other reports where 'banter' was constructive. One participant described this as:

Yes, well just overall communication within the team, definitely. Because people understand other people and with the profiling, the boys make it a bit of a joke but it does work when arguments happen, they'll say, 'Oh, that's your red coming out in you', or if someone is always laughing and joking it's, 'You are the yellow boy!' It's banter but it also helps people understand other people and I think, 100%, that's definitely helped because it's diffused situations that we wouldn't have been able to diffuse before or the boys wouldn't have diffused themselves

7.3.4.3.2 *Unwillingness to engage*

There was also a realisation by the team owner that certain individuals would not engage with the development process and this was an attitude he did not want in the team: *"There was a limiting factor to some of the people that we got on...they're never going to anything different as much as we try and give them chances"*.

7.3.4.3.3 Confusion in sensing and Intuition

Further on this point the confusion noted in Chapter 5 regarding Discovery's management of the sensing and intuition functions raised itself in questions in workshops but also played out in one session I had with the team manager and an engineer. This is extracted from my field notes from the meeting:

Called in to help unpick an issue between team manager and an engineer. Engineer walked out at lunchtime after a blazing argument with team manager. Both same wheel position but different intensities of colour. Row happened at 10am when team manager came in. No disciplinary action but wanted to explore why this happened 'when they are the same colour' (fiery red). Explored preferences in detail and explored sensation and intuition. Engineer was working on a part for afternoon deadline, intuitively knew he would be able to strip it off in 20minutes, call a taxi and get it over to the machine shop for a chap he knew to repair and taxi it back before going home. Team manager had expected a plan to remove part, pre-arranged shipping of part and confirmation from company that they would have time slot to do repair. Lots of sensing in there. At least they laughed when I went though it – although car will not now be ready for qualifying/first race. Again!

7.3.4.4 Other Impactful Factors

7.3.4.4.1 Increased attention to detail

This theme specifically refers to small but potentially important other factors which contributed to the wellbeing and motivation of the team. For example, actions were raised by the team which they felt reflected a greater consideration of their value to the team for example in 'providing waterproofs for the mechanics', and 'having hot

food available on a cold day'. It also covered aspects such as 'providing fuel money for the truck drivers' and creating a 'trolley o'shites' that contained a host of removed broken and damaged parts which provided a source of amusement and banter between the mechanics and others. Such little things were seen as motivational.

7.3.4.4.2 Having sustainability for the team

Finally, having 'financial security' was raised as important. From the team owner's perspective this was about dealing with the sponsors and the greater security of funding that came mid-season:

At that time [the start of the season], throughout the season, it's been very linked to the financial status of the team because every day, I have a brief, that is to raise money, and every day, that amount that I need to raise varies. The limiting factor in terms of development, testing, seat time, and ultimate to this has been money.

One other unexpected outcome which falls into this category was the reaction to the team when their top driver left suddenly to race for another team that was performing better in the BTCC at that time. This happened towards the end of the study period when greater and coordinated efforts were starting to improve performance and as noted by the team manager, the impact was not as might have been expected:

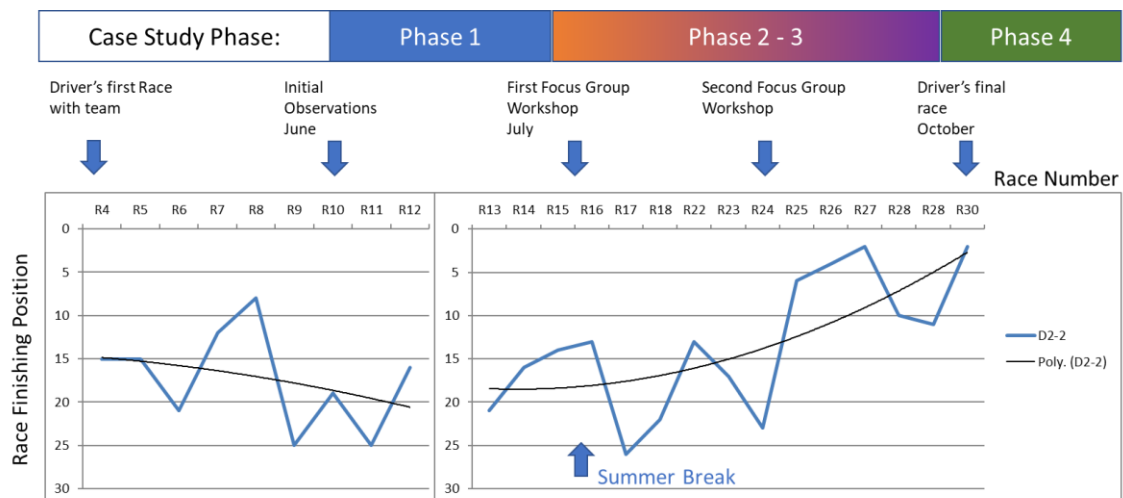
Well, initially my reaction was (excuse the French) 'oh shit, here we go, this is going to cause problems internally, massively.' He's your super-star driver, he's what everyone does come to see. He done what he was brought in to do: brought attention to the team. He'd done well, he'd put it on the podium. But in the end (it) didn't really have that much effect on the team. People understood ... and they probably looked at it more of a case of now, 'Well sod you! We know the

car is good, we know the team is good, we know we're going in the right direction. If you think the grass is greener, you go for it and let's see how you get on.' Point proven that pretty much 90% of the races that we've raced against him now, we've beaten him

The team, being able to react to this challenge potentially demonstrated a greater degree of resilience than they might have done earlier in the season.

7.3.5 The Performance Results in Motor Racing Terms

In terms of the real ultimate measurement of how successful the development programme was in improving the performance of the driver and team the most obvious indicator is on track performance. The intervention began with observation at races ten, eleven and twelve with the first implementation effects experienced at the following meeting (race thirteen). This provides a milestone 'before and after' point in time from which we can view the race results as an indicator of the team's performance. The graph in Figure 7.6 shows the season averaged performance of the team drivers up to the milestone and from the start of the intervention to the end of the season. Note, a non-finish at round 7 has had the nominal placings of the number two driver inserted only.



Race finishing position by race through season (33 car grid)
NB Graph x-axis is not in linear time i.e. race by race rather than by calendar

Figure 7.6 Race Results Through Season Showing Study Phase Timing

The 2nd order polynomial applied to smooth the trending curve shows that, during this first part of the season drivers had experienced some progress however neither were able to match the progress of the faster developing teams on the grid and, consequently, performance stagnated and had begun to decline in terms of position in the races.

Trending would suggest there was some evidence of improvement by the final third of the season and the second place in the final race after a strong qualifying and pace in the last three races suggested that the team, and driver, were now performing to their true potential having 'caught up' with the rest of the field.

7.4 Discussion

The case in this case study is bounded by the development of a professional racing team in the BTCC during the second two-thirds of their first year competing in the championship. The objective of the study was to understand the potential impact Discovery could have in improving whole team performance. Thus, providing a relatively bounded phenomenon (Gerring, 2004). To achieve this a constructivist-interpretivist approach was adopted (Stake, 2005), in line with the pragmatic research philosophy of this thesis, and multiple methods used to capture data (Flyvbjerg, 2011; Merriam, 2009; Stake, 2005; Yin, 2017).

The study had four phases each exploring a research sub-objective. I will now consider each of these in turn before summarising the case study.

7.4.1. Phase 1: Define the key issues within the team

The main output from this phase of the study was to frame the study and contextualise it showing the key issues faced by the team as constraining factors. From the inductive analysis of data from the focus group and collected field notes two

umbrella themes and four higher order sub-themes emerged. Underpinning the umbrella theme of *Psychobehavioural skills* were a multitude of examples supporting the themes of *in-Effective interpersonal skills* and *in-Effective teamworking*. Quite simply, they did not get along with each other and, despite having a common compelling direction of winning they were missing key elements of effective teamworking such as clear norms for acceptable conduct, a supportive context and a shared mindset (Haas & Mortensen, 2016). In addition to this, although related in the respect that the theme relates to team activities, the umbrella theme of *Lack of good management practice* were two subthemes relating to *Poor orchestration skills*, under which was a lack of thorough planning, no effective protocols for working together and no methodology for continuously learning and improving, and activities which contribute to the wellbeing of the team which displayed a propensity for having a poor work-life balance.

From the perspective of a management consultant there could be potential for quick wins in achieving short term gains however the development programme requirements in this case demanded longer term, sustainable performance and therefore, as a practitioner, I adopted the perspective of not telling them what to do but leading them to find the solutions they needed.

This provided the context for a case in which Discovery could be applied as part of developing the solutions needed and therefore defined the problem and bounded the case study and the use of Discovery within it.

7.4.2 Phase 2: Examine the extent to which Discovery could help find solutions to the problem(s)

In this phase the first step was to explore what Discovery said both about the individuals and what it said about the team. In considering the Race Operations Team

excluding the driver, in total ten of the whole team, Discovery suggested that the dominant energies were extraverted feeling followed by extraverted thinking. In as much as the culture could be defined as the shared values and beliefs of the group (e.g. Cruickshank & Collins, 2012a) then this would indicate a propensity towards the types of behaviours observed that is flamboyant, excitable and demonstrative as described by the Discovery model. Moreover, the Jungian, bipolar nature of the Discovery model, that is one cannot be both introverted and extraverted at the same time, implies that their lack of cool blue, introverted thinking, would bring a lack of process, reflection, consideration and detail. Again, this ties in well with the findings of the study.

The exposition of the Discovery model to the group was noted to cause them to be more open with each other. Ostensibly, the framework of the model and the common language it gave, was an enabler to this although it could also be considered that the very act of taking the time with the group to review problems and talk about solutions could itself lead to a similar outcome – that is to give time and the opportunity for reflection and collective discussion. However, the accuracy of the Discovery models in presenting, even at face value, the preferences and behaviours did mean that any emotion that was clouding debate over any given issue was removed. Discovery appeared as an authentic way of giving people the permission to hold different perceptions and the framework provided an explanation and language. As noted, it may not have been entirely the explanation, but the effect was positive nonetheless.

In rounding off this phase the group worked together to consider problems and solutions from the alternative perspectives given by the simple four colour model. This caused the group to be even more reflective. Perhaps not surprisingly from the abductive analysis conducted some familiar themes emerged which fitted the deductive

categorisation of *Good management practice* and *Psychobehavioural skills*. Within the findings, subthemes planning, preparation and working methods and attitude, trust and teamwork were commonly raised. More surprisingly, considering the previous note on team culture being predominantly sunshine yellow by far the largest percentage of opportunities were seen when viewed from the cool blue perspective. There is no known or certain reason for this however there are three interesting points to note. Firstly, it does demonstrate the ability for all people to behave in all ways, that is in concord with Jung's theory and, in fairness, Discovery's affirmation of this. It does however require the practitioner to be diligent and be wary of the 'bear-trap' of assigning type to individuals by colour. Secondly, it illustrates the power of reflection and taking time to consider alternative perspectives – potentially they thought about problems from a different perspective because they had not taken the time to think about problems from any perspective other than that which they held. It must be said that this could be done in other ways however Discovery delivered the opportunity in an authentic way and at an appropriate time, that is it fitted in the logical flow of the programme. Thirdly, and related to the first two points, the self-awareness step in Discovery and subsequently giving the participants a framework for self-reflection could be seen to give a shared mental model to this process.

7.4.3 Phase 3: Can Discovery be impactful on specific, problematical relationships?

The consideration of two relationships, critical to performance, delivered a rich insight into comparing Discovery Profiles to observations at a micro level. In both relationships what Discovery said correlated to what was observed. Of course, in any case study one can potentially see what one is looking for – that is the case study contains a bias towards verification and a tendency to confirm the preconceptions of

the researcher. This has been noted as a human trait by such notable individuals as Francis Bacon and Charles Darwin however the counter to this is in the focus, at a micro level, on real-life situations and views as they unfold in practice (Flyvbjerg, 2006).

From a pragmatic perspective the correlation of the model to the observed behaviour was useful on two levels. Firstly, it provided the authenticity for a conversation about observed behaviour and, secondly, in both cases it facilitated more reflective thinking and consideration of alternative perspectives from which to find solutions.

In the case of the engineer and driver it led to recognising their similarities and both stepping out of the box together to consider perhaps more creative alternatives from engaging with the world, and their problems, in an extraverted-intuition based way. One lesson from this example is that regardless of whether the identified behavioural type reflects your personality or not, over-emphasising any single typology or attitudinal preference can lead to problems – in this case too much cool blue. The predisposition to introverted thinking and feeling and lack of extraverted engagement with the world meant the external bounds of time pressure, and achieving results, were of much lesser priority to achieving the right answer through the right process and being true to themselves by behaving in concord with their values. In short, they were suffering paralysis-by-analysis and required innovative and creative thinking which, Discovery posits, comes from a strong combination of extraversion and intuition (fiery red and sunshine yellow).

In the case of the team owner and the chief engineer two outcomes were suggested by the Discovery model. The first was the most obvious that, if collectively they had strengths in preferences and fluency in behaviours from all around the wheel

then there was an inherent opportunity to work together to exploit that in different situations. Ignoring differences polarised behaviours, which led to fall out and ineffective behaviours. The second leads on from that and is linked to a characteristic posited by the Discovery model which says that if you have a reluctance to using a certain type of behaviour, that is one you have little preference for, and you try to use that behaviour type by 'dialling it up' from your less conscious persona then it can be perceived as insincere or used in immature and underdeveloped ways. Especially so by those who have a strong preference for that behaviour. To the earth green chief engineer, the dialling up of earth green behaviour by the team manager was seen as just that, insincere. This could be said to be at the root cause of their lack of trust. Whether it was or not is perhaps a subject for deeper study however it did facilitate a better conversation between the two about trust and their relationship which promoted a better understanding of each other. This last point lays open the point made in Chapter 4, that Jung's typology is not modern psychological science, but it is potentially a valuable observational tool. In this case Discovery gives Jung's typology a framework that can be used in layman's terms albeit with the caveat that the practitioner must understand the concepts and theories which give it foundation.

7.4.4 Phase 4: Examine the perceptions of the team about the extent to which Discovery impacted on their relationships and performance

The final phase in this case study was the summary review with the team to reflect on the research question at the heart of the study; *What is the potential impact of the use of Discovery in improving whole team performance?* The first point of note is that the findings were overwhelmingly those of improvements – the programme delivered benefit and Discovery was seen to be integral to that. In better interpersonal

behaviours, effective teamworking, better planning and so forth. The second point is that the next level of interrogation into the results gives predominantly feedback from the team for whom Discovery was an intrinsic part of the development process. It is impossible that they could distinguish between what was achieved with Discovery and what could have been achieved without it. What we have here is their perceptions of what Discovery did for them and did not do for them and even that distinction can be blurred. The team owner, an ex-cage fighter in his mid-thirties, summed his conclusion in this way:

For me, at the start this was a load of old psycho mumbo-jumbo and I wasn't going to buy into it in any way, shape or form but I've got to admit, it's helped us 200%. For a team that was imploding, ready to kill itself, couldn't handle the pressure to a team that now wins...it's not just helpful, it's been essential.

7.5 In Summary

There are two points that are worth mentioning in framing the overall summary. The first is that the team were actually performing well prior to this study however it was the young professional driver who identified that, against his expectations, they were not performing well enough. In persuading the team manager to engage in a process of guided development the driver acted in a pivotal way to improve the performance of the team. Reflecting back to Chapter 4 and the individual attributes and skills that drivers tend to have, this taking of initiative gives a glimpse of leadership. The role of leadership in the career of an elite driver would be worthy of further investigation in future research because, as this situation demonstrates, the ultimate loser when a team performs poorly, is the driver and so it is in their interests to lead the team to better performance. Secondly, there were processes that the team were doing

well or adequately at least. They could get the car to the race meeting and deliver a mid-field result. However, they were suffering from behavioural problems which were evident to the team owner and, more importantly the drivers whose confidence to perform was undermined. Indeed, the extent to which this impacted upon race results would make an interesting further study. This study, however, provided the linkage of behavioural development to process improvement for example the removal of behaviours that caused the car to arrive at events carrying faults that could have been rectified in the workshop. Although these problems were identified early in the study the response time to deliver solutions was slow. This may have been down to the time taken to 'install' Discovery and the team to learn and respond to the change model it presented. However, once the four-colour model, as a basis, was imbedded in their thinking response to change stimuli, such as interpersonal issues arising, was much more rapid and appropriate. It could also be that, in the initial phase, the download of problems by the team was more of a venting of frustration process and this externalisation of issues enabled them to agree and think more clearly about value adding actions. Whichever case applies during the application in Phase 2 Discovery enabled the opportunity for greater understanding an acceptance of the reality of issues to individuals and afforded others the opportunity and method by which they could consider this alternative perspective and consider how they might adapt their thinking to be more respectful of it.

Building on this begs the question of appropriateness of level of knowledge of the Discovery system. Just how much do participants and practitioners have to know or use? The limitations of the four-colour lens discussed above are countered by the strength that this is a simple model to recall and apply to behaviours. What this study has demonstrated is that the practitioner or coach must have a higher level of

understanding to be able to both use the tool effectively and also in a sustainable way
i.e. to deliver the longer-term results and sustainable change.

In total these findings lead to the consideration that including Discovery as part
of a solution can aid the expedition of that solution. However, there are conditions and
caveats associated with this which I will explore in the following chapter.

CHAPTER 8: IN CONCLUSION

8.1 General Discussion

In this chapter I will sum up the most significant findings from the thesis and present ideas on where these findings could add value to talent development in elite motor sport and related areas. As mentioned at the very start, this topic has been a life-long interest and passion of mine. I have witnessed many drivers succeed and many drivers fail and have had a hand in both. I have for as long been intrigued by talent development in motor sport, the role played by interpersonal behaviours, and how increased sophistication in interpersonal behaviours may benefit drivers. As noted at the outset of this thesis there is a woeful paucity of research in the field of motor sport and even less in the area of talent development in motor sport. The purpose of this thesis was, therefore, to explore driver development in this area in which little previous research had been conducted.

As noted in Chapter 1 one of the challenges facing the sport is the acceptance of the role of the driver, their ability and talent, as a key agent in the attainment of world class performance. Pace on the racetrack is, within the industry, more often considered the result of engineering excellence. In such a complex pursuit as motor sport, however the driver's talent is multidimensional and includes the physical, psychological, tactical and technical factors that contribute to the conversion of potential into superior performance. Specifically, there are relationships along the talent development pathway of the driver which impact significantly on their ability to perform and ability to progress. As such, the main objectives of the thesis, laid out in Chapter 1, were:

1. To review features and characteristics of best practice in talent development from research and published literature and consider how talent development in motor sport compares against this benchmark.
2. To identify and understand enabling and constraining factors impacting upon young professional drivers on their route to the top.
3. To consider and explore the use, value, and limitations of the Insights Discovery psychometric tool, widely used in business, as a supporting mechanism in aiding development.
4. To apply and understand the impact of use of the Insights Discovery psychometric tool in an elite young driver support programme.
5. To refine and consider the basis for broader use of the tool in an applied case of developing a specific race team thereby understand any impact, and where that impact may have had the greatest effect.
6. To present a summary of the findings, implications and conclusions and provide recommendations for principles of application in the field of motor sport.

Having outlined the context and the structure of the thesis, Chapter 2 went on to present the rationale for adopting a pragmatic research philosophy. In approaching the research in this way, as a pragmatist, I sought to use methods that were appropriate for answering the applied problems faced and to find tangible answers to practically-meaningful questions that could further my own practice and provide insights for others in the field.

Chapter 3 then addressed the research question of *How do the current approaches and future needs of talent development in motor sport compare to known best practice in sport?* This provided a backdrop to illuminate the features of the overall

journey for developing athletes and, for example, the 'rocky road' (Collins & MacNamara, 2012) through transitions between and during stages of development (e.g. Stambulova & Wylleman, 2014). It also provided an overview of the literature on the individual attributes and the skills that developing athletes require, including the relative balance of technical, tactical, psychological and psychosocial qualities and the features of effective talent development environments (Henriksen, Stambulova & Roessler, 2010; Martindale, Collins & Abraham, 2007; Phillips, Davids, Renshaw & Portus, 2010). Chapter 3 then went on to describe the world of motor sport which, with its multi-disciplined nature and bewildering array of series and championships, presents a multiplicity of sporting and talent development pathways to the top. To add to this complexity Chapter 3 also reported that there are only a handful of talent development schemes that support young drivers with a notable gaps between best practice knowledge in talent development and practice in motor sport for example with talent identification and development criteria being based on short term race results rather than long term development (Johnston, Wattie, Schorer & Baker, 2010). Further there are many forces, such as commercial and financial pressures, which come to bear on the driver and that not all individuals and organisations, such as race teams and sponsors, in the talent development environment have objectives that are aligned to those of the developing driver. In this melee of different people with potentially differing motivations and objectives it is perhaps unsurprising that little research has been done into the enabling and constraining factors that impact upon aspiring young drivers.

Chapter 4 followed on from this to find out *What are the perceptions and experiences of the enabling and constraining factors impacting upon young developing drivers in motor sport?* In line with the pragmatic research philosophy a series of focus groups were held with top-level young, national, regional, and international

competitors. To provide an alternative and, perhaps, more seasoned perspective, interviews were held with experienced, high level individuals in the sport who had a role in driver development. The inductive analyses conducted in the two-part study found that there was a significant need for the developing performers to have strong interpersonal skills to access and benefit from the highest level of support from those around them, to fully exploit the opportunities of the enabling factors, and to mitigate against those that were constraining. Indeed, it was found that enabling and constraining factors were largely the same that is in that enabling factors became a constraint if ignored and constraints an enabler if dealt with effectively. One common characteristic was that contribution and input from the people in the driver's immediate support network was a major factor on this enabling-constraining continuum. Typically, these would be parents, engineers, team managers, coaches, and sponsors.

It was therefore concluded that drivers could potentially benefit from developing sophisticated interpersonal skills in order to engage effectively with, and benefit from, those around them. A point further that is emphasised by the demands of motor sport for future elite drivers to be achieving international level success at an age, of 17 to 20 years old, when psychosocial skills are notably still in development (Petitpas, Cornelius & Van Raalte, 2005).

Given this demand for sophisticated interpersonal skills Chapter 5 explored a behavioural model and psychometric tool, 'Discovery', developed by The Insights Group primarily for use in commercial organisations. The system is based on the seminal works of Carl Jung on behaviour and personality. Although limitations in the model were found, such as in its handling of Jung's sensing-intuition functions and in its terminology and categorisation, it was found that it offered potential benefits for interpersonal skills development. From this Chapter 6, in addressing the research question of *What are the*

ways in which the use of Discovery might impact upon the development of young elite drivers both on and off the track? presented a study of the use of Discovery in the FIA Young Driver Excellence Academy, a one year long global programme for elite drivers selected as the best in the world in the 17-23 age group. The objective of the study in Chapter 6 was to explore the extent to which the use of Discovery might be impactful upon the development of sophistication in the interpersonal behaviours of these drivers and, therefore, to explore how its use might contribute to their development. In line with the pragmatic research philosophy the study design featured interviews with the drivers individually and in focus groups during the training course in which Discovery had been integrated. A second, and completely separate, study interviewed significant others from the close network of the young drivers towards and at the end of the programme. This addressed the same research question to gain the perspective of those observing and interacting with the drivers. From the inductive analysis of the data collected the study it emerged that Discovery had assisted in developing interpersonal sophistication through giving drivers a language and a framework in which to build self-reflection skills and consider alternative strategies for modifying their own behaviours to align more productively with the behavioural preferences of others. However, there were caveats in its use, mainly stemming from the potential oversimplification of Jung's theory by Discovery's language, a matter it was felt could be addressed to some effect by a well-informed and knowledgeable practitioner. There was also the limitation, highlighted by the study, that to use the Discovery model with the driver alone only addressed one side of any relationship and to not give this common and shared mental model of behaviour to those in the driver's team or support network, was missing an opportunity for greater benefits. Consequently Chapter 7 presented a case study of the use of Discovery in an approach that deployed Insights Discovery in a holistic way within

a race team and thus sought to answer the research question of *What is the potential impact of the use of Discovery in improving whole team performance?* In this study the case was bounded by the team and an applied development programme for the final five months of a race season. In this programme I was contracted to develop the team performance through identifying and resolving the constraints they were encountering. Whereas this was a commercial programme of improving the team performance the study in Chapter 7 overlaid the objective of providing an in-depth view of the impact of Discovery in that development process of driver and team. In line with the pragmatic research philosophy a case study methodology was adopted. Through using differing methods of data collection and analysis this created multiple perspectives on the impact of Discovery. There were some very clear lessons, caveats and conditions that became evident as well as the benefits that were found and these are discussed in the following paragraphs in the context of how they can be applied to talent development in motor sport. In particular the use of Insights Discovery in motor sport talent development and other sporting domains and the consideration of future research with and on Insights Discovery. Firstly, as highlighted in Chapter 1, I will consider some of the common strengths and limitations of the studies.

8.2 Strengths and Limitations

Many of the points regarding strengths and limitations are common across the thesis and in order to avoid repetition, I will firstly consider overall points and then consider specific points with reference to each chapter as appropriate.

The first and very significant potential limitation and potential strength is my own epistemological and ontological stance as described in Chapter 2. Having worked with Insights products for five years I have built a philosophical paradigm that, inevitably,

means I approached this thesis with pre-existing beliefs. “Your decisions about paradigm issues are not entirely a matter of free choice. You have already made assumptions about the world, your topic and how we can understand these, even if you have never consciously examined them” (Maxwell, 2012, p. 44). I realised early in the development of the thesis that my own experiences, values, and beliefs would create assumptions that would present challenge to me in being a detached and objective observer. Fundamentally I would have to inspect my own beliefs and assumptions through a critical lens. However, I believed that having challenged these assumptions and unpicked any contradictions from the ontological stance of what is the form and nature of reality and what can be known about it, and from the epistemological stance of what is the relationship between the knower and the known (Guba, Lincoln & Denzin 1994) my knowledge and familiarity with Discovery and the works of Jung would become a strength. My view was that in my perhaps overly pragmatic, and potentially subconscious, view I had developed the following assumptions about Discovery:

- Discovery delivers good outcomes through facilitating positive change for everyone
- Discovery improves interpersonal relationships and the benefits of doing so are seen in organisational performance improvements
- Participants take multiple personal and work-related benefits from sharing and discussing how the Discovery model positions them with respect to others and this enables them to work more effectively
- Participants will want to share and discuss their profile for self and organisational benefit.
- Discovery has a sound and proven theoretical base

Undoubtedly, I felt discomfort in this challenge and, at times, would catch myself repeating the promotional rhetoric of Insights and almost stop mid-sentence to say 'really?'. This change in standpoint brought the relationship between myself, Discovery, and the participants into my focus however I do not believe that it impacted to skew the findings. Indeed, as mentioned above, clarity on my own philosophical assumptions, as described in Chapter 2, brought an extra strength to the methodological question of how to go about finding out what can be known within a subjective and interpretive process of inquiry (Oliver, 2010; Sikes 2004). It may have been impossible to approach the research without any preconceived ideas of the issues and outcomes that arose however, once aware of this, my experience became a valuable asset to the qualitative research as pointed out by Stake (1995).

In doing this research I was also aware that my own bias and relationship with participants was undeniable and evident. From the start my role as researcher was underpinned with being coach, manager, and facilitator and this had the potential to affect the process and my interpretations. I believe however that the multiple roles gave my research a depth and richness that could only be achieved by my unique mixture of experience and position.

In reviewing the methods used in delivering the studies there are some notable strengths. Applying the pragmatic research philosophy expanded upon in Chapter 2 led to the use of qualitative research which enabled appropriate methods and procedures to be deployed to gain a breadth and depth of understanding. For example, the use of focus groups allowed an agreement of factors to be found and insights into these factors to be given (Giocobbi, Poczwardowski & Hager, 2005). The participant recruitment process yielded the highest level of young drivers from the UK and globally in the age

range of 17 to 23 years old. This gave significance and relevance to the questions posed and meant that the inquiry was based on quantifiable and predictable events (Kincheloe, 1991). The methodology also provided strengths in the type of questions asked which explored the 'what' and 'how' of the topics raised in the focus groups and the interviews (Creswell & Poth, 2016). My own background knowledge, being both involved and acting as an observer, aligns well to the pragmatic research philosophy (Corbin & Strauss, 2008) and adopting a reflexive approach to each methodological stage, that is in gathering, assessing and interpreting the data, (Corbin & Strauss, 2008; Culver, Gilbert & Sparkes, 2012) added a further strength. During the analysis process of the research in Chapter 4 the use of an inductive content analysis was a strength as no previous studies dealing with the topic existed and knowledge was fragmented (Elo & Kyngas, 2007). In doing the data analysis no software was used, instead data was analysed using a considerable number of post-it notes and highlighter pens. There is a question over the appropriateness of using computers to analyse data (David & Meyer, 2009) and I share the view that it can alienate the researcher from their data (Kelle, 2004) and dehumanise the research process (Morison & Moir, 1998). In terms of technology, not all interviews and exchanges were recorded. Firstly, given the time spent with individuals which far exceeded the specific focus group and interview slots for the studies in both Chapter 6 and Chapter 7, this would have been impractical and, at times due to ambient noise, impossible. Whereas this is a potential limitation as events and exchanges can be forgotten or recalled inaccurately, the ever-presence of my notebook allowed much detail to be captured. Indeed, Stake (1995) suggests that recordings should be forgotten about in favour of listening, noting down ideas and observations, and relating them to the themes and questions being asked.

Moving now to consider each of the specific studies, although the inherent messages from the studies are clear, it is important to highlight the limitations inherent in the studies that can bear relevance to the findings. For example, a practical limitation became apparent when reflecting on the study in Chapter 4. The participants in the second and third groups did not have English as a first language and as mentioned in Chapter 4, this had a noticeable effect. The points they raised were relevant, however to achieve a meaningful expansion took more time in some cases and, in overall terms, may leave a question mark on whether the depth of response was limited by either a lack of language or the incorrect use of specific words or phrases. For example, when talking about the headline of 'no money' it took some time to establish the distinction of whether that be 'running out of money during the season', having 'insufficient to start the season', not 'being able to engage with sponsors' or any other specific ideas were being put forward. It did however lead to lengthy, and sometimes humorous, exchanges! In this matter my own judgement from my experience, my involvement as an observer taking notes and the input from my assistant, gave an important triangulation to arrive at the true meaning.

In considering the data analysis the core data itself was limited to the focus groups and interview inputs which may have been subject to errors of memory, personal bias or hindsight bias as potential limitations of the interview process (Coolican, 2017; Nestler, Blank & von Colani, 2008; Patton, 2002). It is also possible that, due to my ongoing involvement as a senior member of the delivery team of the support programme, the drivers may have been biased towards saying what they felt I wanted to hear. This, as described earlier, was mitigated to some extent by my awareness of this during the design and facilitation process however an impact cannot be entirely ruled out. Finally, of course, these inputs were limited to the experiences and

perceptions of the participants and what, ultimately, fell into their awareness and it is possible that there are other enabling and constraining factors which could bear relevance for example by occurring later in the development and performance journey.

Leading on from this the introduction of external perspectives from the team manager, the ASN director and the retired competitor in Chapter 4 brought some comparative, valuable and triangulating perspectives on the enabling and constraining factors. The limitation of time in the interviews to circa 30 minutes could have been problematical and have been insufficient time to explore factors in detail. However, to cover the breadth of the subject, participants had experience in racing and rallying from national to world championship level with expert knowledge and experience from several years in talent development. A focused and structured conversation was required. They had, therefore, also been given a comprehensive brief on nature of the research question, and thus had time to prepare their thoughts. In personally knowing the individuals, and through my own knowledge and experience, there was the potential for bias however, as a practitioner in this field I was both able to contribute to the probes in the interview and also, to understand when individual perspectives were being communicated. Notwithstanding these factors, this is still only three external perspectives and, as outlined in Chapter 3 and reinforced by some of the results in the study, there are a number of other external perspectives that may well be different e.g. from an engineer, a sponsor, a parent or close family member, a successful elite driver and so forth, and worth further investigation. Such a triangulation of information would be extremely useful and would strengthen any future attempt to develop a fuller understanding of the enabling and constraining factors.

Moving on to the study in Chapter 6 with the groups of young drivers, it is also worth reiterating that they were just this – young drivers. With an age range of between 18 and 23 years many were in the middle of a period of intense psychosocial development. That this tool has helped them to some extent in that process is therefore, to some extent, understandable. For example, in the ways in which it created the framework for self-reflection. However, it must be considered that this is one tool and not the only tool that can do that. The use with more mature and psychosocially developed individuals, for example in the use of Discovery in a coaching programme with an older, established elite driver, is therefore worthy of further consideration as further limitations may become apparent.

In Chapter 7 the first consideration is the strength of case study methodology as part of the pragmatic research philosophy. The study has adopted a number of methods of data capture and generation and presented a diversity of many sides, complex and sometimes conflicting narrative. It cannot be summarised in a few main points but shows the depth and complexity of attempting to understand human behaviour in a real-life situation. This leads to the potential limitation of how generalisable the findings in this one study can be. There are, however, points of learning and points that can assist the practitioner and pragmatist which I will expand on in the following sections.

Finally, in summary, it should be mentioned that a key strength of this thesis has been that the pragmatic research philosophy has led to qualitative research with a variety of methods, and yielded valuable insights into the linkage between drivers' behaviours and the behaviours of others in their team, and their ultimate performance and development. Considering this linkage, particularly in the study of the real and

perceived value of relationships between the driver and those closest to his performance have provided practically useful outputs for example in using the Discovery model to guide and inform practice in situations where conflict is impeding performance as described in the study in Chapter 7.

8.3 Recommendations for the Use of Insights Discovery in Motor Sport Talent Development

The truly clear and relevant message for talent development programmes in motor sport is that the focus should not solely be on the development of technical and tactical skills (e.g. MacNamara & Collins, 2012). Chapter 3 identified a gap between knowledge and practice in this respect in motor sport. Adding to this from Chapter 4 there is a clear message that interpersonal behaviours can build on the enabling factors and play a positive role in mitigation of those that might constrain or derail the young developing driver. Importantly these enabling-constraining factors exist on a continuum and that places responsibility on any talent development programme to consider the stage of development that their subjects may be at (e.g. Wyleman & Lavalley, 2004) to ensure that support is appropriate to their needs at that time. For example this would consider aspects such as whether they had reached a stage where they had a dependency on their engineer, whether they had to engage with a full race team or just their parents and paid mechanics, whether they were becoming dependent upon commercial sponsorship for funding and so forth. Talent development programmes should also consider what challenges the sport or life may be presenting to drivers (e.g. Collins & MacNamara, 2012) in order that the talent development programme can respond to events or act proactively towards building resilience (Fletcher & Sarker, 2012; Galli & Gonzalez, 2015). The findings in Chapter 4 provide a basic structure of enabling

and constraining factors against which development support can be focussed and training interventions designed, that includes for example, the role of psychological skills and characteristics and making the best informed decisions as well as in the more obvious development of physical and tactical skills.

The role of interpersonal sophistication comes into play when they engage with those around them in order to extract the optimum from them in terms of support and thus talent development programmes should also identify the specifics of the talent development environment (Henriksen, Stambulova & Roessler, 2010; Martindale, Collins & Abraham, 2007; Phillips, Davids, Renshaw & Portus, 2010). It is in identifying the key individuals, such as parents, team managers, engineers, sponsors, and coaches, and providing the driver with the interpersonal skills to engage effectively, that the best can be obtained from them.

However, the talent development programme also has to face and deal with two main challenges in the use of Discovery as part of any support programme. Firstly, as found in the consideration of Discovery in Chapter 5 and borne out in Chapter 6 the coaches and practitioners must invest in fully understanding Discovery and the underpinning typology of Jung. Discovery has been found to display good face-value however it also has limitations which can undermine its use, such as the colour-typing of individuals, if not handled effectively by the practitioner. The second challenge is that, usually, talent development programmes only work with the driver and not the extended team. In which case Discovery can only offer its explanation of behavioural types to form an understanding of relationships rather than improve a relationship. For example, to maximise the benefits both driver *and* engineer, or driver and *the other party*, or even a whole team, they would need to be included in the application of Discovery.

A further lesson from the use of Discovery from Chapter 6 is that it assists in self-reflection and provides a language and framework with which subjects can make sense of themselves and the world around them. This could potentially be linked to the age and psychosocial development of the young drivers (Petitpas, Cornelius and Van Raalte, 2005) however Discovery could also be considered as a tool to help drivers understand their approach to psychological development factors such as the PCDEs (Hill, MacNamara & Collins, 2015, MacNamara & Collins, 2017; MacNamara, Button & Collins, 2010b). Indeed, as found in Chapter 7 there are benefits from the using Discovery as a framework to train or coach the driver into considering alternative perspectives.

8.4 Recommendations for the Use of Insights Discovery in Other Performance Levels and Domains

In reflecting on the use of Discovery at other performance levels in motor sport two areas of potential are worth consideration. Firstly, as noted in Chapter 3, formal motor sport, by which I mean competitions recognised by the FIA, allow competitors from the age of 8 years old and it is not uncommon for parents to privately school their children in order that they may compete intensively in karting surrounded by 'professionals' in that domain. Whereas this is arguably not good practice for many reasons (e.g. DiFiori, Brenner, Comstock, Cote, Gullich, Hainline & Malina, 2017) it is, nonetheless, a fact. Discovery could provide a coach, in that environment, with a useful foundation for building interpersonal skills however, at this age and even older, there are many more variables associated with social skills that require various specialist measurement tools that are beyond the capability of Discovery (Cillessen & Bellmore, 2002). It is certainly, however, appropriate for the coach to use Discovery with the parents and others in the youth's support network rather than with, effectively, children

as this has the potential to be misleading or damaging (Paul, 2010). It is of note that, Insights have, in the past, provided a 'junior' Discovery assessment psychometric which proffers an abridged psychometric on the same principles for those aged between 14 and 18 years old, I have found no recent evidence of its use. Use of Discovery in schools now appears limited to teachers ("Increase working relationships...", 2019).

Considering talent development in motor sport from a more general perspective rather than from within the bounds of a support programme there have been some tantalising glimpses of opportunity emerging from this thesis. Potentially due to its origins in developing teams in business the Discovery model, constructs and supporting resources lend themselves to the heavily commercialised and team orientated nature of motor sport however the language and resources provided as a base by Insights requires detailed modification to become authentic tools for use in motor sport talent development. For example, simply in the wording of such exercises as 'Sales effectiveness' – a module which lends itself readily to 'Finding and working with Sponsors'. This was a module that was used in the programme in Chapter 6 and has the potential for future development. Another glimpse comes from the case study in Chapter 7 where the driver in the study demonstrated leadership skills in taking the initiative within the team to do something different about their lack of performance (and his lack of results). The leadership development module, one of Discovery's supplemental resources, could be another example of the good practice found in Chapters 5 and 6 of resources which, through nurturing self-awareness and self-reflection and combining this with a framework to envisage situations from a different perspective, can yield a positive outcome. Of course, the use of Discovery is not for the unwary or unprepared. As pointed out in Chapter 5 there is a real and ever-present challenge to the use of Discovery because of the four-colour system that fronts it. Yes,

there are instructions on how and when and in what form to use the model but the bear trap of a single-colour assignation to individuals is all too tempting and convenient to the uninitiated. Therefore, the model must be used at a depth of knowledge that could well be prohibitive to the driver or the race team.

However, with methodical and diligent application it can produce benefits and thus is pre-eminently suited to the use of the consultant, coach, or other practitioner. The ideal situation would be for the team to be the motivation behind the use of Discovery and the team owner taking responsibility to drive engagement with the development process. The use of Discovery then, within this holistic approach as seen in Chapter 7, could assist in both the development of the young driver and the team performance. Any practitioner considering the use of Discovery in a motor sport team must be prepared to identify the critical processes and relationships that they are addressing within the context of the team, as identified in Chapter 6 and again at the outset of the research in Chapter 7, before they set out to improve performance using Discovery.

On the flip side of this ideal scenario are the very real problems identified in Chapter 3 where commercial and financial demands on teams create pressures which focus on winning and profit above talent development. Until these diverging objectives are aligned very few teams are likely to invest heavily in such a programme.

In summary of the opportunities within or outside talent development programmes, the findings in this thesis would suggest that the use of Discovery by a single driver or even a team without a deeper knowledge could prove problematical. Discovery and the Discovery Profile may have good initial face-value however the use of Discovery would, in practical terms, take a disproportionate amount of resource to fully realise the potential benefits. It would be most likely to simply peter out over a period

of days or weeks. What would be recommended would be the longer-term use as part of a structured development programme, in a talent support programme or in a team, where Discovery could be integrated, and the content and interventions designed and delivered by a professional such as a practitioner or a coach against a defined set of needs. In this context, as noted above, there are benefits which Discovery can assist in attaining and the skilled practitioner would be able to advise the team just how much resource and effort they would have to contribute along the journey.

The use of Discovery in other sports is growing ("Insights for Sport", 2019) and the messages from this thesis would apply as considerations for any practitioner considering the use of Discovery as part of a talent or team development programme in any sport. In short, they must invest in Discovery and establish that its use is appropriate for the goals they seek. In doing so they must be clear that Discovery can supplement observation and good management practice but cannot allow Discovery to be substituted for it (Paul, 2010). Indeed, this very point applies to any practitioner in sport or in the domain of executive coaching or business organisational development (Lewis, 1999; Melamed & Jackson, 1995).

8.5 Recommendations for Future Research With and On Insights Discovery

The direction of future research with and on Discovery needs to address three areas; the overcoming of the shortfalls and risks to the system; the development of robust interventions specific to sporting domains and, underpinning these, a deeper investigation into why Discovery based interventions are so effective.

In dealing with developments in a talent development sense the main shortfall to be addressed is a resolution to the nagging issue of not dealing accurately with measuring and applying Jung's sensing and intuition functions. Yes, Insights have an

excellent model called 'Deeper Discovery' which does provide this, however due to its complexity, it is not an accessible tool for use in talent development because it is complex to understand from a subject's perspective. A more practical solution might be for Insights to develop bespoke training in the use of Discovery for practitioners and coaches in sport. This could cover the challenges to the theory as well as addressing the practical considerations of what and how to contextualise the model and supporting resources. If Insights seek to expand commercially into the world of sport ("Insights for Sport", 2019) then this, I would suggest, is essential.

The second consideration is that, in motor sport and in sport generally, the need for interpersonal sophistication starts early. In this thesis the drivers taking part in the studies are between 17 and 23 years old and already performing at elite levels. The psychosocial development and interpersonal behaviours of children is a complex subject (Fuerst & Rourke, 1993) beyond the boundaries of a Jungian based personality model. It would be valuable to practitioners and coaches, who can work with drivers of all ages, for Insights to explore where these age and psychosocial boundaries are to give some guidance on the appropriate use of Discovery.

Finally, as noted above, underpinning this is the potential for research *on* Discovery. That it works is ostensibly beyond question however not just to *what extent* but *why* it works would be worthy of investigation. For example, can we say with confidence that it is not trickery? There is a connection between colour and meaning for example common dialogue includes phrases such as 'feeling blue' and 'to see red' which reinforces the currency of connotative meanings and the use of colour in commercial marketing is a well-researched tool or persuasion (e.g. Crozier, 1997; Hynes, 2009; Aslam, 2006). It would be comforting and useful to see research that explores this aspect of the Discovery model. To do so would help those that distinguish the real value

of Discovery as a tool that facilitates learning of behaviours through putting structure where there is none and build interpersonal sophistication where it is lacking.

Building on this point, there are over 2,500 personality tests available (Ash, 2012) and there are many that are based on, and claim their provenance from, the works of Carl Jung (Harper, 2018). There are also a number of ex-practitioners and students of Discovery who have been attracted by the money and commercial success of Insights and have set up 'copy-systems' even using the same colour style of referencing. Notwithstanding the potential, and reality, of 'passing-off' and the ensuing legal action that potentially follows due to the exploitation of Insights' intellectual property, they present a commercial risk to Insights. There is also a risk to the perceptions held about the underpinning Jungian typology. The risk being that they do not have the vast resources of Insights to apply rigour into their manifestation of Jung's typology and, therefore, may deliver an inferior solution that damages the reputation of this method of supporting talent development.

In summary, the practitioner must invest in their own knowledge to make decisions about Discovery that are appropriate to their intended application.

8.6 Summarising the Benefits and the Contribution of This Work

Building upon the recommendations for use of Insights Discovery, in this final section I will summarise the potential contributions that this thesis provides in creating opportunities for driving individual and team development through an interpersonal focus. In reflecting on the benefits that can be taken from this work there are three key areas in which I would consider opportunity: Firstly, in the impact of knowledge generated explicitly during the studies, secondly in referencing back to the literature review in Chapter 3 to draw parallels from within talent development pathways, and

thirdly to subjectively consider other applications in practice, as mentioned in Chapter 5, which I have established in other programmes during this work.

8.6.1 Impact of Explicit Knowledge

As noted in Chapters 1 and 3 the field of motor sport lacks the quantity of research undertaken in many other sports. As such each study has taken a step towards a better understanding of key issues in individual and team development and elite success. In Chapter 4 the characterisation and categorisation of enabling and constraining factors faced by young elite drivers is unprecedented. Taken as a nominal representation of a vertical slice of the elite development pyramid (e.g. Bailey & Collins, 2013) it gives an insight which is both informative and valuable to any aspiring elite driver, parent, team manager or backer. It also provides a framework in which further questions seeking a deeper understanding can, through further research, be posed. For example, one could, using a positivist research philosophy, gain a deep understanding of the role of financial backing of young elite, as contemplated in the '£5m and 5 years' route to F1 noted in Chapter 2, and develop generalisable theories about key elements of the motor sporting pathway.

The use of ID in the global development programme in Chapter 6 demonstrated that ID could be integrated into a driver support programme and that the ensuing increase in self-awareness and interpersonal focus brings short and long term benefits to the learning and coaching process. It did this through providing a framework for deeper understanding and discussion about the behaviours that may elucidate greater inputs from others and provided a language to articulate what these alternative behaviours could look like. This served also to reinforce the potential, described in Chapter 5, that ID can be contextualised and used to good effect in a development programme.

Chapter 7 brought together drivers and their race team and used ID in addressing performance problems. The case study showed that the skilled and knowledgeable use of ID aided the solution of the problems the team were encountering. The use of ID could be seen to act as an enabler for other good practice methods such as continuous improvement (Deming, 1993). The focus on interpersonal behaviours could also be seen as having a causal role in the improvement of interactions leading to better collective planning and implementation (Thurmer, Wieber & Gollwitzer, 2017) and a less tenable, but nonetheless apparent, improvement in culture and team climate. Both factors associated with good team performance (e.g. Zuraik, Kelly & Dyck, 2020).

Whereas these benefits can equally be read across to a business as well as a sporting context it is of note that team development in business management is reported to be better researched and advanced in knowledge terms (Molan, Kelly, Matthews & Arnold, 2019). ID used in this manner can thus hold potential for bridging the gaps between performance leadership and management in business and elite sport (Fletcher & Arnold, 2011; Molan, Kelly, Matthews & Arnold, 2019) and also the gap between sporting knowledge and practice within talent identification and development (Collins, MacNamara & Cruickshank, 2019).

8.6.2 Potential in Talent Development Pathways

Building on the last point from the preceding section opens the possibility that using ID in conjunction with known best practice can both make that best practice more accessible and encourage its use. ID is undoubtedly popular with participants and can act as a catalyst that brings together evidenced knowledge with real practice. For example, the use of ID in conjunction with development interventions during stages and transition, both normative and non-normative, as discussed in Chapter 3, can help the driver in engaging with their environmental milieu and individuals (Gagne, 2004). In

dealing with the 'trauma' described in the 'rocky road' (Collins & MacNamara, 2012) the contemporaneous use of an integrated ID programme can build skills in self-reflection that enable reflection and analysis of situations that build resilience (e.g. Ardel & Grunwald, 2018).

The use of ID alongside constructs that effect good practice, such as the POP continuum (Collins, MacNamara & Cruickshank, 2019) or even with practices from organisational performance such as transformational leadership (Newman, Round, Wang & Mount, 2020) holds the potential to enable easier access for individuals through tailoring the engagement to their behavioural preference.

8.6.3 Other Developments in Practice

In work ongoing contemporaneously with this thesis two examples of specific use are worthy of note here. Firstly, in working with individual elite drivers in a coaching capacity we have developed a model which encourages both coaching and self-reflection on the driver's approach to skill development in each of the PCDEs (MacNamara, Button & Collins, 2019a and b). This successfully uses the PCDE Q2 (Hill, MacNamara & Collins, 2019) and enables a coaching conversation exploring the most effective techniques for skill building based on the driver's Jungian preferences. For example when considering performance evaluation the driver can find the method that best suits their preferences by discussing options with their coach such as in choosing between systematic processing and detached analysis, practical thinking and action, interactive participation with engineers and others or flexible involvement – four examples of differing approaches based on the ID model.

The second example of successful integration and bringing academic knowledge into practice is in our most recent work providing a development and support programme for a global, all-female race series. Here we have successfully used the ID

behavioural model to challenge paradigms of male stereotype behaviour in motor sport and empower the drivers to approach their development from a mindset open to change as opposed to an acceptance of the status quo and an otherwise fixed mindset (Dweck, 2006).

In closing there is much that can be done and many more questions which, collectively, can broaden and deepen the understanding of how elite performance comes about. In the world of motor sport at least this research has given real insight into why some things we do work and provided understanding on the limitations and boundaries we face.

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APPENDICES

List of appendices:

1. Participant consent form (example)
2. Participant information sheet (example)
3. Focus group guide (Chapter 3)
4. Semi-structured interview guide (Chapter 3)
5. Example Discovery Profile graphics showing the 72-Type wheel and preference intensities.
6. Discovery colour preference overview
7. FIA YDEA curriculum
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Appendix 1: Participant consent form (example)



University of Central Lancashire Informed Consent Form

Investigation: An examination of the potentially derailing factors that impact a driver's capacity to progress along the talent pathway

Investigator: Brian Cameron

Name _____

Please read and initial each statement:

I have read and understand the subject information sheet	
I understand what the project is about and what the results will be used for	
I am fully aware of all procedures involving myself and of any risks and benefits associated with the study.	
I know that my participation is voluntary and that I can withdraw from the project at any stage without giving any reason	
I agree to detailed notes being taken during the interview	
I agree to the recording and transcription of my interview	
I understand that anonymised quotes may be taken from me and used to illustrate general themes	
I understand that the data [<i>field notes, interviews</i>] will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed	
I agree to anonymised quotes being used within any publications or presentations resulting from this work	
I understand that the results will be anonymous and any quotations used will not be attributable to me	
I would like to receive a copy of the results	

Participant's signature:

I certify that I have explained to the above individual the nature, purpose and possible risks associated with participation in this research study, have answered any questions that have been raised, and have witnessed the above signature

Signature of investigator:

Date _____

Appendix 2: Participant information sheet (example)



University of Central Lancashire

Phase 1: An examination of the potentially derailing factors that impact a driver's capacity to progress along the talent pathway

Participant Information Sheet

Please read the information below thoroughly before deciding whether or not to participate in this study.

Introduction

You are being invited to take part in a research study being conducted as part of the Professional Doctorate in Elite Performance at the University of Central Lancashire. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information – our contact details are at the end. Take time to decide whether or not you wish to take part.

Thank you for reading this information sheet, which you should keep if you decide to take part in the study.

Purpose of this Study

Due to the commercial demands of motor sport young elite competitors who exhibit talent on the track are faced with the need to more rapidly develop on and off track skills. In providing training and coaching for young elite the challenge is to provide learning systems for on and off track skills which build rounded professionalism in an accelerated yet long-term sustainable way. The Discovery tool, successful in a business context, offers a potential solution to this need if it can be successfully contextualised into the sporting environment of the elite performer. The aim of this study is therefore to assess the impact on skill learning and performance of young drivers both on and off the track. This study will be conducted over nine months from October 2013 to July 2014.

Why have I been chosen?

You have been chosen to participate in this study because you compete at a high level in motor sport, coach at a high level in motor sport, or act in support role (manager or support staff).

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part?

The study will consist of an interview in which you will be asked a number of questions about your participation in motor sport. You will be sent the interview questions in advance. The interview will take place at a time and place that is convenient to you (for example, at your training venue, tournament, or a training camp). Each interview will last approximately 60 minutes. You do not have to answer any questions, you can stop answering the questionnaire at any time and you can withdraw your data from the study at any point up to two weeks post-questionnaire completion.

During the interview you will be asked not to mention individuals by name, or who could be identified. The interview will be recorded and later analysed. If you would like to receive data from the analysis that will follow the interviews, this will be available within six months. If you wish to participate in this study, please contact the researchers within one week of receiving this information sheet.

Confidentiality

Please rest assured that all information gathered in this study will remain completely anonymous and strictly confidential. Interviews will be identified using a code number that you will be assigned. Please be assured that all information gathered from the questionnaire will remain completely anonymous and strictly confidential. When we write the final report and any other publications, we will not use your name and nothing that can identify you will be contained in it.

All collected data will be held on a password protected computer and in a secure locked cupboard. Data will be stored for five years from the end of the project and then destroyed.

Withdrawing from the study

Participation in this study is completely voluntary. You have the right to withdraw from the study at any time without any penalty. If you withdraw from the study, your interview will be deleted and all information about your involvement will be discarded. If your data has already been anonymised and aggregated with other data it will not be possible to identify and remove it. However please be assured it will also not be possible to identify anyone from this aggregated data set.

Risks and Benefits

The information you provide will help us understand more about the reasons why and how interpersonal behaviours impact on performance development in motor sport. There is a possibility that you may experience some social or emotional distress when discussing your experiences in sport. In these instances, the researcher will refer you, with your permission, to your NGB for further debrief. As detailed above, steps have been taken to anonymise the data and therefore there is no risk that the results can be linked to any individual.

Research Ethics

The University of Central Lancashire's research ethics committee has reviewed and approved this study.

If you have have any complaints or issues about the study please contact John Minten, Head of School, Sport, Tourism, and the Outdoors, UCLan. Jhminten@uclan.ac.uk

If you would like to take part in this study or if you require further information please contact:

Brian Cameron, brian@bcameron.com +44 7771 773859

Aine MacNamara amacnamara1@uclan.ac.uk

Appendix 3: Focus group guide (Chapter 3)

Focus Group Structure

Time	Activity	Notes:
0845-0900	Check	Room: Layout/Chairs/Projector/Screen/Flip charts and pens/paper and pens for sub-group/refreshments
0900-0905	Introduction	Collect/Hand-out Consents & Info sheets
0905-0910		Background to ESP/BC Study /Timing & Agenda Domestics Round group exercise for introductions – what they’re doing – where they are racing – teams – this year?
0910-0920	Warm-Up Question	In groups of 4-6 What’s your vision for your motor sport career in 5 years time? <ul style="list-style-type: none"> • What series will you be doing? • What car will you be driving? • Where will you be doing it? • How much will you be earning? • Who will be around you? (team/coaches/sponsors/team-mates/girlfriends/family)
0920-0930	Plenary	Each table to present highlights (Encourage interaction)
0930-0945	Study Question	Considering where you want to be and what you see around you when you’re there. What will have HELPED you get there and what will HINDER you from getting there? Two lists – HELP and HINDER write down on paper provided Discuss and present back your thoughts Prompts: <ul style="list-style-type: none"> • Potential helps? Money/family/winning/teams • Potential hinders? Reliability/injury/too expensive
0945-1030	Plenary	Share notes by driver/table What were the key headlines? What did you discuss between yourselves? Encourage interaction – shared experiences?

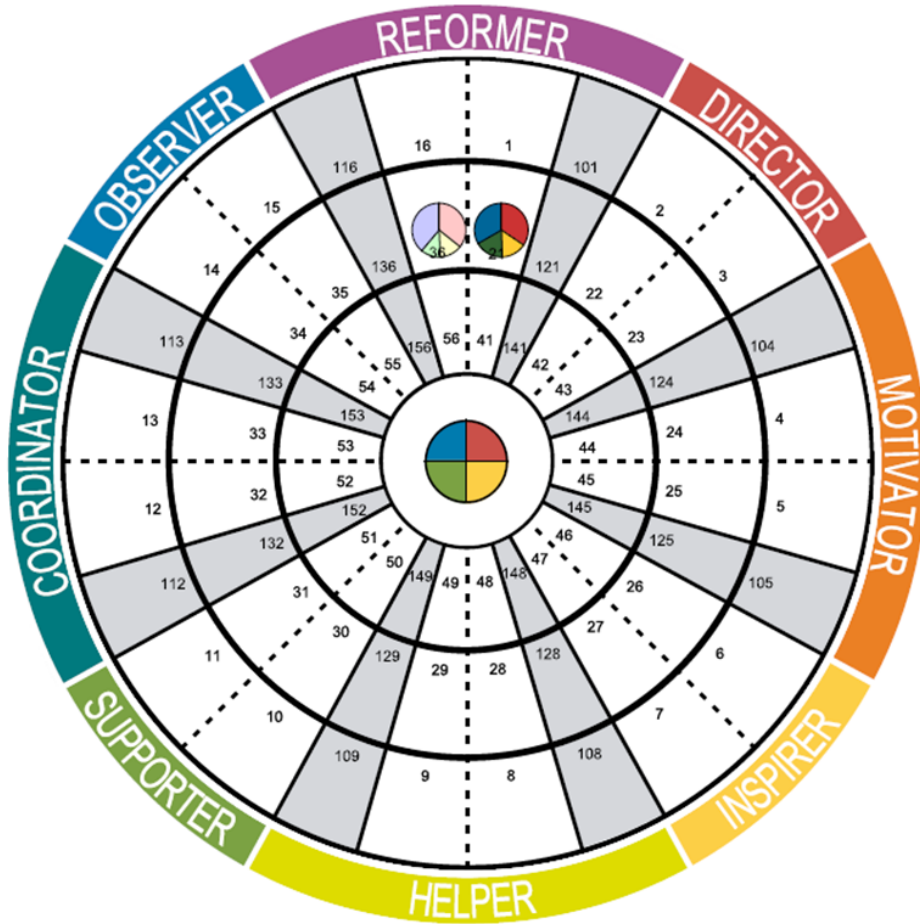
Appendix 4: Semi-structured interview guide (Chapter 3)

External Perspective Interview

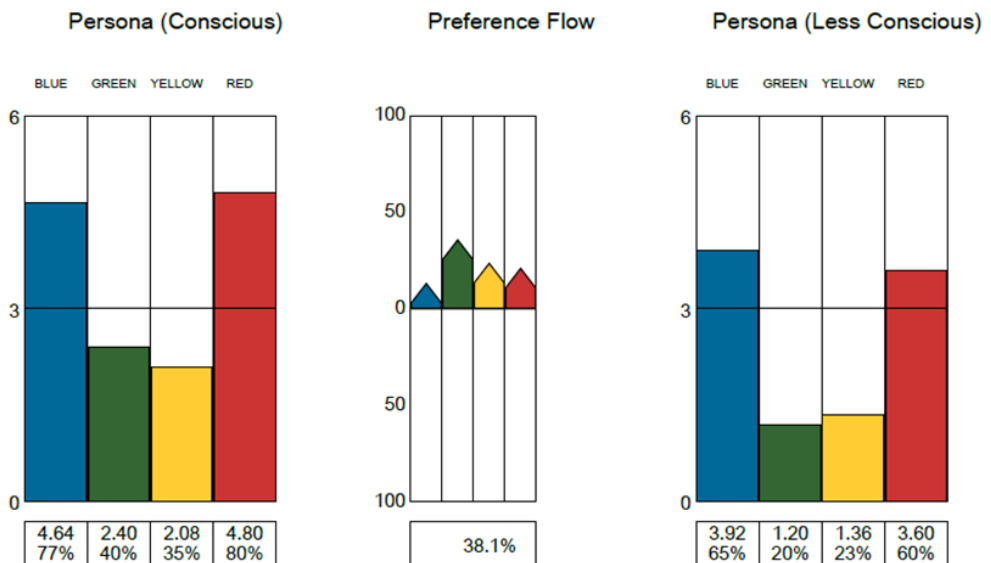
Question	Probe	Prompt	Reason
1. What do you see as the biggest challenges facing young drivers trying to get to the top?	What have you seen recently with any particular drivers?	WRC F1 drivers Who has made it and who hasn't	Warm up – get them thinking into the field of inquiry
2. What approaches do you see drivers taking to these challenges?	What are the constraints they can face Can you give specific examples? What happened and what was the outcome?	Which are the big hitters in terms of impact?	Explore the constraints
3. Can/do they respond to these themselves or do they call on others?		Consider situations during: Practice or testing Qualifying or race Off the track	How do drivers respond? Who do they rely on?
4. What has to happen for them to be successful?	Who has made it to the top and what helped? Examples of drivers	Can you give examples of they did? What did the action look like? What did the outcome look like?	Explore the enablers
5. Who are the people and programmes that help achieve success?	Who help? What roles do the main supports have? What are the most effective talent development programmes?	Who? What do they give? What do they receive? (what do they do it for?) What does a talent development programme look like?	Who and what is out there to help?

Appendix 5: Example Discovery Profile graphics showing the 72 Type Wheel and Preference Intensities

The Insights Discovery® 72 Type Wheel



The Insights Discovery® Colour Dynamics



Appendix 6: Discovery colour preference overview

Characteristic	Cool Blue	Earth Green	Sunshine Yellow	Fiery Red
Approach to Life	High standards and correct	Focus on stability, values and supporting others	Fun and interaction	Inner certainty, focus on action
Work Preference	Structured, organised, functional, formal	Personal, relaxed, friendly, informal	Stimulating, friendly, cluttered, personal	Busy, formal, efficient, structured
Focus	The task: the process	Maintaining relationships	Interacting / relationships	The task: the results
Goals	Understanding	Harmony	Recognition	Personal achievement and meeting challenges
Likes	Accuracy	Attention	Flexibility	Productivity
Wants to maintain	Credibility	Relationships	Status	Control
Irritated by	Surprises and unpredictability	Insensitivity, impatience	Boredom, routine	Inefficiency, indecision
Seen by others as	Analytical and distant	Mild and docile	Disorganised	Impatient

Appendix 7: FIA YDEA curriculum

Training Date:	Content:	Delivery:
Workshop 1: Nov 29 th – Dec 2 nd Learning the Basics Introductory and Skills learning to cover basic ground topics	<ul style="list-style-type: none"> • Physiology: Part 1 – Motor Sport and Your Body, Fitness Testing • Physiology: Part 2 – Pre-season Fitness Programmes • Sports Psychology: Part 1 – Performance Profiling • Behavioural Profiling: Your Personal Profile • Nutrition and Hydration: Part 1 – Understanding Basic Requirements • Sponsorship and Commerce in Motor Sport • Presentation Skills: Part 1- Communication and Media 	Class
Workshop 2: January 12 th – 16 th ‘Team Building’ and Personal Development	<ul style="list-style-type: none"> • Behaviours and Results, How they interact • Personal Performance and Interpersonal Skills • Developing Non-driving Skills • Physical and Psychological Elements of Performance • High Performance Team Dynamics • Measuring Performance • ‘On the track’: Improvement where it counts 	Class & Outdoor
Workshop 3 Date TBA Road Safety	<ul style="list-style-type: none"> • Presentation and discussion of course theory - road safety training programs • Methods of education and presentation • Trainee and observation function during road safety training • Assembly of road safety training course parts • Discussion and Evaluation 	Road Safety Centre
Trainer Education	<ul style="list-style-type: none"> • Assembly of road safety training course parts • Conducting a road safety training course • How to implement parts of Hall of Consequences • Discussion and Evaluation • Screening and certification process 	Road Safety Centre
Workshop 4: Date TBA Basic Driving Learning into Practice	<ul style="list-style-type: none"> • Start Trainer Education Part 1 • Basic Philosophy of road safety and motor sport training • Psychological influences in driver training programmes • Basic practical road safety training exercises 	Class & Track
Advanced Skills learning	<ul style="list-style-type: none"> • Physiology: Part 3 - Personal Routines • Nutrition and Hydration: Part 2 – Putting Theory into Practice • Presentation Skills: Part 2 – Personal and Professional • Marketing and Motor Sport • Logistics and Planning • Coach Review 	Class

<p>Workshop 5: Date TBA Advanced Driving</p>	<ul style="list-style-type: none"> • Trainer Education Part 2 • General: higher speed braking and driving • Aquaplaning • Stabilising and controlling skidding / drifting vehicles • Drifting • Handling course driving • Transfer to road safety and motor sport – group discussion 	<p>Class & Track</p>
<p>Advanced Skills learning</p>	<ul style="list-style-type: none"> • Physiology: Part 3 - Performance Improvement • Sports Psychology: Part 2 - Coaching Strategies • Career Management: Part 2 – Reviewing Changes • Competing in an International Series: Implications and Strategies • Coach Review 	<p>Class</p>
<p>Ongoing</p>	<ul style="list-style-type: none"> • Mentoring and coaching 	<p>Various</p>

Appendix 8: Semi-structured interview guides (Chapter 5)

Driver Interviews

Question	Probe	Prompt	Reason
1. How do you rate your current interpersonal and communication skills? 1 (Very Poor) --- -----10 (Exceptionally good)	When have you experienced something that is an example of this? What were the circumstances around this instance?	With you family and friends With your support network With your team With your sponsors	Identify limiting factors and/or behaviours that could lead to derailing
2. How effective do you believe you are in getting the most out of your supporting team (mentors, coaches, manager, engineer etc)? 1 (Very Poor) --- -----10 (Exceptionally good)	Consider with: Your support network Your team Your sponsors	'Good day' – when you achieved a good outcome 'Bad day' – when you didn't achieve the outcome you wanted What was it that made it good or bad?	Explore factors impacting upon good and bad outcomes across multiple relationships that contribute to success
3. Can you think of any prior instances where a greater understanding of your own behaviours might have led to a better outcome?	Can you give specific examples? What happened and what was the outcome?	Consider situations during: Practice or testing Qualifying or race Off the track	Identify and explore areas of self awareness as a contributing factor to good/bad behaviours and outcomes
4. What actions and changes, if any, do you think you can make based on your introduction to Insights?	Who will you be interacting with? What will the action look like? What will the outcome look like?	Can you give examples of what you might do: During practice or testing During qualifying or race Off the track	Measurement of impact of change on behaviour
5. What do you believe will be the outcome of these changes?	Will the outcome have a short or long term benefit? Will there be a follow up?	How might the action impact upon track performance?	Determine sustainability Determine performance improvement measure

YDEA Coach and Performance Manager Interviews

Question	Probe	Prompt	Reason
1. How do you rate [driver X]'s current interpersonal and communication skills: 1 (Very Poor) -- -----10 (Exceptionally good) and on what evidence do you base this?	What specific instances have you seen? How much self awareness of these behaviours and their impact have you seen?	With peers? During YDEA workshops?	Establish evidence of behaviours and self awareness
2. What difference, if any, do you think Insights will make to [driver X]'s	Where do you see them taking action to improve behaviours?	What outcomes might be more easily achieved? What will be the measure of that success?	Identify potential scenarios of successful outcomes

interpersonal and communication skills?	What situations do you believe they will find benefit in applying Insights learning	Any downside?	
3. How do you intend to help [driver X] make these changes based on Insights?	What Discovery/ESP tools do you feel will be relevant to participants during your coaching?	Interpersonal skills Understanding culture Process and project management	Produce potential list of interventions to support behavioural learning and change

Support Network/Race Team Manager Interviews

Question	Probe	Prompt	Reason
1. How do you rate [driver X]'s current interpersonal and communication skills? 1 (Very Poor) - -----10 (Exceptionally good) ?	What specific instances have you seen? How much self awareness of these behaviours and their impact have you seen?	With peers? With other people who contribute to their racing?	Establish evidence of behaviours and self awareness
2. What difference, if any, do you think [driver X] could make in their behaviours which would bring an improvement to their development and learning?	Where do you see them taking action to improve behaviours? What situations do you believe they will find benefit in changing their behaviours?	What outcomes might be more easily achieved? What will be the measure of that success? Any downside?	Identify potential scenarios of successful outcomes
3. What do you think [driver X] could do to improve their interpersonal and communication skills?	What situations might this work in? What risks might be mitigated with a change in communication skills? What outcomes would be different?	Are any relationships underperforming? Are any relationships at risk?	Establish blockers to progress
4. What processes, if any, do you have in place to support [driver X] in making these changes?	Are any situations managed with the exclusion of (driver x)?	What are the underlying reasons for this? Is development potentially compromised by this? What risk does this bring?	Establish any proxies and understand the impact to performance of proxies