

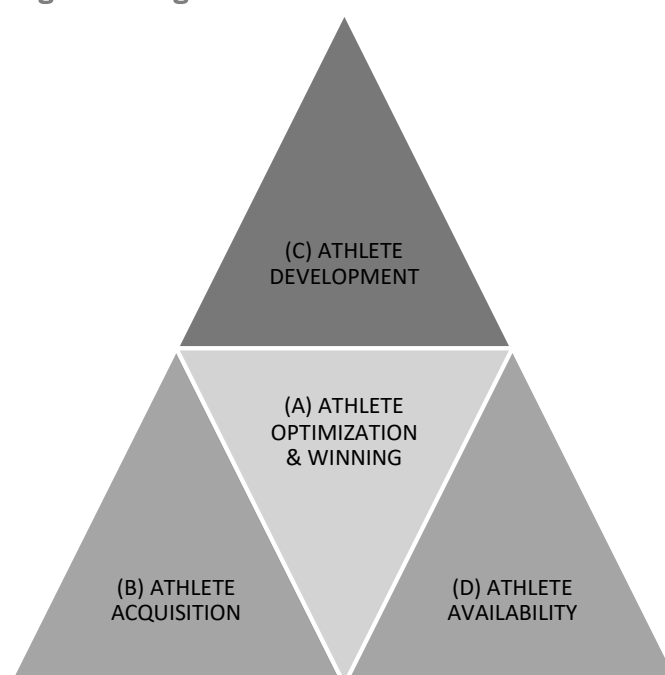
Module 1. Communicating Data

Unit 1.1

1.1.1 Why are we talking about data, and why is it so important?

This course has been developed to address this evolution and need to manage information and insight into effective management decisions. These are the decisions that ultimately lead to organizations or individual performers to be competitive. Ultimately, we want to be able to provide insight into how information is used by an organization, so that communication can be targeted with the principal of *'everything you need, nothing you don't'*. We believe that most decisions can be grouped into a series of typically high leverage outcomes, including the grand prize of (a) winning a championship, or (b) making athlete acquisitions that lead towards winning, (c) developing and maximizing the value of that athlete, or (d) keeping that athlete healthy and available for selection to compete.

Figure 1: Series of high-leverage outcomes



Source: Prepared by the autor.

The modules explored in this course deconstruct some important pillars on how to approach and support key stakeholders in making these types of decisions. Logically, we need to understand what information matters. What are the key performance indicators (module 1) that are most relevant in how an individual or team might define success (or



failure)? Once we establish this, acquiring this information in the most accurate, valid, and reliable way (module 2) is critical. If we are asking the wrong questions or generating the wrong information, we can waste a tremendous amount of time and resources. Both precious commodities in such a competitive landscape. The analysis and interpretation of this information (module 3) is equally critical and an important link in that chain of information gathering. This module represents the final step leading to a decision, which is the actual communication and dissemination of information. If we have taken each step successfully, the strongest KPI's have been identified and gathered with the most valid and reliable methods currently available, with the most robust statistical analysis, now we have a good product to deliver. However, if the information is not understood or utilized by the stakeholder making a decision, the entire process can be broken and undermined. It is only by starting with the end in mind, and creating a system, that we can increase the likelihood of designing an effective process that can continue to evolve and improve.

1.1.2 A complex world of shared decision-making, and role communication plays

The lens of this module are driven towards working in professional sports. We acknowledge culture and context is paramount and so not all of these factors will be relevant to other parts of the world, sports, or contexts. However, these are discussions and insights that can translate into innovation and learning across many approaches.

Most traditional models of player care and decision-making in the world of professional sport have functioned with a primarily coach-driven, and medical model of player support. These models have relied upon support and direction for expert performance along siloed disciplines of expertise that essentially stand alongside each other. The complexity of performance is multifactorial when considering the countless interactions between people, places, processes, and factors. By not acknowledging the complexity, we can limit the explanation and impact for performance when problem-solving and coaching are viewed from discrete perspectives as “a medical issue”, compared to a “nutritional” or “psychological” issue. Indeed, when viewed from the lens of an expert, it is hard to eliminate the bias and perspective of that discipline from the solution. For example, when considering the performance of a sprint hurdler, a physiologist may consider the primary importance is for the athlete to generate energy to lift their centre of mass over the hurdle; the psychologist may emphasize the focus and mindset for the athlete to clear the hurdle; the biomechanist, the stride length, force, and angle of take-off; the dietitian, the fuel the athlete has to burn calories to compete; and so on. The point being that the expert lens can easily stand alongside the performance as contributors, but not as interdisciplinary perspectives.



The evolution from multidisciplinary, to interdisciplinary work could be described as the pursuit of collaboration that seeks to put expertise and science together into one integrated plan (Choi & Pak, 2006). Teamwork involving multiple disciplines is increasingly emphasized in health care as well as the sport domain, creating many layers of complexity, many of which appropriately match the complexity of achieving optimal performance and the aforementioned goals that many sports organizations are striving for.

Vaughan et al. (2019) published on the fact that highly complex problems, with very unpredictable challenges, are often best approached and researched with even further evolved models of inter-related, transdisciplinary approaches. Choi & Pak (2006) describe this evolution as holistic schemes that look at the dynamics of whole systems where each subject-matter expert establishes common perspectives and themes that 'transcend' those that are standard individually, into the recognition of the whole.

Why is it relevant to communicate data within a sports team? The communication patterns noted across a team that is in a multidisciplinary' way of working, will be different to that of a transdisciplinary' way of working. For example, the level of comfort a nutritionist may have when asking a medical staff member about movement in a given scenario may be very different, and so the assumptions and even degree of communication between parties could be highly impactful. Occasionally, the multidisciplinary approach may not factor in some of the interaction effects possible, where a trans-approach may reveal greater opportunity to integrate the entire person into the intervention and thus create a possibility of solutions that may not occur within a single discipline approach and perspective. Changing and evolving between stages and approaches will continue to be of discussion with change management, and within itself can be a messy and complex subject.

1.1.3 The difference between evidence-informed and evidence-based practice: Predicting and articulating confidence, error and why that is important

For any sport scientist, getting the best quality of information to make decisions is one of the most coveted goals of practice. The gold standard is knowledge that is extracted through a robust Sports Science protocol (Martin, 2019), such as lab controlled double-blind clinical studies, whereby the results of the experiments and studies are published in peer reviewed papers, resulting in **evidence-based** research. However, in sports performance, that is not realistic or effective. Often the population of athletes is exceptional, and results are not always transferable to averages and the general population. There is also a consideration of competitive advantage, which often means that waiting for the robust time-consuming academic processes is impractical when the



dynamic nature of a season demands actionable findings to be implemented rapidly and efficiently. On the other hand, **evidence-informed** practice implies using the best available research and practice knowledge to guide program design and implementation. This means that practitioners are enriched by prior research, but not limited to it (Epstein, 2009). As the graphic below indicates, evidence-informed practice can adapt and conform to the relevant needs and context to use evidence from multiple sources of research, expertise, and experience to form adaptable solutions to real-world problems.

Figure 2: Evidence-informed practice



From Supporting evidence-informed practice with children and families, young people and adults, by D. Holmes, S. Bowyer, & L. Smith, 2021, *Research in Practice*, <https://www.researchinpractice.org.uk/all/news-views/2021/march/supporting-evidence-informed-practice-with-children-and-families-young-people-and-adults/>

Note. I love this graphic, but would tweak the language slightly

- Research – Evidence based knowledge
- Expertise – Skills & knowledge from practice
- Experience – Stakeholder preferences & views

This is an important concept because there is a bias towards actionable information rather than purely theoretical. Speed of application is critical, therefore, waiting for publications or research would not be an efficient way of practising, although seeking validation and feedback mechanisms certainly adds to the confidence or level of investment made depending on the decision.

1.1.4 Making decisions

Consider the scenario where the General Manager (GM), of a Major League Baseball franchise may have to weigh the relative risk of picking in the Amateur scouting draft, of a pick at number one at \$8.4 million, compared to \$2.0 million with their second pick, compared to \$149,500 with their tenth and final pick (BA Staff, 2021). The confidence the

decision maker may desire could be quite different between each of those, however, the longer-term implications of selecting a future contributing major league player, versus a 'bust' who does not even make the roster can be 100's of millions of dollars, organizational long-term success and ultimately the decision maker's job. Error and prediction are expected, however, the margins for error and confidence with which those are made are inextricably linked to the stakes held and types of decisions being made. This context is important and therefore a balancing act between the efficacy and utility of information versus the pure validity.

Just as significant as being able to acquire talent, is the ability to have confidence and accuracy of information to also be able to not acquire a player. Rather than 'not' deciding, deciding that the risk is not worth an investment is just as valuable, perhaps more so than taking a risk that is too high for the decision-making model, or decision maker. Or the clarity that the information in hand is not good, and the risk of making (or not making) the acquisition is not worth it. In these scenarios, the accuracy with which information is presented so the decision maker(s) can clearly weigh the benefits and risks of any said decision is valuable to the process. If done as a systematic process, feedback loops and learning can also occur to determine the efficacy and accuracy of these decisions, to continue to get smarter and more effective with these decisions also.



Unit 1.2 A Complex World of Humans, Communication, and Trust

1.2.1 Who are the stakeholders?

One of the things that makes the pro-sport environment challenging is the number of different stakeholders involved, all contributing information and aspects of decision-making. For example, a return to play progression (RTP) may seem like a purely medical decision, however, the implications for team line-ups, team strategy, subsequent roster moves and implications for contract status on several other players on a roster can all happen as a direct result. As such, the general manager, coaching staff, analysts, nonmedical performance support staff and others may all expect communication and consultation with any such move. Later in this course we will take a deep dive into some of these main types of stakeholders, but here we give the 30,000-foot view of how these roles can interplay, and ultimately this is an ecosystem where every action creates a reaction, and these need to be understood.

1.2.1.1 Front Office

In professional sports, traditional organizations are divided into *'Operations'* and *'Business'* sides. The latter of these departments houses all the revenue generating aspects of the sport, from marketing, sponsorship, ticket sales, merchandise, public relations and all outward facing support structures. The *'Operations'* side of the organization is typically where all aspects of the team that directly touch the players, and the majority of expenses reside. From coaches, analysts, scouts, equipment, to the performance team, and of course, the most expensive assets of all, the players. However, the division of the club's leadership who make decisions, but do not directly touch players are considered *'front office'*. This typically refers to executive roles, that centre around the club's **President** or **General Manager**, and often **Assistant General Manager's**. These individual's roles differ greatly from sport to sport; however, the roles typically centre on negotiating player and coach contracts, following league rules and compliance, while leveraging budget and strategy of the team roster to allow the team to be as competitive as possible, under the direction of **team ownership**. Ownership can come in many forms, from corporations (e.g., Rogers Corporation for the Toronto Blue Jays of Major League Baseball), to publicly owned (e.g., Registered Association of ownership delegates for FC Barcelona of the La Liga, Soccer in Spain), private investment groups (e.g., Harris Blitzer Sports & Entertainment group for the New Jersey Devils of the National Hockey League), or single private owner (e.g., Stan Kroenke of Arsenal Football Club in the English Premier League). Each of these different ownership structures often have different objectives or constraints that partly dictate the strategy, resources, time orientation and accountability



that drive senior leadership of these clubs, and often have tangible impacts on budget, hiring, firing and influence on an organization. Some may have a winning-at-all-costs approach with significant budgets, and high accountability and attrition of staff, where others foster much more creative resourcefulness, and focus on innovation and culture for success. Likewise, their tolerance for rebuilding a roster or team that becomes too expensive and non-competitive takes time, and both ownership and fan bases can be very impatient in the development of a young roster to be at a stage to compete for championships. In the roles of an analyst or performance staff, the pressure to play or protect expensive players, in addition to the approval of budget items or additional staff members to deliver on expectations can all be directly related to the individuals. A lot of their actions will set the tone for psychological safety of staff, and empowerment to support the needs of the team.

1.2.1.2 Performance Staff

There is an enormous number of different roles in the performance industry, but the number of full-time staff hired, or those in the *'travel party'* of an organization, can differ greatly between sports, and even between teams in the same sport that have different access to resources, or philosophical approaches. Here are some of the more typical roles you might expect to come across on a professional sport performance team in the North American sports environment. Note that, particularly when it comes to licensed and credentialed professions, these differ across the world, and particularly in the case of medical professionals, present significant legal and ethical complexity operating across jurisdictions and borders, whether those are state, or international borders and legal boundaries.

➤ *Athletic Trainers*

In the United States, the National Athletic Trainers Association is a professional membership that recognizes professionals trained in prevention, examination, diagnosis, and treatment of acute and chronic injuries and medical conditions, under the direction or with a physician. Their *'Athletic Training Certification'* (ATC) is the credential that allows them to operate by state and across the country, and whose role is often mandated by professional leagues to be present for games and practices for direct medical care. Some are even provided the right to earn retirement benefits issued for some professional leagues afforded to players and credentialed coaches serving first team time. This historically has also been the primary *'performance staff'* role and relationship, and perhaps more than anyone else, ATC's have been seeing their status, role, and importance shift as more specialities (e.g., sports science, physical therapy) have been added to performance teams.

➤ *Physical Therapists (or Physiotherapists)*



Physical therapy is recognized by a physical therapy (PT) licence, and education both at masters (MPT) or doctorate level (DPT). While traditionally more clinical and rehab focused, there are increasing options for sports medicine trained PTs, some of which also have ATC training, credentials, and backgrounds. There has been a big shift in professional sport in North America over the last 5-10 years, where more PTs are employed on sport medical teams; however, this is commonplace in other areas of the world where the athletic training model does not exist. Often this skill set and training is focused on more complex and longer-term rehabilitation cases, however, that model seems to continue to evolve into a key role integrating movement, strength and conditioning, as well as medical care. It is also becoming increasingly common for PTs to be assigned to 'Medical Director' or 'Performance Director' roles that are integrating the continuum of care service delivery.

➤ *Massage Therapists*

Massage therapy is another licensed profession in the United States, governed by the American Massage Therapy Association (AMTA). They undertake licensing, board certification, education, and training with an accredited school and ongoing professional membership. At the elite level of professional sport, an MT is embedded in the travel party to offer soft tissue recovery and maintenance work when the team is on the road, as well as at home during the season. They typically report to the Head Athletic Trainer, but they vary in their level of involvement and integration with the rest of the performance team.

➤ *Team Physician*

Team physicians vary widely in their integration and structure in pro-sport in North America. Traditionally, the orthopaedic surgeons have played the most significant leadership role within the staffing of doctors and leadership of the sports medicine group, where the role of the sports medicine trained primary care doctor is perhaps more commonly seen in Europe. Indeed, most sports leagues typically mandate the home team is required to have an orthopaedic and primary care doctor present and available every game. Beyond acute and game time coverage for orthopaedic surgeons, they are frequently consulted on injury cases, diagnostics, referrals, and significantly in providing front office recommendations in assessment of risk of free agents, or trade acquisitions when reviewing medical files of players as part of that acquisition negotiation. Very few of these doctors are full-time members of staff, and instead work within a hospital or private setting, while being available at any given time for the team they are contracted to. Indeed, the availability, and extremely high financial and career stakes played by these individuals make this a critical and highly influential role.

➤ *Strength & Conditioning Coach*



S&C coaches are professionals who have had an important place alongside ATC's and coaches providing the physical training and development of players and often served as the experts in nutrition, supplements, innovation, and use of technology, and mental skills training as a one-stop shop of roles. As performance teams have grown and the complexity and depth of sports science have been added, the S&C coaches have arguably had the most added to their roles, with the least amount of support or guidance. Their increased responsibilities and professionalization over the last decade have made this an important role in the balance of the performance team and relationship with medicine and health, alongside performance optimization.

➤ *Nutritionist*

Managing the logistics and budget of food service, the comfort and social aspect of food and drink for staff and players, as well as the nutritional impact of fuelling and recovery is a significant role that has not had dedicated support in many sport environments until recently. In oversee food service as well as nutrition consulting across the continuum of care.

➤ *Team Chef*

With the increasing specialization and addition of dietitians to support teams, these individuals are rarely the ones who are providing meals. This role is applied to team chefs, and while a very rare minority also hold an RD licence, more frequently these individuals work alongside dietitians to provide meals for players and staff. This relationship is important and there's often a challenging dynamic of providing nutritious food, with something that is palatable and popular with the people eating it. At the most elite levels, the quality of food is high and expensive, and the logistics of pre- and post-game meals or navigating food and inhospitable clubhouses on the road mean that some teams only keep chefs at their home venue or simply outsource food to catering or other vendors.

➤ *Sport Psychologist*

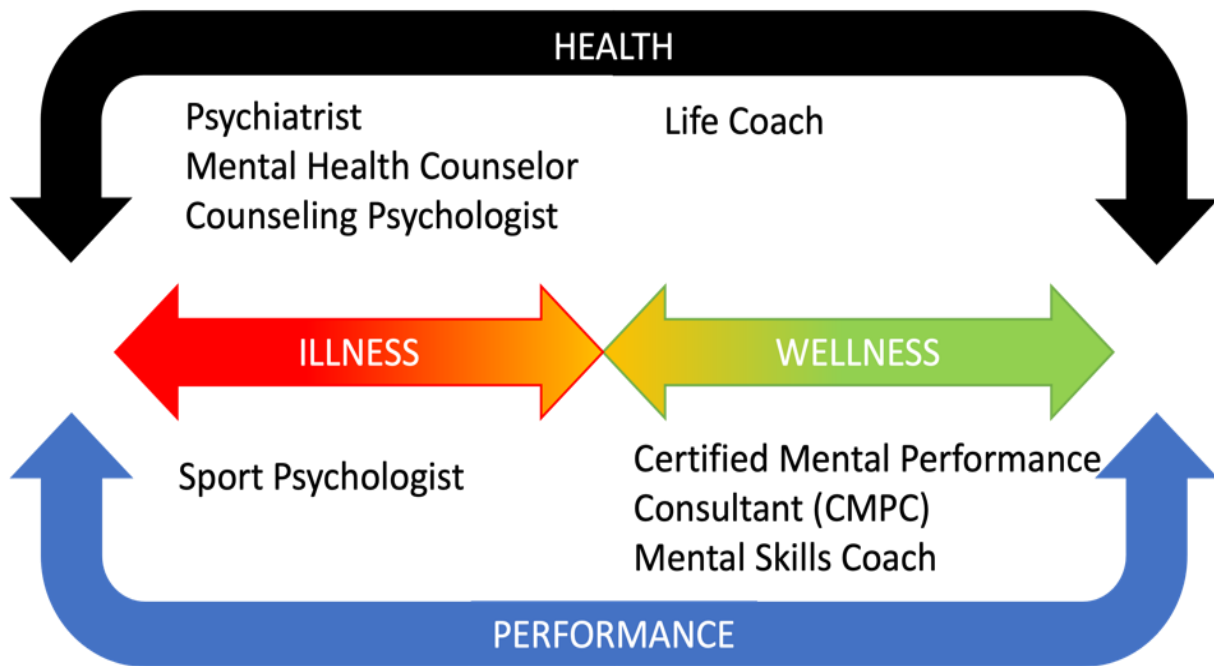
The landscape of sport psychology is an extremely complex one. In fact, the term 'psychology' is similarly protected like that of the 'dietitian' in North America. The continuum of care and offerings in the psychological space is broad and can use some more profound explanation for a moment. To help define this scope and landscape, there is a model below to articulate some of the important differences and context that are beneficial to understand.

Mental health spans a continuum, with thriving on one end, known as mental wellness, and mental illness that can disrupt a person's functioning and performance at the other.



The relationship between health and performance, as well as the illness to wellness continuum, is depicted in the model below. It is critical to note that an individual's mental performance may not be correlated to their mental wellness or illness. Indeed, an athlete could be struggling in life, but doing well in their performance. In this case, they may benefit specifically from a mental health provider who is licensed and trained to help someone manage their health.

Figure 3: Mental health and performance continuum



Source: Prepared by the author.

Some practitioners are licensed and trained to practice in the scope of health, and more specifically within the scope of mental illness, whereas other non-licensed individuals may be more equipped to deal with aspects of wellness and mental performance, this is a reasonably common model worldwide. The existence of hybrid trained individuals is often less common, however, acknowledging a practitioner's scope and how it fits into practice and the needs of the organization is hugely important. Many of these individuals are contracted part-time, but professional leagues are now requiring more dedicated roles, and as of 2022, for example, Major League Baseball employs over 70 full-time mental skills coaches across their 30 organizations.

➤ *Sport Scientist*

The Sports Scientist role and Performance Analyst roles are discussed in depth in the first course, so in the simplest context relative to the other performance staff in this stakeholder conversation, it is worth highlighting that their role is to collect, organize,



analyse, and interpret the data, and then integrate it from multiple disciplines within the sports performance staff. It is a unique dimension since the other staff may be the front line of collection or expert discussion, however, the sport scientist is who often ties much of this information together.

1.2.1.3 Coaches & Players

We will spend more time focused on the intricate needs and cases of players and coaches within this module, but it is worth remembering that while the support team is important, ultimately, the role of the player is the most critical of all. The biggest single direct influence on that player is also going to be the relationship with the coach. If there is a breakdown in communication with any of these relationships, the potential to influence decisions or make meaningful impact to performance will be severe. For that of the player, there is the potential for significant trust issues, which are sometimes perpetuated by self-interest and lack of trust through an agent, or even players associations that may drive secrecy and lack of sharing information for the virtue of negotiation and contract status. Indeed, the players' association's interest is to protect player's interests, and prevent organizations from being able to use data or insight that prevent a player's ability to do their job and earn an income. Whether there is a strategic aspect to decisions to name a player in a line-up or roster, the fear of workload management being utilised to recover a player, but also potentially limit their ability to earn money, or hurt their statistics, might drive their earning potential creates an antagonism of self-interest, even if the organizations perspective is to use these decisions to maintain a player's health to play more, or help them to be better prepared to play at more optimal levels.

1.2.2 Recognizing Resistance to Change vs Education and Upskilling

Now that we have spent time understanding the context and perspectives of different stakeholders on the team, it is perhaps clearer that communication is not just about taking information and providing it to key stakeholders, but also fundamentally understanding the mindset of these different stakeholders too. Mental models can be an effective way of understanding generalizable concepts, and allowing you as the communicator to tailor principles into specific contexts and situations you will find yourself in when working in professional sports. Communicating data to stakeholders can be complex at the best of times, but perhaps the highest leverage of all is to also understand behaviour change and how fear, or even lack of basic understanding around data, can be overcome through artful and deliberate communication.

An example of this complexity came from personal experience with an S&C coach who was encouraged and was provided access to multiple forms of technology to establish objective markers for a baseball player's RTP progression. This coach consistently resisted



the use of this technology and failed to deliver reports in the requested time frames. All initial discussions and reactions seemed like a fixed mindset and lack of willingness to use technology options; however, we soon discovered that lack of support and guidance in using this technology derived from a lack of understanding, education, and confidence. His assumptions involved him getting more training and guidance in using the technology, as well as a clear understanding on why this was important in following a more consistent process as an organization. It was less about resistance, and more about scarcity, which needed a bigger organizational commitment to support and help that individual. These mismatches in assumptions around communication can create significant animosity and problems that could have been easily prevented. To resolve these types of situations, attributes such as time, patience, and soft skills are needed as well as understanding core concepts of behaviour change. Communication can help equip you with how to approach and manage these kinds of situations. This course will provide you with actionable tools to enhance your leadership and communication skills.

1.2.3 Use of models to recognize your audience and adjust approach

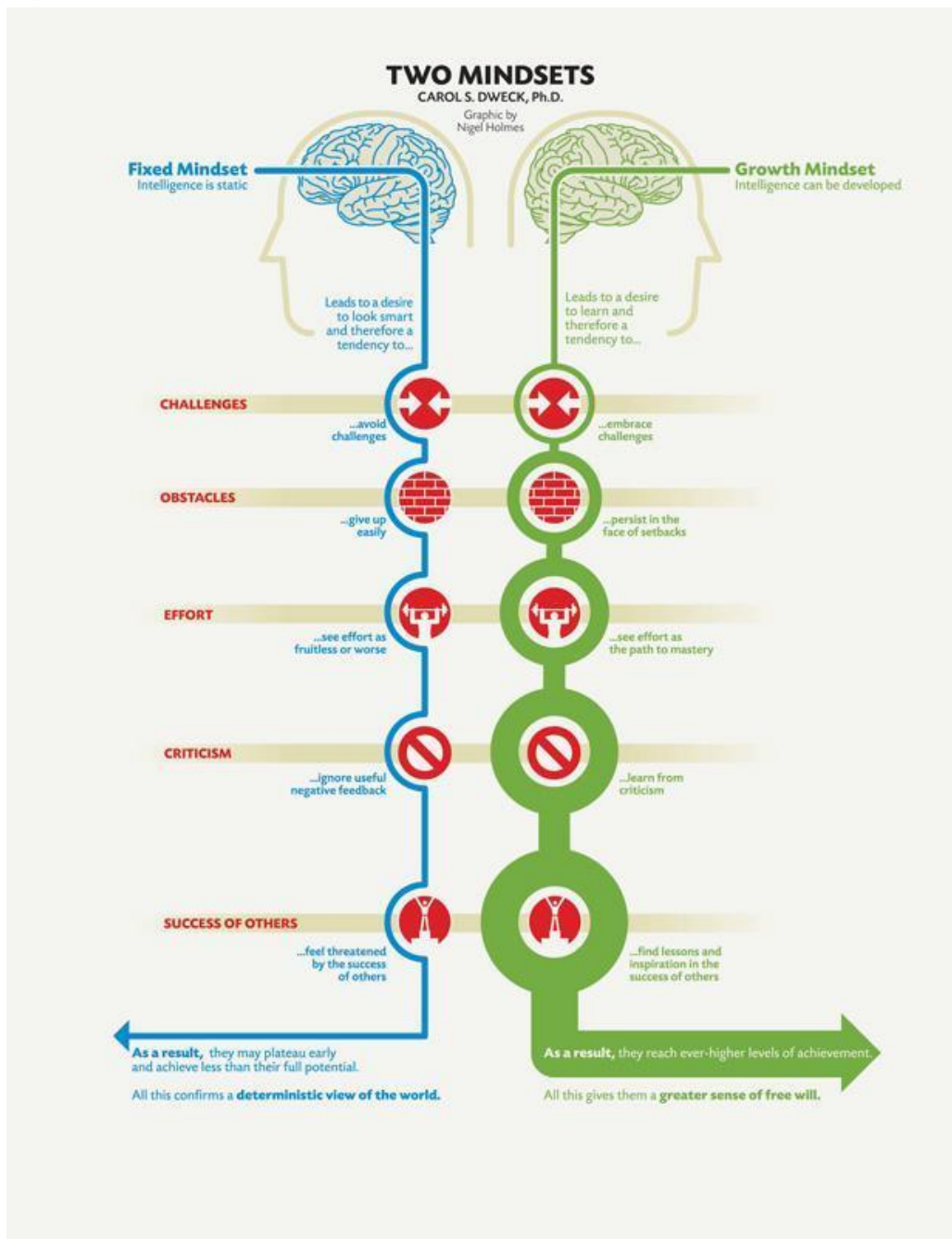
The following models aim to share important concepts around understanding your audience and being able to target your messaging to be more effective.

1.2.3.1 Growth vs Fixed Mindset

Carol Dweck (2008) conducted seminal research in developmental psychology and provided evidence to support a type of mindset that produced a significant difference in the ability to learn and improve over time. A *fixed* mindset was identified as one where people believed that traits were largely inherited, or static in nature. Whereas another approach saw qualities as more flexible and dynamic, with what she termed a *growth* mindset. With the goal of communicating effectively and working with key stakeholders in sports analytics, it is fundamental to acknowledge that not only 'talent', which is considered a fixed attribute, but that also people's openness to new ideas, concepts, and ways of working can also be largely impacted by them having a fixed or growth mindset themselves. As described in this illustration below, facing threats (e.g., being wrong about a decision), obstacles (e.g., amount of practice time with players), effort (e.g., perception of talent being more important than work), facing criticism (e.g., fear of losing your job), seeing the success of others (e.g., fear of losing your job to someone with different, or 'better' expertise than you) are all areas where a fixed mindset can conflict directly with a growth perspective that embraces the dynamic, changing and developmental approach that a growth mindset can provide.



Figure 4: The two mindsets



From Carol Dweck: A Summary of Growth and Fixed Mindsets, by fs blog, n.d. Retrieved May 3, 2022, from <https://fs.blog/carol-dweck-mindset/>

In the context of sports analytics and with a representation of change to the traditional way of working in sport, not everyone will receive the change as an opportunity for growth, but rather a threat of job security. Many of the staff that is not analytically oriented abide by the phrase "if it is not broken, do not fix it". Of course, many encompassing that mindset may have been high performers, having won championships and enjoyed success without these evolutions, and leverage their historical accomplishments as an excuse that the pursuit of evolution is not needed. Some will use this as ammunition to



support the idea that new methods are not necessary, and in fact can make things more confusing, difficult and decrease performance. Finding opportunities to embrace, celebrate and foster a growth mindset can be extremely fruitful, but understanding the concept is essential. At its core, growth mindset focuses on curiosity and potential for change with effort. Indeed, increased exposure, repetition through deliberate practice, and the resulting increase in activation of neural pathways and myelination are credited for the improved feedback loops, and increased skill development. Beyond actual skill acquisition, increasing curiosity and openness to change will lead to more dynamic and adaptable groups that will encourage learning, innovation and collaborative discussions and ways of working.

Let us consider an example that could be faced by a sports scientist. Imagine the scenario where there is a meeting of coaches and support staff to discuss the idea of using some new technology with players in a pre-season scrimmage. The head coach states, “I am not sure if I buy into the idea of using new tech on our players”. Not wanting to shut down an idea before you have even started, how might you respond?

- Say nothing, and not challenge the head coach for fear of a negative response.
- Speak up and respectfully share the steps you have gone through to mitigate risk, but provide an opportunity to add value.
- Acknowledge more work and inclusion needs to be done to make the best decision for the organization.

There is no perfect answer to this, but growth mindset at its core is about curiosity, inclusion of ideas and the desire to get better. Getting into arguments about being right or wrong can often be counterproductive. However, embracing the opportunity to improve and be aligned on positive impacts for the organization are effective strategies to get alignment, and working with rather than against each other.

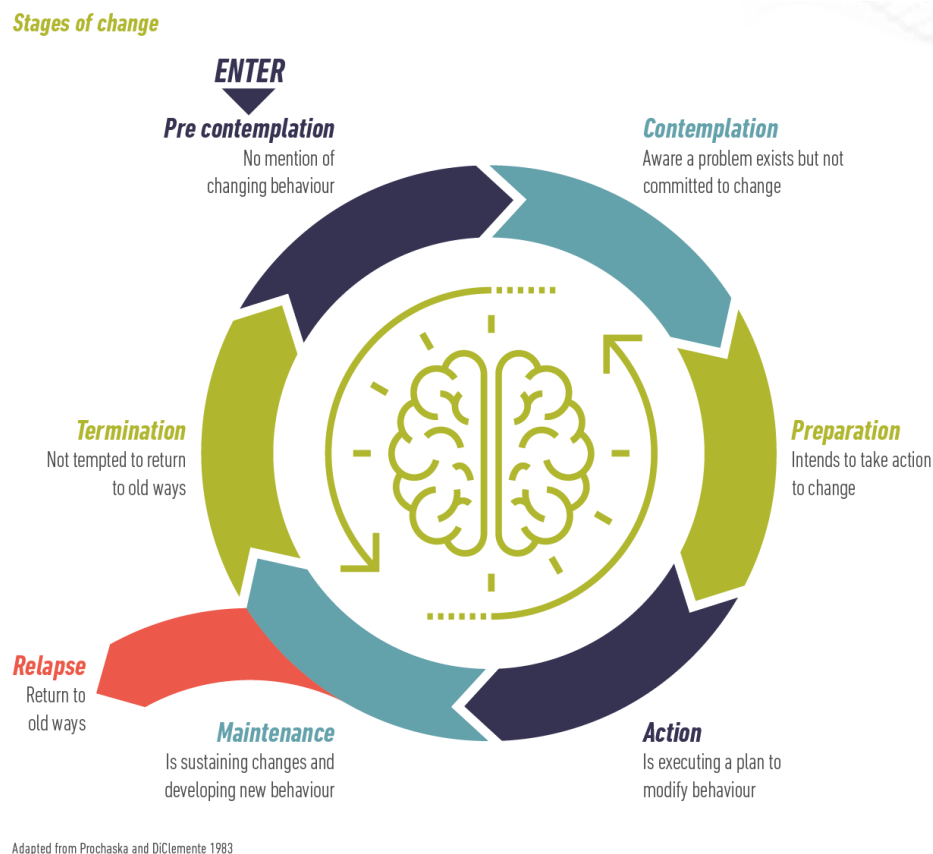
1.2.3.2 Stages of Change

Prochaska and DiClemente (1983) produced seminal work in the field of behaviour change and addiction, known as the Transtheoretical Model of Change (TTM). But the implications are far wider than addictive behaviours, and can also be applied to any type of behaviour change. Getting practitioners, coaches, players, or any stakeholders to change habits, and to be open to new information in a high-risk environment can be challenging to say the least. Awareness is key as well as recognizing that not everyone is at the same level of openness, or readiness for that change can be revealing. This six-phase model is not linear, indeed people can (and do) move back and forth across this model and can relapse and regress at any stage. As the visual (below) depicts, ‘pre-contemplation’ is typically the least prepared or engaged stage, and is sometimes the hardest to work with, since here there is an unawareness of a need or a desire to change. It is simply not part of the world



view, or even by definition something that has not been contemplated yet. Translating this over to the world of sports performance, for example, rather than simply convincing an individual in this stage to jump into an action phase, it is important to understand the long-term goals the player is passionate about and sharing data that ties closely to the desired behaviour. This is more likely to achieve alignment and curiosity. In some cases, you may even consider that moving a player from a pre-contemplation to a contemplation stage for commitment to trying a nutritional diet plan, which has a goal of reducing body fat, is a relatively successful stage shift. Even if that player has not managed to achieve their goal of reducing a certain amount of body fat yet, their readiness to commit to that program has increased, and therefore the player has made a small step towards change.

Figure 5: Description



From The concordance conundrum: the value of improving patient experience, by C. Bates, 2020, *Pharma Times*,

https://www.pharmatimes.com/thought_leadership/the_concordance_conundrum_the_value_of_improving_patient_experience_1343288

As the model illustrates, movement through preparation, action, and maintenance phases should ideally see progress towards driven behaviours and actions. Communication and agreement to commit to actions are integral here, but it is very rare for this process to be fast and occur without some breakdown or challenge somewhere. For example, the



player that is sceptical of providing daily monitoring data over concerns that it may be used against him playing, or they may be convinced enough to try it and enter the action stage, but the lack of feedback on their results and effectiveness of the testing in decision-making may reduce their buy-in and likelihood of continuing to do it. Awareness of where the player lands in these stages can help target an intervention to address assumptions and issues that much more effectively. For example, this player may have already been convinced and understands the value of the information by moving through the pre-contemplation, contemplation and preparation stages, but simply needs more ongoing feedback, where the frequency of testing can continue to inform his training. If you purely focus on logistics and not on the 'why' of an intervention to an athlete who is in contemplation stage, it is unlikely to gain much traction or motivation on their part. Asking questions and challenging assumptions of where they are in their process can be very helpful.

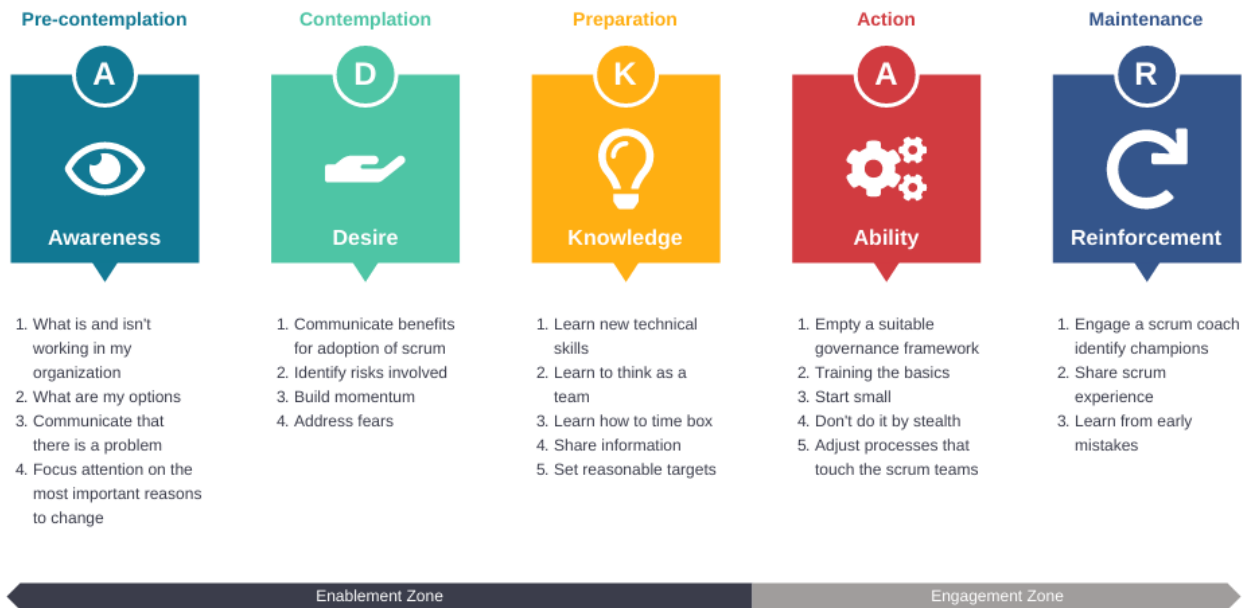
1.2.3.3 ADKAR: An Applied Model to Address Behaviour Change

Behaviour change is one of those things that is easier said than done. Many interventions and applications in sports science and coaching can make all the sense in the world, but getting staff, players, or people in general to actually *do* something is a different ballgame. That may be part of the reason for taking additional time to discuss not just communication, but also the psychology of behaviour, so that communication also results in the desired behaviour.

Hiatt (2006) produced a particularly effective model known as ADKAR. As seen from the model below, it complements the transtheoretical model of change (4.2.3.2) although it provides a more direct and practical approach to understanding the nature of an individual's ability to actually manage change, particularly relating to becoming skilled within a new domain of expertise. To analyse this further, we will use the example discussed in 4.3.2, the S&C coach who was resistant to using technology to identify objective markers for an RTP. His awareness and desire to change ended up being strong, although it was easy to misinterpret this when just looking at the lack of desired behaviour. However, when exploring through this lens of understanding, it was clear he believed in the use of technology for creating more objective benchmarks. The gap, instead, was in his knowledge and ability to conduct the testing and the reports, so this were the areas he needed most direct support in. When awareness for the need, and the desire to make changes in place, the exercise to address actual upskilling becomes a much simpler task. However, the awareness and desire for change, as reflected by the pre-contemplation and contemplation stages, represent a different approach that may strategically require more education, question probing and awareness raising to allow progression to more advanced stages of action.



Figure 6: ADKAR model [online image]



From ADKAR model [online image]. (n.d.). Retrieved on May 3, from <https://online.visual-paradigm.com/diagrams/templates/adkar/adkar-model/>

These types of mental models can create frameworks to better understand the process of communication, that in turn can help alleviate friction and accelerate problem-solving and collaboration.



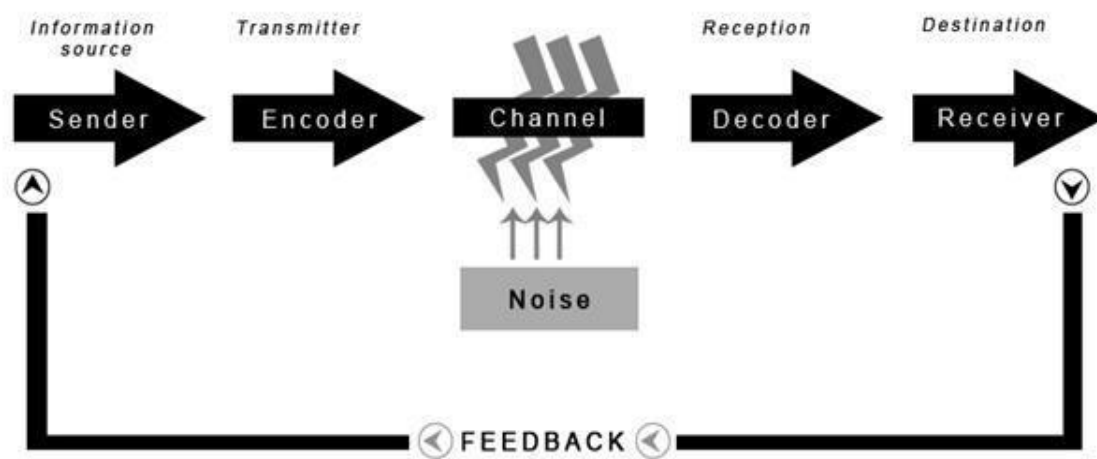
Unit 1.3 Basic Concepts of Quality Communication

Simply put, communication is the imparting or exchanging of information. But as simple as that sounds, it is truly the complex and dynamic process of conveying the exchange of thoughts, ideas, feelings, and information in verbal and non-verbal pathways between people, each with their own individual experiences and world views.

1.3.1 Concept of 'Message Sent vs Received'

Every day, billions of messages are constructed, sent, received, and interpreted between people. These can be face-to-face conversations, meetings via video platforms, or non-verbal communication through text, email, social media, written reports, or electronic dashboards, let alone those transmitted from body language or other subtle cues. This idea of a sender and *receiver* is one of the most fundamental models in communication research (Communication theory, n.d.).

Figure 7: Shannon-Weaver's model of communication



SHANNON-WEAVER'S MODEL OF COMMUNICATION

From Shannon-Weaver's model of communication [online image]. (n.d.). Retrieved May 3, from <https://www.communicationtheory.org/shannon-and-weaver-model-of-communication/>

It is easy to see on the image that the process seems simple at first, but there is the obvious potential for problems with noise and coding that may create breakdowns in communication. The coding process itself can represent a place where previous



experiences, biases, and assumptions may get in the way and result in significant differences between the original message sent versus that received.

Let us imagine a scenario where a sport scientist and player are sitting next to the football field, the coaching staff and players are running through drills nearby; the GM is standing with the sport psychologist on the touchline just a few yards away. The amount of different information being transmitted to the player from all those inputs, the interpretation of each of those inputs, the previous history, context and experiences the player has with those individuals, the level of security that player feels in their status and situation, their level of fatigue, or their understanding of concepts that the sport scientist may be conveying, all create a massive range of stimuli being communicated to them, and it all happens simultaneously. What might seem like a simple conversation to the sport scientist, is layered with incredible complexity, and so what you think might be the message 'sent', may be significantly different from the message being 'received'. Picking your time, place, context, sensitivity, and readiness for a conversation requires a lot of thought and consideration, hence the purpose of this module.

1.3.2 Role of Awareness, Timing, and Emotional Intelligence

As described in the previous example, the complexity around communication is not just a function of the environment and number of people involved, but also the context and emotional intelligence (Goleman, 1995) of the people involved. That context may include the motivational climate created by the coaching staff, which is largely performance-oriented in the pro-sport environment and can be much different after a string of team losses, compared to how information might be received after a comfortable win.

The model of emotional intelligence (EQ) below depicts a simple framework of how well someone understands themselves, but also the other people in their orbit. If there is a clear sense and awareness of who they are, but also their ability to regulate and manage themselves to communicate effectively with others. While these skills can be developed, everyone is not the same and so recognizing the strengths, areas of growth, as well as blind spots can be incredibly helpful to someone who is navigating the professional sports environment. A professional locker room, coaches meeting, or front office discussion can be a high stake and very unforgiving environment, and so a bad 10-second interaction can cause irreconcilable damage to a relationship, or impression that prevents further access or ability to impact. Unfair, perhaps, but a very realistic scenario.

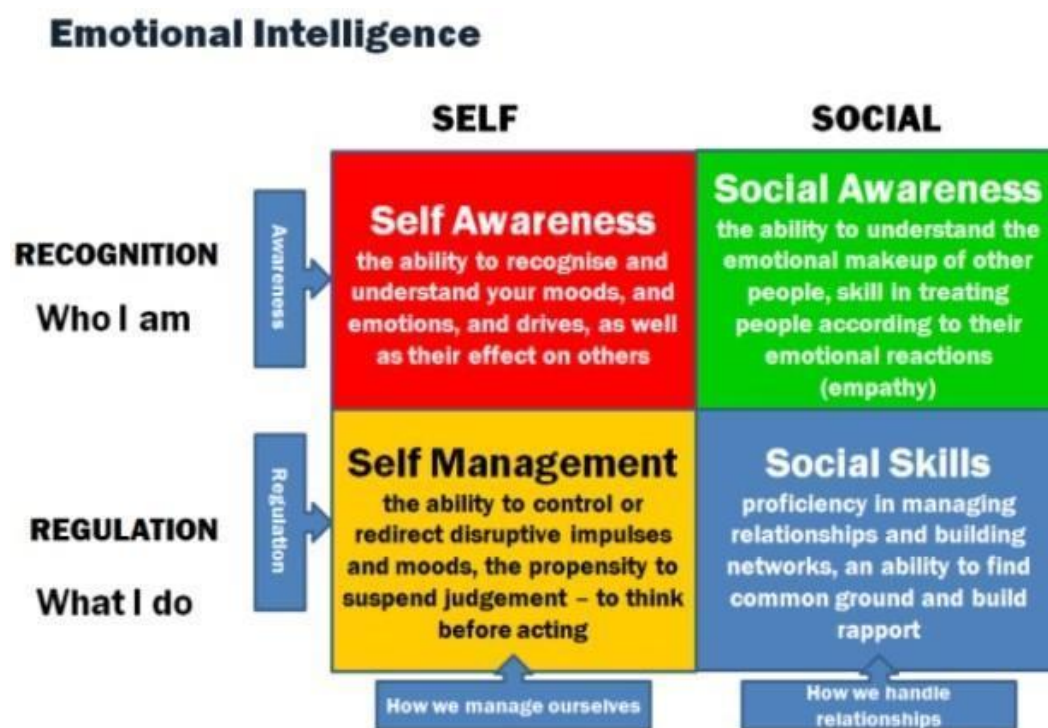
Consider an example of a new staff member who is eager to be part of the team, but is not aware of unwritten roles and norms, like sitting in a coaches seat on the team bus, taking food first at a pre-game meal, or being in the wrong space in a dugout, on a



touchline or coaches area. These may seem like tiny acts, but can be cultural signals of naiveté and lack of respect.

This can often be challenging when you have analysts who are much more comfortable with data spreadsheets and computers, than with people, and coaching staff or players who prefer people and verbal interactions than reading reports. Rather than just leaving it up to luck, it seems like a high leverage opportunity to better educate, and support people with proactive resources and tools to develop, hone and practice, than simply leave it to chance and circumstance. For all the efforts we put into competitive advantages, it is remarkable that in the world of communication and relationships, we will leave so much opportunity to luck or the idea that we cannot change something, or that it is too hard to do it. Again, targeted interventions that lead to (1) awareness and self-awareness raising, or (2) tangible skills to better self-regulate or interact with others are extremely achievable just like any skill that needs repetitions and an action plan. This is perhaps an archetypal example of a *fixed* versus *growth* mindset approach.

Figure 8: Emotional intelligence



From Emotional intelligence [online image]. (n.d.). Retrieved May 3, from <https://www.google.com/url?sa=i&url=http%3A%2F%2Ftransitionalsupport.com.au%2Ftransitional-phase%2Funderstanding-the-four-areas-of-eq%2F&psig=A0vVaw3-bgvGI6OvMHt4HOYDcncrS&ust=1648143926677000&source=images&cd=vfe&ved=0CAsQjRxqFwoTCPjzk7Xl3PYCFQAAAAAdAAAAABAD>



Unit 1.4 Key Concepts Around the Importance and Role of Trust and Psychological Safety

A critical concept that can be particularly difficult in the pro-sport environment is psychological safety. The fear of failure, and the very real possibility of being fired, or not receiving a renewed contract can create a significant lack of trust and safety that can impact a wide variety of factors worth noting.

If you wonder how impactful psychological safety can be, simply conducting a quick research on understanding effective teams will yield numerous results aiming at psychological safety as the number one factor contributing to trust, effectiveness and performance (Rozovsky, 2015). Research has evidenced that if psychological safety abounds, the individual is more likely to harness the power of diverse ideas. In addition, by feeling 'safe' individuals may be less likely to blame others, and if less fearful their job is in danger, they may be more likely to admit mistakes in an effort to learn, and to share with others in order for the team to improve without it being a risk to themselves. While winning and the performance oriented motivational climate of a professional sport organization are important factors for 'success', the unintended consequences of one-year contracts, terminations based on team results, ambiguous feedback and lack of clear roles and scopes can all create an environment that lowers the feeling of safety rather than raise it.

1.4.1 Defining 'Trust' and Considering Implications Around Communication

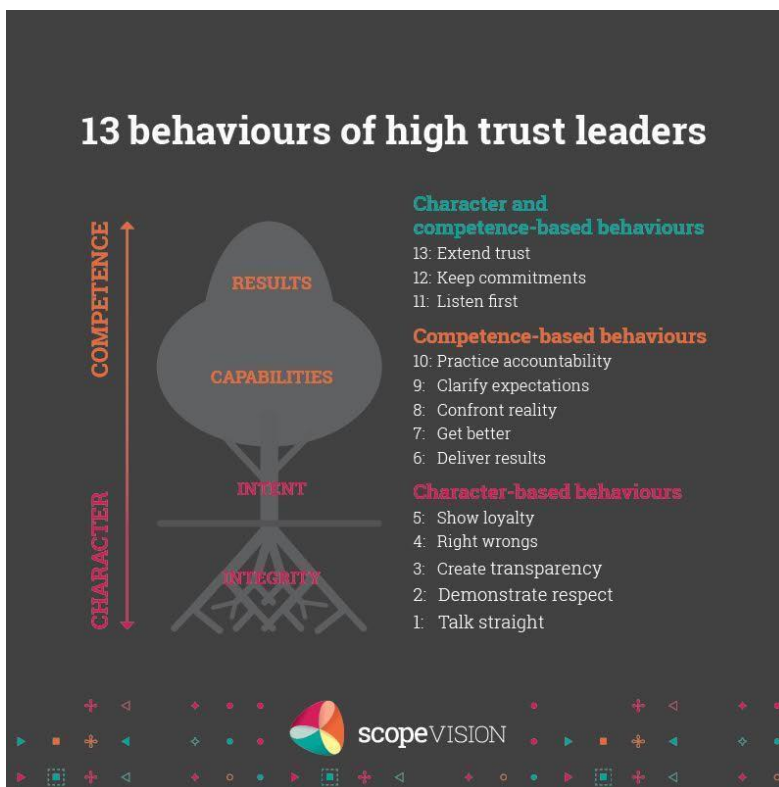
Trust can ultimately be defined as a belief in the reliability or strength of something. Relationships are fundamental to the effectiveness of communication, and as such, trust is the core commodity that determines how effective the strength or reliability of that communication is between people. Especially when something goes wrong, it is important to know whether there is enough trust to manage and continue to work through challenges. A helpful model to understand this model is shared below, which differentiates between 'Character' and 'Competence'. This is significant because a violation or lack of trust in one, does not mean the same when it is the other.

While a player may have trust in a sports scientist or coaches' competence, meaning their capability, skills, and ability to generate results, if there are questions over the staff member's character, specifically their intent, or integrity, it is likely that the relationship will be limited. That does not mean the player will not commit to a plan of action, and do their job, but it may reduce the impact and effectiveness of their work. Conversely, strong trust across all those domains can serve to strengthen a bond or relationship. Allow better



feedback loops, checks for understanding, insight and collaboration and problem-solving. As previously described, misunderstandings, especially in an environment with low psychological safety, can lead to low trust without it being anyone's fault. An example could include misreads on the intent a sport scientist may have for gathering information, but when the sports scientist shows genuine care for the player and asks about their family and factors completely unrelated to work, they allow a great respect and trust to be generated as the player is seen as a human first, and not just an asset or subject of experimentation.

Figure 9: 13 behaviours of high-trust leaders



From 13 behaviours of high-trust leaders [online image]. (2016). Retrieved May 3, 2022, from <https://scopevision.com.au/blog/13-behaviours-of-high-trust-leaders>

Covey and Merrill (2006) extended the trust model to include behaviours associated with each of these domains of character and competence, as listed in the above model. The example of taking an interest in the player as a human first could be considered a sign of respect (behaviour 2) in addition to listening first (behaviour 11). Using these principles to navigate trust as a core value can be very helpful in not making assumptions and seeking a relationship with the stakeholder as a valued member of the relationship who has their choices to make, and instead seeking a partnership with them. Requesting their participation in that relationship and making them an active stakeholder is a key part of that relationship building process. Sadly, this is a process that can take years in the



making, yet be lost in seconds, so recognizing that it is a delicate and important process is an important principle.

1.4.2 Further Implications Around Privacy and Expectations Around Data

When talking about data, it is important to have some perspective and awareness around data privacy rules in professional sport. In the United States, HIPAA is the Health Insurance Portability and Accountability Act (1996). It is a law enacted to protect sensitive patient health information from being disclosed without the patient's consent or knowledge. Professional athletes who are employees paid to perform physical activities are also protected by this same law. Given that injuries are part of sport, but these also constitute 'work-related injuries' subject to organizational liability, players associations and professional leagues agree on terms for HIPAA waivers, that allow for information to be shared across an organization, typically to designated roles, and people who are named on legal documents provided to players to sign once they have their physical entrance exams each season. This allows, for example, for medical staff to send injury reports out to front office staff, coaches, and others who are privileged and were named on this waiver. Where this can get tricky is in the definition and extension of what is considered medical information versus health-related information. For example, is body weight considered health information? What about daily monitoring? A jump test on a force plate? What about urine specific gravity (USG's)? These are certainly voluntary for players, but the distribution and communication of this information is a lot more complex and should be discussed in protocols outlined before collection. Frequently, these also need to be approved by the player's associations before any action is taken. The scope, efficacy, and ability to more easily collect Athlete Biometric Data (ABD) will only become more prevalent, but the legal system and sports world are playing catchup into the ramifications and issues involved which make this a grey area, and highly sensitive one.

Data privacy rules are a complex and important area of law, exploding in relevance since the use of mobile technology being so permissive across society. The same is true for sport, with some additional layers of consideration. Athletes and teams rank high when it comes to the amount of personal data being exchanged with third-party vendors. When it comes to key principles with rights everyone has, and often listed in requirements shared by players' associations and their respective collective bargaining agreements (these can differ by sport and by league), these include:

- a right to know what personal information is being collected about them;
- a right to know whether their personal information is sold or disclosed and to whom;
- a right to say no to the sale of personal information;
- a right to access their personal information;
- a right to equal service and price, even if they exercise their privacy rights.



We expect this landscape to continually shift, but familiarizing yourself with the regulations of the industry you work within is critical so as not to expose athletes, yourself, or the organization to wrongdoing. It is also important to have legal and ethical practice to create policy around the process with which you collect, use, store, analyse and communicate player-specific information, whether you deem it to be sensitive or not. By treating all that information as sensitive, you are more likely to develop trust and respect for their time and cooperation; however, it is also significant to consider the decision-making aspect of being able to use the information to inform decisions that may not always benefit the athlete directly. Handling these thoughts and conversations proactively and ahead of situations is always going to be more beneficial than working reactively to control a damaged and potentially dangerous, legal, or expensive situation.

1.4.3 Data-Driven Storytelling – Caution and Guidelines on Conveying Information

Engaging stakeholders with data can be a challenging process. Between dry, abstract and complex ideas, translating data can sometimes be like people trying to have a conversation in entirely different languages, having no understanding of what the other is saying. Whether that is literally a Spanish-speaking player and an English-only-speaking sports scientist, or the metaphorical artist talking to a mathematician, much can be lost in translation and leave each person equally frustrated. Storytelling, however, is a universal language, and when done in the scope of bringing data to life, it can be incredibly powerful. Bosch & Tran (2021) recommend Freytag’s triangle of narrative arcs for conveying stories with data, across five main parts (Glatch, 2020).

Table 1. Freytag’s 5 stages

	Freytag’s Stages	5 Example
(i)	Introduction	Present the key characters and characteristics
(ii)	Rising action	Identify the challenge or quest
(iii)	Climax or conflict	What are the threats to accomplishing the challenge
(iv)	Falling action	What does the data say happened next?
(v)	Resolution	What interventions and actions can help the characters win the day

Source: Prepared by the author.

While storytelling can help the data make sense and endow perspective to stakeholders in what to pay attention to and provide a beginning middle and end, it is important to maintain integrity and honesty in the work and not simply tell fables. Avoid defining the



narrative before examining and analysing the data, especially where confirmatory bias can be in play, especially for a decision that has already been made. Acknowledge and outline interpretations and alternatives to the story being told when multiple versions could exist. While a story can convey much that simple fact sharing might not, it is important to keep perspective and keep the essence of the scientific process and practice at heart. But remember perhaps, and most importantly of all, that communication and storytelling involves the audience as part of a dialogue, therefore, it is important to provide opportunities for the audience to explore and check for understanding through questions.

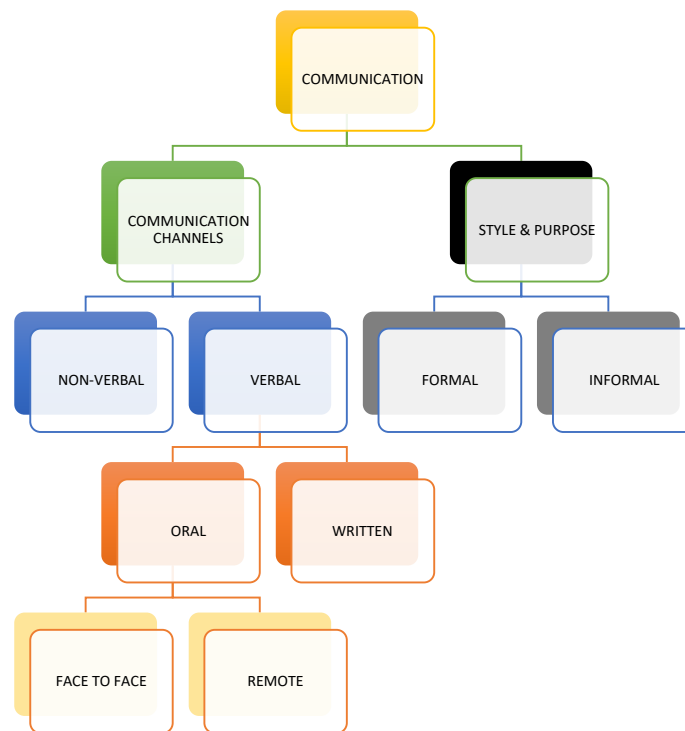
1.4.4 Communication Platforms

Much of the discussion and outline in communication thus far has focused a great deal on the *why*, and *how*, but it would be amiss to not provide commentary on the various platforms of *what* channels communication is delivered through, and the implications or considerations for some of these. While this is more of a summary than an in-depth focus, subsequent modules with different stakeholders will create further depth with specific implications and particular considerations on what *to do*, as well as what *not to do*.

The model below differentiates the style and purpose of communication, relative to the channels themselves. Whether formal or informal processes are chosen, much of the rationale can depend on areas already discussed regarding trust, context, growth mindset, and readiness for change. Fundamentally, though, the purpose of communication also needs to be fully considered. For example, if the communication is to develop trust and educate an athlete directly, in which case an informal, face-to-face interaction may be the most important and effective. Or, if the primary purpose of the communication is a structured and daily sharing of information that requires preview work (e.g. verbal, written communication shared by a report delivered by email), followed up by a verbal, oral, and face-to-face interaction to interpret and discuss workload and game time availability decision with the coaching staff. Purpose will be a key driver of which method is the most optimal selection. Managing teams through the COVID-19 protocols instituted by professional league rules created many constraints and adaptations, including how much could be shifted from face-to-face interactions to a greater dependency on remote and more formal and organized meetings through video. Many would argue that this forced creativity and a growth mindset on people because they simply had to acclimatize swiftly. The scale and magnitude of these constraints would seem unimaginable pre-COVID, however, the structure and format of these interactions are here to stay.



Figure 10: Communication Classification



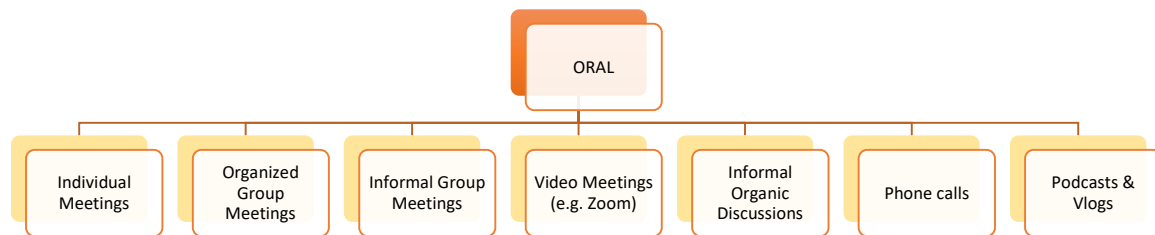
Source: Prepared by the author.

1.4.4.1 Communication Channels: Oral Platforms

When considering oral communication specifically, there is often a significant bias toward organic interactions. Coaches, player’s and staff can often resist meetings, emails or reports in favour of conversations or more natural settings that do not feel forced. There may be many reasons for this, including comfort and lack of desire to do more work, or for the perception that this creates more work in an already full day. Scheduling meetings can be a particularly controversial idea, but often meetings are poorly run and not always the best way to share information that could be more efficient to send in an email and read at the discretion of the audience. However, the ability to check for understanding and foster real-time collaboration and discussion can be a missed opportunity when there is not a format created for efficient sharing. This is particularly the case for interdisciplinary expertise, and complex problem-solving, which benefits from innovation and cognitive diversity. Being able to distinguish purpose and materials that can be recorded (e.g. a video or vlog recording of a sports scientist explaining how to read a daily monitoring report for inter-department education), versus a one-on-one, face-to-face with a player and coach to explore and discuss their specific game review and performance data, is a critical process so that you can leverage time and maximize impact and be that much more strategic with time and effectiveness.



Figure 11: Types and forms of oral communication



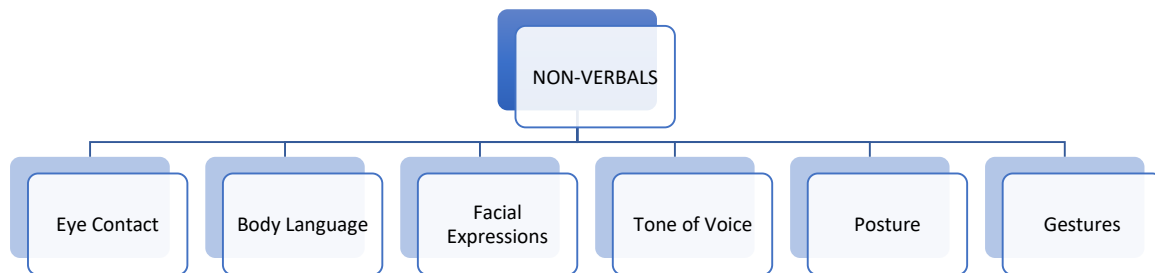
Source: Prepared by the author.

While the method of oral communication is a strategic verbal process, non-verbal communication is an almost entirely unconscious set of processes and actions that often speak louder than words. In fact, research suggests people’s ability to read non-verbal language is far easier to interpret, and that most communication shared is actually non-verbal. Despite being unconscious, their influence in communication is significant, and much more reliable than the content of messaging. Indeed, an audience seeing obvious discomfort, lack of confidence, or boredom convey a much more powerful message than whatever information or analysis is the content of that interaction. Some of this can be damaging, and is worth highlighting concepts such as *microaggressions*, a term for brief, everyday exchanges that send denigrating messages to individuals for being members of marginalized groups. Often these are subtle, unconscious and directed at females, minority groups or any socially marginalized groups.

Some recommendations to improve non-verbal communication are the following: 1) take the time to video yourself, and even wear wireless microphones to allow for self-reflection on your facial expressions and tone of voice (Mead, Spencer, & Kidman, 2016); 2) increase self-awareness and targeted interventions to improve communication skills and impact; and 3) micro-interventions are the concept of addressing and dealing with things like microaggressions. Whether being present when you hear or come across them, or simply having a conversation with someone of a social minority, you can gain a lot of insight into the damage these, sometimes unintended, experiences create. Take time to rehearse and practice scripts for common types of interactions. It could be specific for audiences that can be exhausting and fir difficult interactions, or delivering news that you know are likely to be poorly received. Scripting these, and mentally rehearsing their delivery, combined with relaxation and focusing techniques can be extremely beneficial.



Figure 12: Types and forms of non-verbal communication



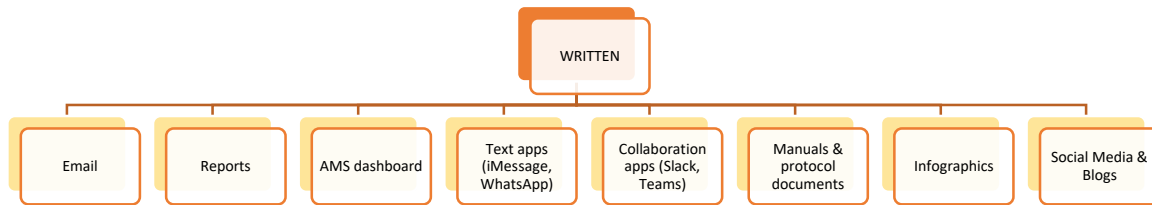
Source: Prepared by the author.

1.4.4.2 Communication Channels: Written Platforms

While purpose has been highlighted as a key contributor to the decision and selection of one verbal platform over another, the same can certainly be said of written communication. Traditional methods of emails, reports and manuals are more increasingly being replaced by Athlete Management Systems (AMS), collaboration applications (e.g. slack and teams), and messaging threads. What many sports organizations end up facing, however, is a complex myriad and combination of platforms without a consistent structure, and some unintentional isolation, where different groups of stakeholders create different ways of working and patterns of sharing information. Spending time to formalize consistent expectations around written information is a powerful exercise in design so that staff have input into shaping their needs for being able to make decisions, and the best formats to be able to visualize and bring information together in an effective and efficient manner. The same goes for establishing distribution lists and processes for who needs access to what information and when. For example, the business strategy known as the RACI (Responsible, accountable, consulted and informed) assignment matrix identifies stakeholders in one of four categories. These can help determine who in the group needs access to information and whether they are sent directly, as a group, or after a decision has been made.



Figure 13: Types and forms of Written communication



Source: Prepared by the author.

Unit 1.5 Summary

Module 4 is intended to provide an introduction and context to communicating data. Broader than this, the aim is to share a more profound understanding of why communication is important and that the goal is to ultimately provide the best information possible to stakeholders that are trying to make decisions to achieve success for a sport organization.

Here, we cover the context of information as evidence-informed rather than an evidence-based practice, and that this is a dynamic process of making decisions with imperfect information in a highly complex landscape. Beginning to understand the types of decisions, who the stakeholders are, and how they may relate to each other in this ecosystem can help you to successfully navigate a professional sports environment.

In addition, we acknowledge these stakeholders also require some element of trust to be able to collaborate and utilize information as a way of working together. It is also helpful to provide an understanding of human behaviour change principles and the roles of psychological safety and emotional intelligence, as well as legal and ethical context around data use in professional sport.

Fundamentally, beyond context and considerations of how people receive information to make meaningful decisions, there are a multitude of platforms to consider when thinking about communication. Storytelling with data is an important concept to bring things to life and make meaning around information, but significant consideration also needs to go into oral and written methods of sharing or delivering this, as well as the unintentional non-verbal signals being provided. Recognizing the benefit of formal versus informal communication, and layering is important for consideration as to what the intent of the



message is and how that may be best received and used for the right person, at the right time, to make the appropriate decision.

In the next unit, we will explore specific stakeholders and more applied examples and scenarios of how these considerations may play out and how to best prepare to communicate and impact the organizations you are working for.

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