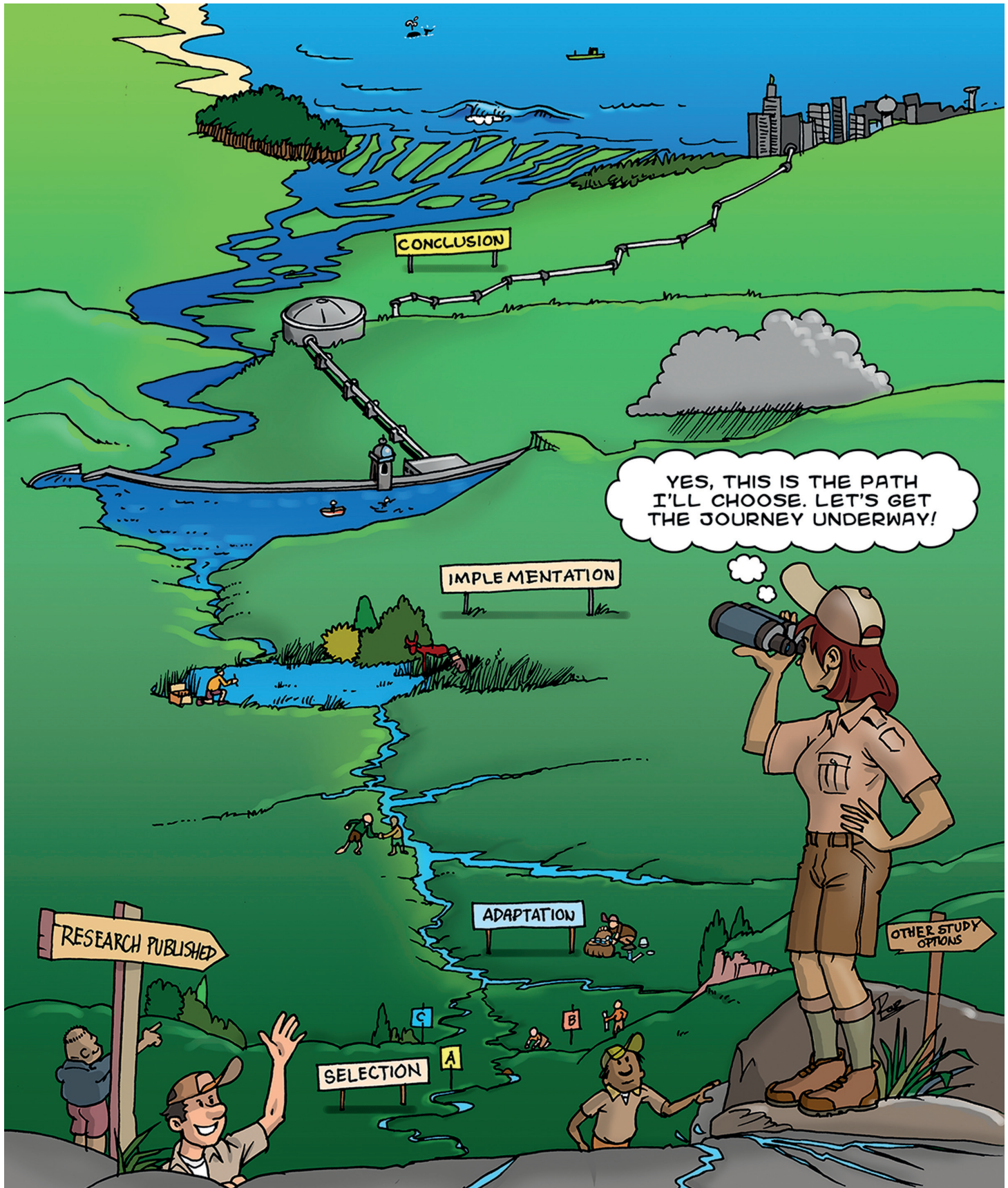# WATER RESEARCH COMMISSION

STUDENT SURVIVAL GUIDE

TIPS AND POINTERS FOR NAVIGATING YOUR WRC RESEARCH JOURNEY

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WATER
RESEARCH
COMMISSION

WATER RESEARCH COMMISSION

STUDENT SURVIVAL GUIDE

TIPS AND POINTERS FOR NAVIGATING YOUR WRC RESEARCH JOURNEY

JANUARY 2015

Report to the

WATER RESEARCH COMMISSION

by

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The Narrative Lab Consulting

TABLE OF CONTENTS

1. INTRODUCTION

1.1 WHAT IS THIS GUIDE?

The Water Research Commission (WRC) provides financial support, through establishing research project teams, to over 400 post-graduate students who are pursuing qualifications in the water arena. The WRC is committed to furthering the development of students through a capacity building strategy that sees WRC-funded research projects equipping and developing these students so that their readiness for active participation in the water sector is maximised.

This guide is the outcome of a research project that investigated the experiences of students on WRC-funded projects with the aim of producing a guide that will assist students in successfully navigating the journey of academic success and project team integration.

Research conducted in the education sphere has shown that the way in which students adapt and manage the 'transition phases' of their academic career is a determining factor in their success. Each transition comes with a new set of personal and professional requirements and expectations, which in turn require a new set of skills and mindsets by the students.

The nature of the transition a student experiences has a significant influence on the academic performance and social integration of students. Typically, a student's transition is not given much attention by academic institutions (besides orientation programmes), and students themselves are often unaware of how to manage such transitions effectively.

Anecdotal evidence in the water research sector suggests that students often find these transitions difficult. They are deeply influential in a student's performance and integration into research project teams and institutions. The way in which transitions are navigated also impacts the rate at which students progress in their postgraduate studies. In addition,

these transitions are often not adequately managed or addressed by students themselves, supervisors or project team leaders.

This document aims to be an easy-to-use companion in your journey as a student on a WRC project. It will help you identify:

- Where you are in the academic journey and the transitions you are encountering
- What types of characters and personas you may encounter
- The expectations that will be placed on you as a project team member

The guide will also provide you with pointers for success provided by WRC-funded students who have participated in the research project underpinning this document. You will be able to read stories of their experiences as they reflected on their journey, and be able to identify key learnings that may be relevant to your context.

1.2 WHO IS IT FOR?

The guide is for all current and future students who are placed on WRC-funded research projects. It is specifically focused on students in order to equip them in adapting to the research arena. The document can also be useful for supervisors and project leaders who want to understand the experiences of students on projects and what factors are important for success, but it is not intended to provide advice to supervisors or project leaders. This is a student guide and centralises the student as the agent of change and success in the research journey.

2. THE JOURNEY AND ACADEMIC LANDSCAPE

2.1 THE ACADEMIC JOURNEY
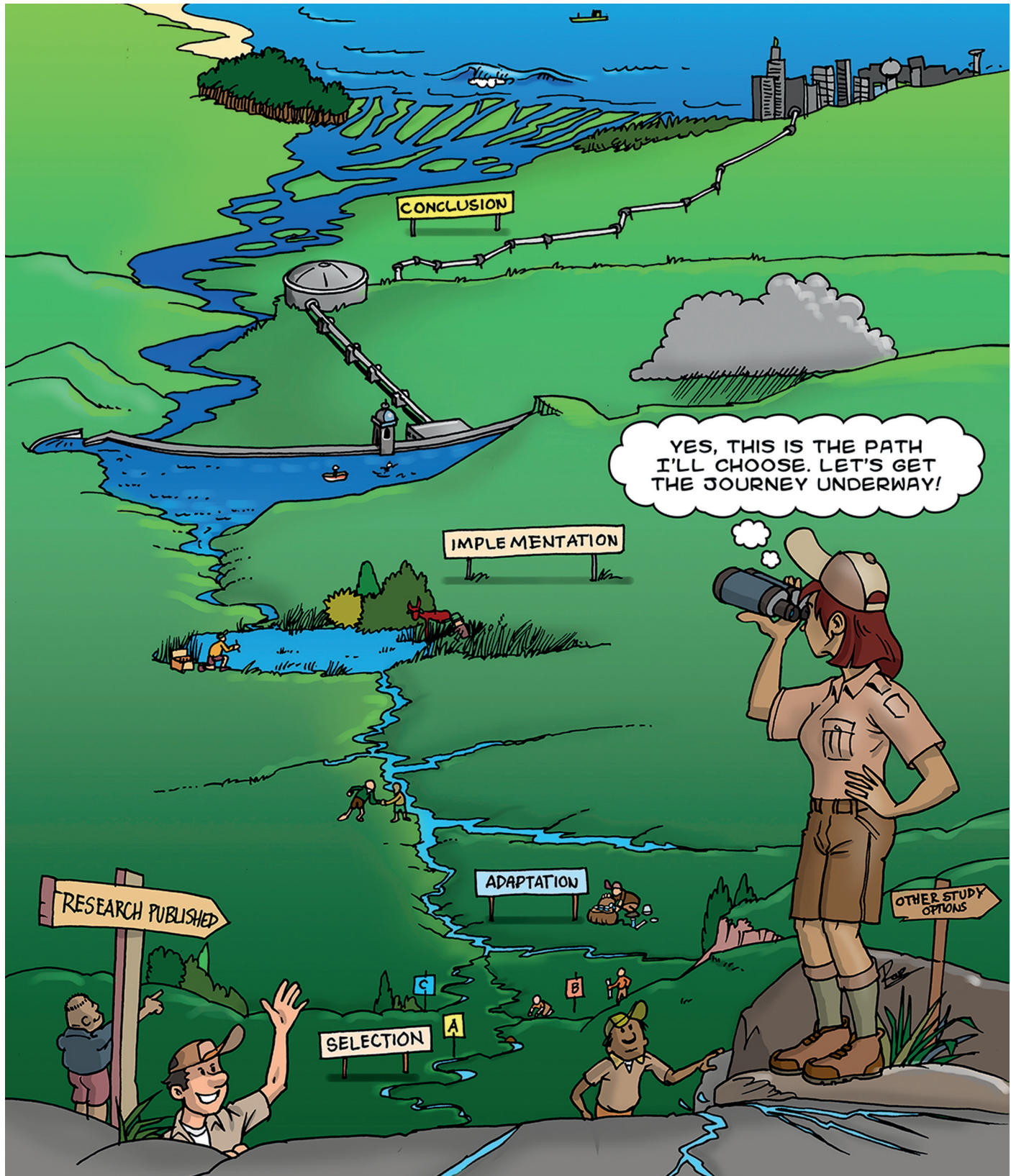
What lies ahead of you, as a student, can be described as a journey. You are a traveller on a path towards a destination that is situated on a landscape. You will encounter various places and characters on this journey. The landscape has various characteristics and locations that influence you, the traveller, on your journey. Some places are more challenging than others to move beyond. Some are more interesting than others. You may pull off the path at some stages of the journey to rest, while at other times your journey will increase in speed. While the destination is known, you may opt to try different routes in getting there. At other times, the route you take will be chosen for you.

The idea of a journey map is a conceptual model that you can apply to your academic career in making sense of where you have come from, what has led you to this point and where you aim to be going. The characters you encounter in your journey are fellow travellers and they will fulfill different roles.

The journey ahead of you as a student on a WRC-funded project can be segmented into 4 distinct stages:

- Before commencing the journey – this is when you begin considering becoming a student on a project, how you go about securing a position on a project and identifying the nature and focus of your research.
- Initial stage of the journey – you have begun the journey and are experiencing a lot of new things. This phase is about adapting to the new environment and about integrating as well as possible into the project team and nurturing the seeds of key relationships/companions for the rest of the journey.
- Being an active member of the team – every journey has a middle phase where the bulk of the distance is covered on the way to the destination. This is the phase where you should have worked up enough momentum in your research and be an active member of the project team to 'break the back'/get the longest part over with of the journey.
- Completing your journey – this is the last step of the journey and the final push to reaching your destination. In this phase it is important to close out your involvement in the project team successfully and to submit your research report for qualification.

1. Where would you place yourself on this journey map?

2. What stage of the journey are you on?

3. How has the experience of the journey been thus far?

4. Is your journey going as expected? If not, what choices could you make to get back on track?

5. Who have you encountered on the journey and how have they influenced your journey?

6. Have there been any unexpected detours? If so, were you happy with how you dealt with them?

7. What kind of mindset or attitude is required from you to complete this journey successfully?
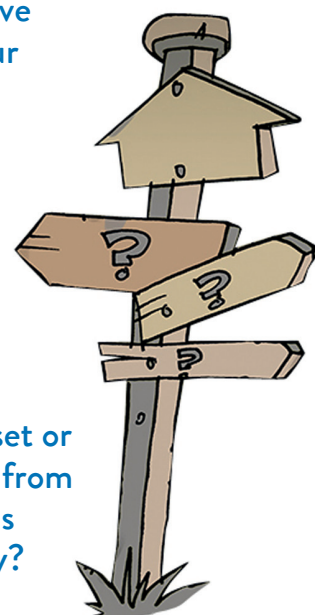
2.2   THE CONTEXT – A LANDSCAPE MODEL
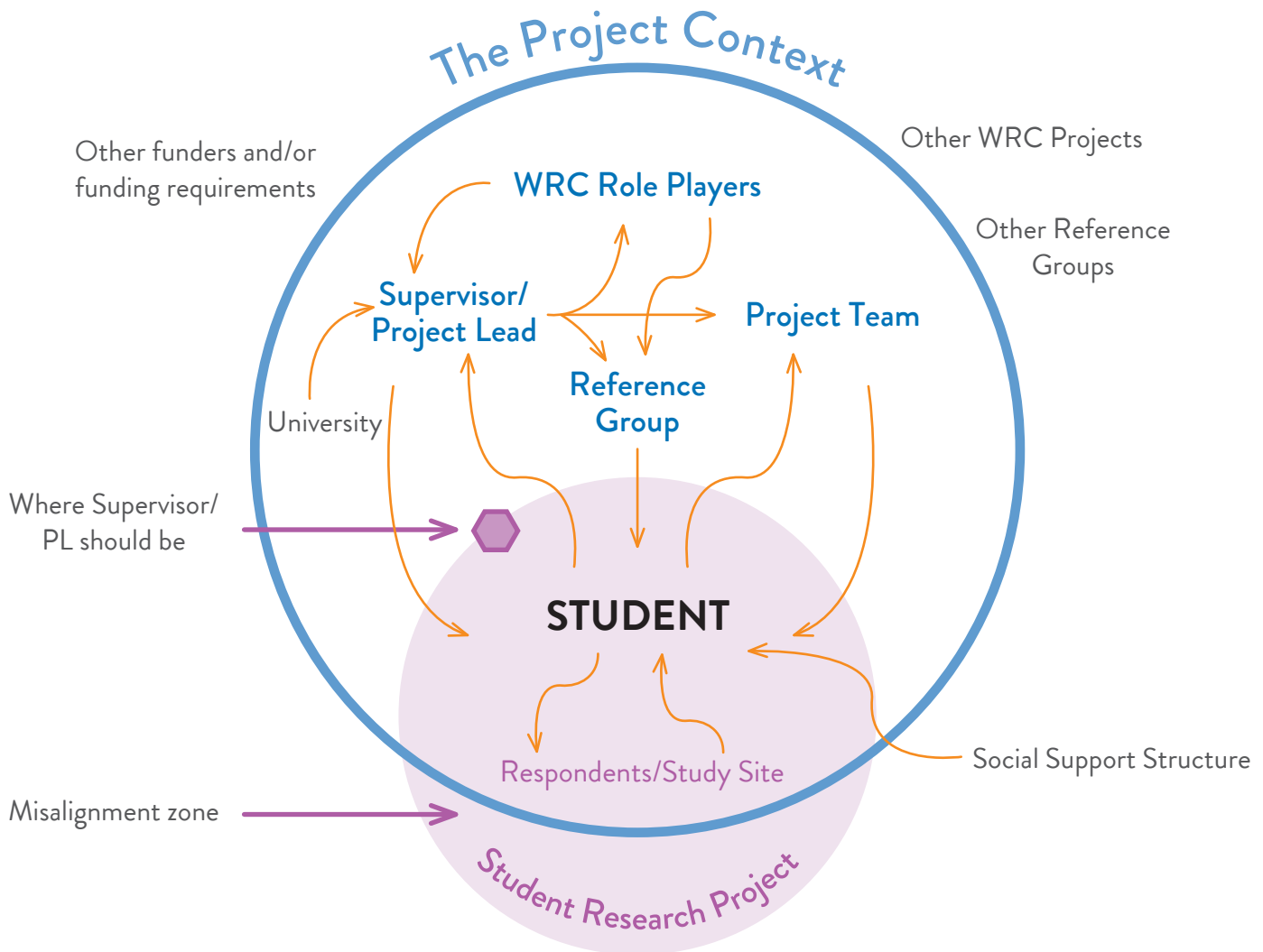
The model above is a representation of the landscape in which you will find yourself as you participate in a WRC-funded project. It depicts how and where a student will be placed in the landscape (or choose to position themselves) in relation to other key 'characters'. The model also depicts the relationships and influence (illustrated by the arrows) that the various characters have on you as a student, the influence that you have on them and how the characters interact each other in terms of authority, influence and contact.

Within the project context, you will see that there are multiple "characters" (apart from you, the student). These are:

- WRC role players – these are typically the Executive and Research Managers of the WRC

- Other WRC projects and other WRC reference groups - when you are able to serve as RG members on similar or related projects, and have the willingness and ability to absorb the learnings and apply them to your project, it helps you considerably in refining your research questions and assisting with the conceptual framework for your own research.

- Other funders and/or funding requirements - you may also have a NRF bursary, a merit bursary, a GreenMatter fellowship, or another form of funding which brings with it another set of rules and regulations that you have to abide by. Students have to make sure that these rules and regulations from multiple funders are aligned and that you don't become overwhelmed with different expectations.

- Supervisor/Project Leader (PL) – this could either be the same person fulfilling dual roles, or two separate people. The PL's role is essentially leading the research project, i.e. ensuring that the project team is aligned in terms of the project outcomes and deliverables. The supervisor is focused on the student's research in line with their registered degree.

- Project team – project teams can vary in size, disciplines, location, etc. as it is dependent on the project being conducted.

- Reference Group – WRC-funded projects will have a Reference Group. Similar to the project team, the size and structure will depend on the project being conducted. The purpose of the Reference Group is to oversee the project for its duration, and provide input, advice, support and guidance on the course the project is taking. The Reference Group is only required to act in an advisory capacity.

- University – this is the University you are enrolled at to complete your degree. The University as a whole is never involved (directly or indirectly) in the research project. However, the University is concerned with the quality output from a student in order to obtain their qualification. Your supervisor will represent the University's interests in your project.

- Respondents/Study Site – these are the people who participate in your research. While their participation is typically restricted to providing information, many student stories tell of how they themselves are changed by working with people at their study site. Getting familiar with a socio-economic context and building relationships at the study location can influence your own beliefs, values and mindsets.

- Social Support Structure – these are the people within your own social network who provide support and guidance. They may be family members, friends or acquaintances. They are the people with whom you can speak freely, in terms of what you're experiencing on the research journey. They provide a listening ear, advice and encouragement.

The main point illustrated by the model is that you influence AND are influenced by the key characters in the water/academic field in the project. It highlights the responsibility that a student has in fostering those relationships as well.

The spheres in the model illustrate the importance of achieving alignment between your individual research project (what your Masters or PhD project covers) and that of the project (the topic and outcome that the WRC is funding). Many student stories tell of how academic success and project team integration are not achieved when there is misalignment between the two. The misalignment zone arises and increases in size when the research objectives of the individual and project contexts differ and when there are difficulties in the relationship between student and supervisor/PL.

Ultimately, the alignment zone is your responsibility to manage and rests on the relationships you foster with your supervisor/s, project leader/s and team members. Student stories also tell of how, when the misalignment zone arises, it has a tendency to grow over time. A fear of conflict has prevented many students from naming and addressing the misalignment timeously. The positioning of the supervisor/PL is also important. If the supervisor/PL is not sufficiently 'bridging' your research project with the broader WRC project there are issues that may arise, e.g. students may feel unsupported and this could impact on the performance within the project team.

1. If you were to draw a model that represents your own research context, how similar would it be to the one on page 5?

2. Who else appears on your context model and what is the nature of the influence they have on you?

3. In drawing your own model, if you were to use the thickness of the arrows to represent the extent to which characters influence each other, which relationships have the most influence in your journey?

4. How big is the misalignment zone in your context?

5. What is the history of misalignment in your context model and what role have you played in this?

6. What restorative actions, that you can take, will help reduce the misalignment?

ANOTHER ANALOGY – THE FOOTBALL METAPHOR
(CONTRIBUTED BY MARK DENT)

Here is another analogy that highlights how students can assess their research landscape and assess what needs to be done.

Question: Who makes decisions on a soccer field?

Most people believe that the Referee makes the decisions and one knows he has made a decision when he blows his whistle. Next, we can identify that the Captain or the Coach make the decisions. All of which are authority figures. But is it not true that all the players make decisions every moment of the game?

All players have a systemic overview of what is happening on the field and then need to execute individual skills perfectly BUT within the context of the dynamic patterns that are unfolding around them. All players need to SENSE what is going on, i.e. read the whole game and then move into a position to RESPOND.

2.3   STORIES

Below we share the stories of students who participated in this research project. In order to protect the identity of these students, these stories have been edited so that names and places have been removed.

These stories played an integral role in developing this guide and we recommend that you read through them to understand the experiences of other students. You may find that your context is similar, and through the stories, gain a deeper understanding of what is required in each phase.

2.3.1   YOUR JOURNEY TO BECOMING A STUDENT ON A WRC PROJECT

OPEN TO ALL OPPORTUNITIES WITH LUCK PLAYING A ROLE

Starting off I knew that I would like to explore the option of doing research within the social learning field or social-ecological field. At that stage I hadn't given a lot of thought of the specifics and was open for opportunities. I was lucky enough to have seen an advert of a project that was funded by the WRC. So in a way the project found me as the only criteria at that stage that I was looking for was that it had to involve research on people or social-ecological systems (SES). I think one of the challenges was that the funding started in the middle of the year when I was still completing my degree so my involvement at the start was limited. Thinking back I can't remember what my hopes were but I don't think there was any expectation over and above being able to work with people that were knowledgeable and have an opportunity to complete my Masters. A very important part though was the fact that the funding was sufficient for me to be able to study fulltime, with enough funding to pay rent, buy food and now and again go for a movie. That was a big deciding factor in applying for the project. In saying that I would not have applied if it were not my field of interest no matter the money.

DREAMING BIG, THE RISE OF A TITAN

The issue of environmental quality focusing on the aquatic ecosystems has always fascinated me from a tender age. I was involved in a number of societies throughout my primary and secondary education. Then I was studying towards a BSc Hons Biological Sciences, that's when I become heavily involved in aquatic ecology. My enthusiasm enabled me to be chosen to assist in a national water quality project funded by World Health Organisation and the Ministry of Health and Child Welfare in Zimbabwe. The project eventually led to my first ever publication on drinking water quality around Harare. I then went to be involved in a number of national projects in aquatic ecology and which lead to more publications. Towards the end of my MSc, I applied for PhD position in a funded project. Due to my experience in the field, I was accepted to study towards a PhD. This opportunity has opened doors more for me and is leading to some very interesting collaboration with other researchers in my field.
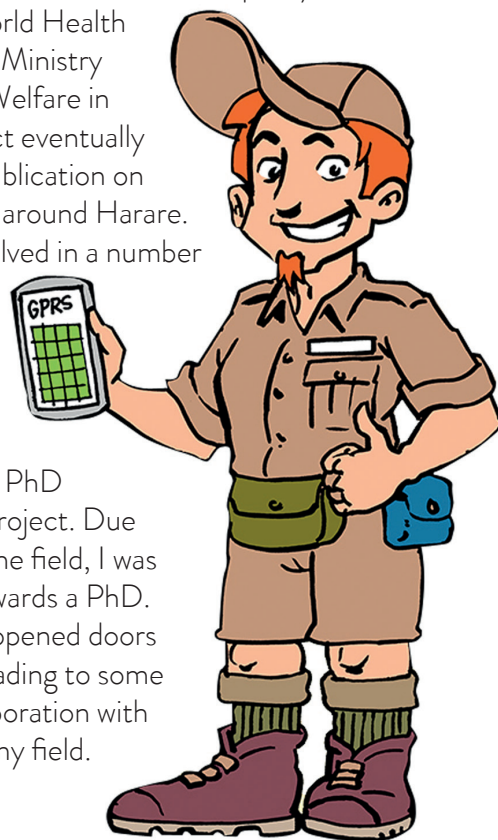
2.3.2 YOUR INITIAL EXPERIENCES WORKING IN A PROJECT TEAM

PERSEVERANCE

Learning to manage different co-supervisors. It was almost a different level of experience. Big project with large amount of funds to manage. The amount of work demanded was enormous and you have to work harder to make it work. Above all working with more than one supervisor is not easy and it was a nightmare that drains your patience with some of them. But I guess that was a lesson to learn as well apart from the academic matters.

THE MORE I LEARN, THE MORE I REALISE HOW LITTLE I KNOW

I felt very protected by the team leader and members of our team. My opinions were listened to and when I faltered, guidance was always given. For me, everything worked because even my "childish" tantrums were noted and responded to - it was surprising and refreshing to have a team leader who was interested in seeing and exploring views that were "out of the box".

INITIAL EXPERIENCES

At first I was intimidated, but when I realised that the end point was good science, I got comfortable with the project. From there on we have worked hard to get good data and make the project successful.

LEARNING THE HARD WAY

Initially I was not sure or certain that I had been given such a responsibility leading to delays in the project but as soon as I picked that up I took ownership of the project and things are going well.

MY FIRST EXPERIENCES AS A POSTGRADUATE STUDENT

My experience was a very memorable one throughout the process. Although I had challenges on the way I believe these challenges were part of the training and were preparing me for the working environment. I had great supervisors who gave me support whenever I needed it. However, I learnt that the MSc I was studying for was not for the supervisors but for me, so I needed to put 101% effort in order to come up with something out of the whole process. The project team was very helpful and gave me the chance to experience working as a team to achieve success for each individual within the team. I also had a great chance to network and learn from accomplished academics and professionals that would not be possible had I not been awarded the WRC bursary.

WHEN THE GOING GETS TOUGH, INNOVATE....

At the start of my postgraduate degree, the transition from the immense pressures of a highly demanding undergraduate programme that was characterised by the necessity to constantly meet deliverables that have a direct impact on your successful graduation within the allocated timeframe to a postgraduate programme that was largely self driven was a little disorientating. There appeared to be an enormous amount of time to achieve relatively small targets, which essentially required one to focus on a single theme/topic, unlike with the undergraduate programme where one had to simultaneously juggle a number of courses, some of which were not even remotely related. However, one quickly got a reality check when you saw the immense pressure that the second year postgraduates, who were intending to graduate in that year, were under. Things that worked: 1 - Fortnightly meetings with the supervisor to discuss work progress and to discuss proposed plan for future work. 2 - Working with a fellow group member whose MSc thesis also fell within the scope of the WRC funded project but had a different focus area. 3 - Guidance related to the construction of the experimental set-up from a researcher at the University who had experience with a similar set-up. 4 - Most importantly, a supervisor who despite their heavy workload always seemed to have or rather make the time to provide guidance that was rather well calibrated, i.e. steering one in a direction towards finding a solution rather than just providing a solution. Also, my supervisor was extremely efficient in turning around reports/chapters for proof reading.

THE INCONSISTENT EXPERIMENT

Because the project was transdisciplinary and was a 'new' idea and way of conducting research for the project leaders, the project itself was exploratory – pushing boundaries and finding what works and what doesn't when it comes to multiple academic disciplines being applied to one area of interest. There were monthly meetings which definitely helped, but the broader project was more of the focus than the individual projects, and I landed up getting involved in various other areas/other peoples projects/other reports, etc. for the good and benefit of the 'broader project'. In many ways my personal feelings and academic areas of interest were pushed aside due to the fact that they didn't fit into the focus of the project or simply didn't get the support. I felt that social sciences and the importance of the human uses and needs of water were overlooked for the scientific and governance aspects. The initial excitement of the project certainly waned.

TEAMWORK IS REWARDING

It was my first experience to work in a team of this magnitude and it afforded me the opportunity to interact with various stakeholders. Presenting my initial findings at one of the stakeholders meeting was a very informative experience as I got valuable feedback that helped shape my research focus and helped me interrogate further ideas. I would have loved to have additional financial assistance for fieldwork. The challenge was not being aware of how much was set aside for the project, so it was costly going up and down to the research site. I appreciated the fact that WRC officials expressed interest in the work that we were doing, and it was affirmation for a job well done. My team experience was very rewarding because we could exchange ideas on our field experiences.

SINK OR SWIM

The early stages of the experience were generally OK since I had to learn and adapt to how things were being done at the University. I was able to learn quickly and I became involved straight away. The presence of a number of people from my home country made the experience and settling down process to be smooth.

A PAINFUL GROOMING JOURNEY

Working on the project at the beginning was fun and I learned a lot. However, going to do the fieldwork was challenging. My safety was compromised since the area I was working in has a high crime and drug abuse rate and being a women working under such conditions with no support from the project leader was hard. While working on the project the project leader who was also my supervisor left me hanging, he found a job elsewhere and I struggled to finish my Masters Degree without any support. I had to find another supervisor.

STUDENT EXPERIENCES ON A PROJECT TEAM

The experience within the early stages of the project was very good, since the project is aligned in such a way that it works on a timeframe of deliverables with target dates it was nice, because the project was then subdivided down into smaller tasks each that had to be met by a certain time and so this kept the project on course. The surprises I had was the kind of exposure we got for the project in terms of media briefings, our reference group was so well rounded with many individuals with excellent expertise's within the water sector and this was great to have in terms of project guidance. The only thing within the project that did not work out well was the fact that the project leaders did not budget well and so towards the end of the project ran out of funding to pay me my bursary for doing the required research. Also I personally felt that the project leaders put a lot of pressure on the students in terms of the project work load and deliverables without any of their own input, yet reap the benefits.

A WHOLE NEW WORLD

When I started my PhD I felt a lot of pressure and had low confidence in myself, but working with other students at my level (or below) I found comfort and encouragement. In the beginning I wanted to do a lot of things and over time my methods and objectives have become more streamlined. The thing that surprised me the most was the level at which research is done at this University. When I arrived I had no publication record and it seemed that most of my colleagues, even MSc students had already published papers. I have grown to understand that this is largely due to the high quality of supervision, and the high level of enthusiasm that even the supervisors exhibit. Our group is a large group and everyone is studying the same area. This has allowed me to learn a lot from fields that had been foreign to me and I believe this will go a long way in making me a more complete scientist. On the downside, before I started I thought that my bursary would be sufficient to help me lead a comfortable life. As a result I faced some financial difficulties as the cost of living proved to be higher than I expected and at the same time I had to save for things like medical aid, and when I fell ill my medical aid was rarely sufficient to help me out. I even failed to travel back home for the first 2 years of my programme. This I felt was quite unexpected.

PATIENCE IS A VIRTUE IN THE MIDST OF ALL

In the initial stages the project was a bit stressing because I was subject to time in the university and the WRC financial year was closed by then meaning we had to wait almost the whole year before funds could be released. My supervisor has been the best person I have met in all this time. He motivated me and kept my hopes high.

2.3.3 FIRST REFERENCE GROUP MEETING

The most important event that surfaced in the student journey is that of the first Reference Group (RG) Meeting at the WRC. Both for the WRC and the project team, this is the first opportunity to show what has been done and to open it up to discussion outside of the project team. A student's preparation for this meeting is crucial. Interestingly, the RG meeting is also where the WRC gets a sense of how the team is performing. Symptoms of poor PL-Student dynamics can show themselves at the meeting. For example, one story speaks of how a student and Supervisor/PL began to disagree with each other in the RG meeting regarding the student's outputs. This showed that the student and Supervisor/PL had not had much preparation to air out the disagreement prior to the RG meeting. It is for this reason that you need to focus on having adequate preparation discussions with PLs and focus on issues of quality, by initiating those discussions if need be.

Recommendations for WRC Research Managers

These are some suggestions for student involvement in WRC projects to be communicated at first Reference Group meeting:

1. The Guide Book should be distributed for all new students working on the project
2. Information about future WRC 101 workshops for students to be communicated
3. Student verification process outlined for project leader (submission of student registration forms and copies of ID)
4. Scholarly disclosure process outlined as per contract
5. Payment of student work
6. Student attendance at Reference Group meetings

2.3.4 YOUR EXPERIENCES AS AN ACTIVE MEMBER OF THE PROJECT TEAM

STEADFAST

It was partially easier moving to the second stage of the journey as you will spend much time writing and analysing your research. But waiting for feedback from all the co-supervisors for unreasonably long time was very frustrating and demanding your patience.

BALANCING

Roles were defined fairly early on; the project itself was also fairly well defined from the onset. It was therefore not much of an adjustment. Support from my supervisors was abundant. Balancing work and project work can be challenging.

THE MORE I LEARN, THE MORE I REALISE HOW LITTLE I KNOW

I cannot truly say that there are aspects that become easier or more difficult in my role as I continue to conduct research for the project from a social sciences perspective, which I have been doing from the beginning. For me, things usually get difficult in the field and that is usually participant-based so I find my way around at the expense of deliverable deadlines.

A GUIDED EXPERIENCE

After being involved in the project and monthly meetings my focus was clearer and lines had to be drawn because I needed to move onto conducting fieldwork. The difficultly is because all of the students came from different backgrounds, we were all at different stages of our research and fieldwork so it was hard to focus on one broader topic and goal for the purpose of the project. But after 6 months of being involved it was easier to focus on my personal project and then the broader project itself. It was great in the fact that people always were willing to help one another and provide feedback or resources.

STUDENT EXPERIENCE ON THE TEAM

Once the lab work was completed for the project within the initial stages, then we had to do repeatability which was very long hours since our timeframe to meet the final deliverables was running out and this required a lot of input and hours from us as students above and beyond an average workday to accomplish the project in time. We approached the WRC for an extension, however it was declined and it is sometimes really hard to predict when initially applying for a project and then actually doing the laboratory work how long it will take. The journey then got even harder once the project was coming to an end as the final complete report had to be submitted and written up and the time frame from the last final meetings and inputs to having the report written with laboratory work still ongoing was hard. The easy work was the laboratory work, the administrative work and WRC templates to write up and use were frustrating and really hard to work with.

FIELDWORK

The different project phases have required different types of input (fieldwork preparation, fieldwork, data analysis and writing). I have enjoyed all of them for the different experiences. I sometimes felt that the deliverables were too often and impacted on what was more urgent at the time (e.g. preparing for a conference, etc.) but it was good to keep looking at the work and evaluating our progress.

BUILDING BRIDGES

I realised that my role in the project was very important and that I could make or break the project. Although fieldwork was very challenging in the beginning in so far as establishing trust with the respondents was concerned, and navigating the language barrier, I found it rewarding to be able to contribute meaningfully to both the project and the respondents. I found that most of the respondents were keen to learn how to save water given the circumstances they found themselves in. I was able to bridge the distance between the research team and the researched by explaining how the research project would benefit both parties.

A JOURNEY TO REMEMBER

The project was easier at the beginning when I still had support from the person who was then the project leader and my supervisor but after that things got harder. I was active in the project since I was a student under it. So I was responsible for data collection and analysis. I learnt a lot about data collection especially when using a structured questionnaire as well as doing interviews. Furthermore, I learnt a lot about data capturing. There were no easier roles but hard work and dedication were key as well as having an open mind to learn.

BECOMING THE OWNER OF MY RESEARCH

In my second year things got much easier as I knew exactly what I wanted to do and what I needed. The initial challenges in getting equipment, transportation, access to our sites and developing methods that worked had been dealt with and I had began to own my project. I no longer needed my supervisors to give me much guidance and I had worked out how I could share data with my colleagues to avoid duplicating roles. We had also learned to synchronize our sampling trips and help each other, rather than seeking paid assistance. Sampling became routine and fun.

2.3.5   PLEASE TELL US ABOUT HOW YOUR JOURNEY ENDED

DIPLOMACY

At the end I was able to complete my PhD. Some of the lessons that I can draw from it: prepare for a long journey (if it ends smooth and short then you are lucky), learn to handle problems as they appear (learn to be patient and never hasten to raise your voice and seek legal actions when you can resolve matters amicably), learn to be self-dependent and proactive (the project is yours and you have a deadline, hence remember it is your responsibility and not the supervisors' to finish your project/PhD). For a student who is just beginning on a project I would advise him (summary) to be patient, diligent, diplomatic and proactive. Casual meetings and discussion with supervisors I found more effective than sending emails, for appointment to discuss your projects (tea room, lunch time, on the passage, corridors where ever you see them).

RECORD FINISH OF A PHD IN 2 YEARS

Expectations were met. My advice is give more than what you are expected. You are still a student – rights don't work here. When you're done you realize that straight roads do not make good drivers, nor do calm seas make good sailors.

ANYONE CAN DO IT... WITH THE RIGHT ATTITUDE AND METHOD

My journey has not ended yet but I have learned a lot. The biggest lesson is probably that things are never as bad or as difficult as they seem in the beginning. Never be shy, afraid or too proud to ask as you save yourself a lot of trouble and time. Research is not a competition, and is seldom the same with someone else's. I would encourage a new student to always keep their supervisor updated and involved to avoid big mistakes at the end.

THE MORE I LEARN, THE MORE I REALISE HOW LITTLE I KNOW

My journey has not yet ended and I remain in the "transitioning" phase. My experiences so far have proven to be better than expected but that is purely because of the team with which I work and our research study in itself. The only advice I could give to a student starting out is that while it is good for one to be confident in their expertise it is also good to question your field, its approaches and the skills that it has given you, to not limit research and understanding to your expertise but to be open to the vast knowledge a collaborative team can give you.

EVERYTHING IS POSSIBLE, DEPENDS WITH AN INDIVIDUAL

Never start anything new at Masters level if the supervisor is not that helpful because it becomes stressful.

ADVICE TO OTHER STUDENTS

My journey ended well after managing to submit my thesis on time and finally being awarded my MSc degree. However, I learnt a lot of lessons on the way which include the following: -Hard work is necessary to achieve any goal -Take all measurements accurately during the monitoring right from the beginning to avoid disappointments when you are analysing your data. - Constantly check your work along the way and ask for assistance as you move forward where things will not be clear. -Don't leave work for some other day otherwise it will pile up and you will fail to manage it later - DO NOT PROCRASTINATE. - Be willing to help others out because in the process you will learn a lot. - Move with your supervisors and be instant to do as they advise you because they have been there and they know what it is like.

LESSONS LEARNED BY A STUDENT

At the end of the project the lessons learned are carefully consider your time frames and when they have to be met and probably start writing the project final report between things and don't leave it to the end. In terms of exposure and learning from others like the steering committee, etc. it was a great experience. In terms of our project leaders running budgets and cost and delivering bursary payments it was a nightmare. To a student starting a project make sure you understand exactly what your project leader expects from you from a WRC project from start to finish i.e. do you just have to do the lab work, or that and write up etc. and which deliverables are you expected to meet. Also have a contract in place in terms of bursary payments and make sure it's very clear how much money you will receive for the workload expected.

THE MOMENT OF TRUTH

By the time I completed my research journey, I had learnt that no two households are the same, that each experienced the same phenomenon differently. I also found out that information was selectively given to households in order to lessen the burden on the service deliverer. Some City officials were reluctant to give information for fear of victimisation, but others were keen to share more. I perfected my negotiation skills especially with some local municipal officials, and in the process was able to assist some households that were in dire need of water but were too afraid to approach the council officials.

IT WASN'T EASY BUT IT WAS WORTH IT

My journey did not end as well as I expected, it took me longer to finish my Masters Degree due to the lack of support from my supervisor. Sometimes I felt like giving up but I managed to fight my way through. My overall experience and expectation was painful but it made me a stronger researcher and it made me love what I do. My advice to other students is before embarking on a project know the person who will supervise you, do a background check and make sure you hold them accountable for their responsibilities. As a student hard work is key and always have an open mind to learn because that will enable you to grow.

ENSURING TO THE END WITH SUPPORTIVE SUPERVISOR

At the end of the project I have learned that the best thing you can ever have in your life is a supportive supervisor at all times. One who believes in you and motivates you. Challenges are there to build us and to make us strong. When you are patient in the midst of all, greater is your reward at the end.

3.   WHO ARE THE CHARACTERS ON THIS FIELD?

We now move from describing the context and academic landscape you encounter on your research journey and look at the characters that have emerged from the stories of students who have travelled ahead of you. The focus of this section is on the type of student you need to be in order to successfully navigate the research journey. Through the use of archetype images and attribute descriptions you will be prompted to consider what sorts of behaviours, attitudes and mindsets are required for academic success and project integration. This section also describes the other kinds of characters you'll encounter and provides you with an opportunity to understand them that little bit more.

3.1   STUDENT PERSONAS

The following student personas emerged from the stories of students on WRC-funded projects: The Adaptive Student, The Engaged Student, The Lucky Student, The Team Player and The Anxious Struggler. Again, the focus of this section is on who you are, who you are becoming and the decisions you can make in terms of your presence in the landscape model described earlier.

You may find that you already identify with one or more of the positive personas. If that's the case, your line of thinking should consider how to preserve that persona, in your identity through the various stages of the research journey. Likewise, if you do not identify with the helpful personas, your self-reflection should revolve around how you can develop those attributes in order to increase your chances of success.

An important point to remember when considering the personas is that you might identify with aspects of some of them at one point and then with another at a different stage of your journey. For example, you may identify with the Engaged Student and the

Lucky Student now, but with the Anxious Struggler at a different time during the project.

Also remember that there are pros and cons to these personas. It is up to you to amplify the positive attributes and dampen the negative ones.

At times, you may also experience certain pressures that will make you feel like you are exploited – a form of cheap labour in the research landscape. Many students report on how structured the research journey is, i.e. you only gain credibility by increasing your expertise and accolades. The stories collected in this project reveal that students who find ways of dealing with such pressures, coming to terms with them and innovating through them is what makes some students more successful than others.

3.1.1 THE ADAPTIVE STUDENT
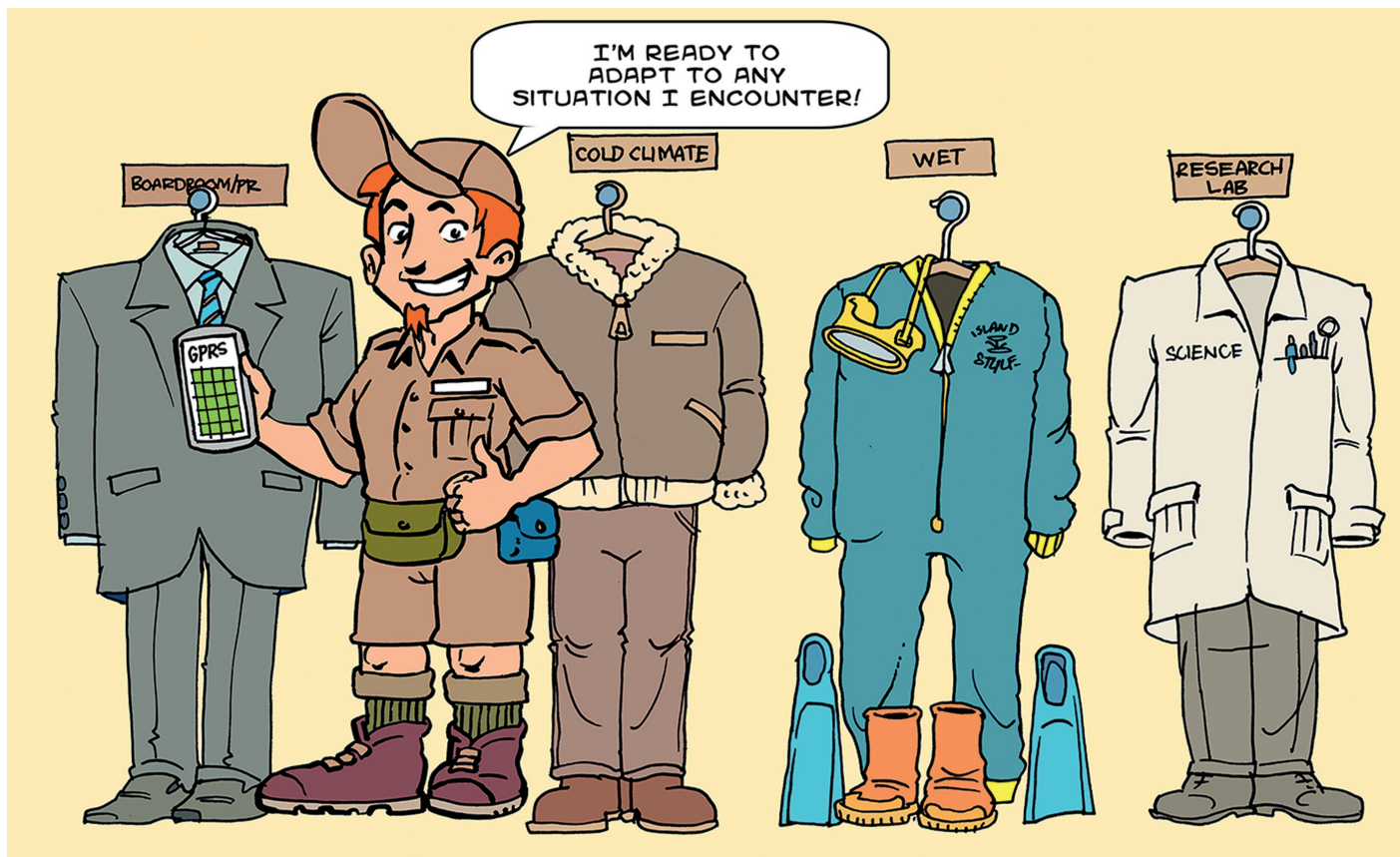
The Adaptive Student is one who is able to juggle his/her role to suit what is required at different stages of the project. As illustrated above, they are well prepared for different situations and adjust their approach accordingly in order to influence desired outcomes, either directly or indirectly. This student is a fast learner and transitions from one role to another with ease. The possibility of this persona lies in their ability to diagnose a situation effectively, to accurately identify the cause of problems and to formulate and implement contextually appropriate responses. The Adaptive Student understands that not everything is within their direct control, but is adept at identifying where they can influence people or situations indirectly.

The attributes of the Adaptive Student are:

- Juggling – can handle multiple tasks and roles simultaneously
- Fast-learning – can increase the speed of learning in response to situations and issues
- Adaptive – can respond to situations adaptively by assessing what new mindsets or behaviours are required in a shifting context
- Adjusting – is able to make course corrections to a set plan
- Transitioning – does not get stuck in the ideals, hopes or expectations of a phase in the research journey, but embraces new situations and learning opportunities
- Negotiating – has the ability to negotiate the personal changes required BUT also has the ability to negotiate deadlines, tasks, roles and responsibilities within a team

3.1.2   THE ROLE OF PEOPLE SKILLS

Students on WRC projects, and any post-graduate students for that matter, need to understand that while the bulk of their work revolves around producing an acceptable form of research to either obtain their qualification, or to submit a WRC-accepted deliverable, there is also a fair chunk of their work that rests on their ability to work with people.

And so, as a researcher/student/scientist you need to realise that you are dealing with "people" during the course of the project which requires you to possess and develop a set of people (soft)-skills and nurture your relationship with involved stakeholders. Students who come from a typically scientific, quantitative, natural sciences background may be more comfortable in dealing with so-called fact, hard data and observable reality. The changing nature of WRC projects means that often students will be required to work in and amongst a team, with a supervisor AND with citizen respondents on research projects. This requires a level of emotional intelligence on the part of the student that has typically not been expected or developed in the natural sciences field before. Students need to be more human, in short.

This emotional intelligence is most important in the realm of fostering helpful and productive relationships with Project Leaders and Supervisors. Students report that the relationship that has the most influence on their research journey is that of their supervisor/PL. As such, students need to be aware that they carry a responsibility to develop that relationship. Power dynamics inherent in the relationship seem to inhibit the student's agency in intervening in this regard.

3.1.3 THE ENGAGED STUDENT

The Engaged Student is not just doing a research project for the sake of it; he/she is wholly committed and passionate about their research topic. This student is motivated to achieve the outcomes of their project because they are actually interested in what they are researching. This is an enthusiastic student who is willing to "go to the end of the earth" to achieve their research objectives. Nothing will stand in this student's way.

The attributes of the Engaged Student are:

- Committed – despite shifting circumstances they are committed to their end goal

- Determined – with the end goal in mind, this student will display high levels of determination to see through arduous and difficult situations

- Motivated – it is difficult to keep motivation levels high and constant throughout the research journey, but this student understands that motivation is not whimsical – it is something to be nurtured and preserved

- Passionate – this student discovers levels of passion and enjoyment in as many levels of work as possible

- Enthusiastic – keeping oneself motivated is important, but this student chooses to be enthusiastic regardless of the circumstances and realistically chooses a position of positivity

- Interested – the curiosity levels displayed by this student are insatiable. They do not suffer from the "it's not my job" complaint

- Strong – the emotional fortitude required to complete a postgraduate degree in the water field is what separates this student from others.

There are some dangers associated with this persona. The Engaged Student can also be unwilling to change direction because they believe they are right (passionate to the end), and may struggle to accept constructive criticism.

> **An important aspect of the Engaged Student persona is their inbuilt curiosity.** Some say that it is a student's curiosity that decides their future success. This curiosity is insatiable and is never satisfied with the first answer. They are always pushing through to new levels of insight, learning and awareness.

3.1.4 THE LUCKY STUDENT
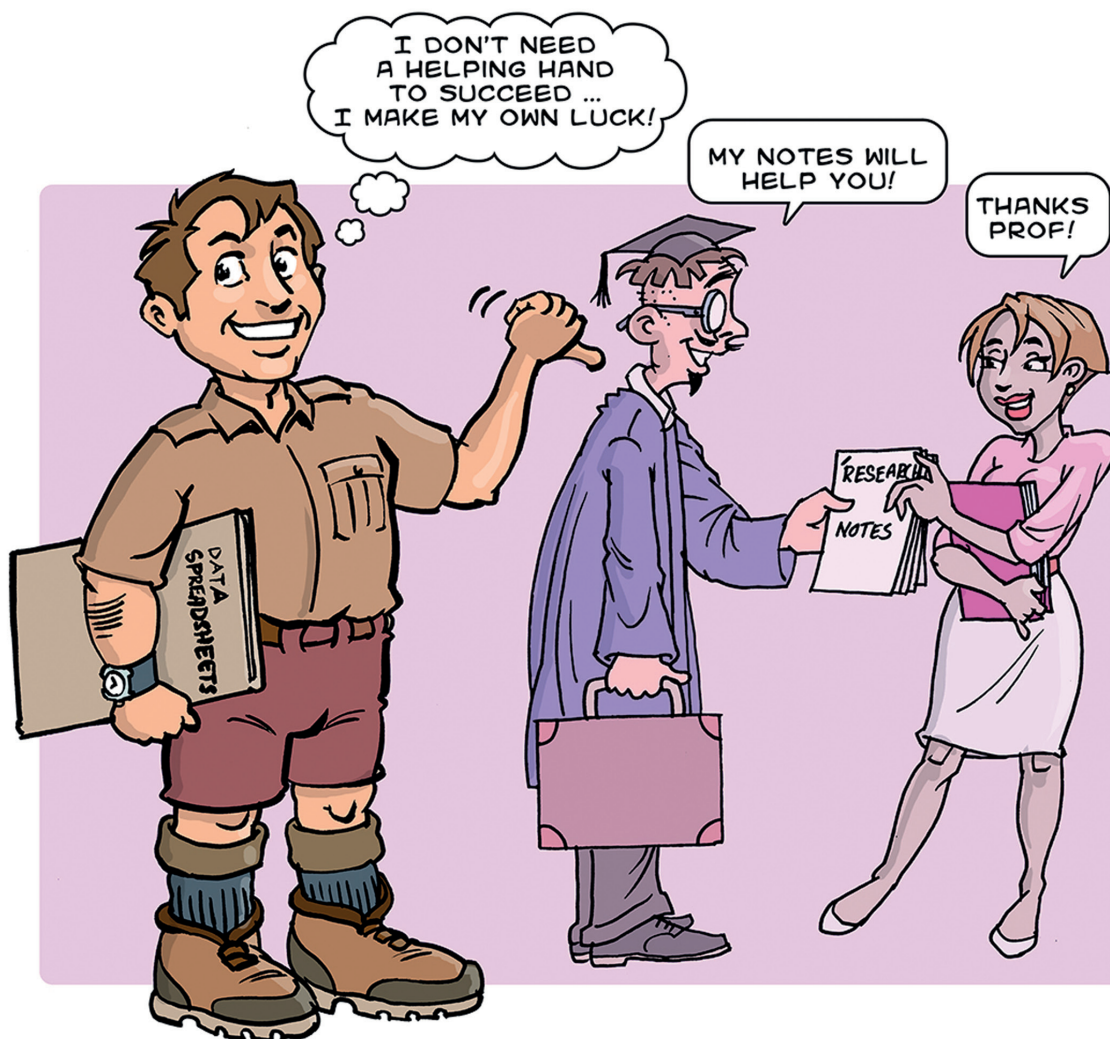
Some students are given the tools they need to succeed. They don't necessarily "fight" to achieve their outcomes, but are nurtured through the process.

This does not mean that they don't know what they're doing, just that they are given support, or a constant helping hand, throughout the project / their studies. They are empowered through the help of others, and not through their own determination. In the illustration above, we see this "Lucky Student", but we also see a student who makes his or her own luck. This is a student who doesn't wait to be handed things on a platter, but takes control of his/her own situation.

Regardless of their circumstance, the Lucky Student recognises that they are the main actor in their story, that they are indeed the Luck-making Student and will make the choices required to succeed.

The Lucky Student can sometimes be perceived as the golden boy/girl in a project team. You need to be aware of interpersonal relationships between team members and how this perception may influence these relationships. There is also a dangerous flip side to being the Lucky Student. There is the risk of becoming complacent and being ill-prepared for dealing with real-life challenges because you are shielded within the project

3.1.5 THE TEAM PLAYER
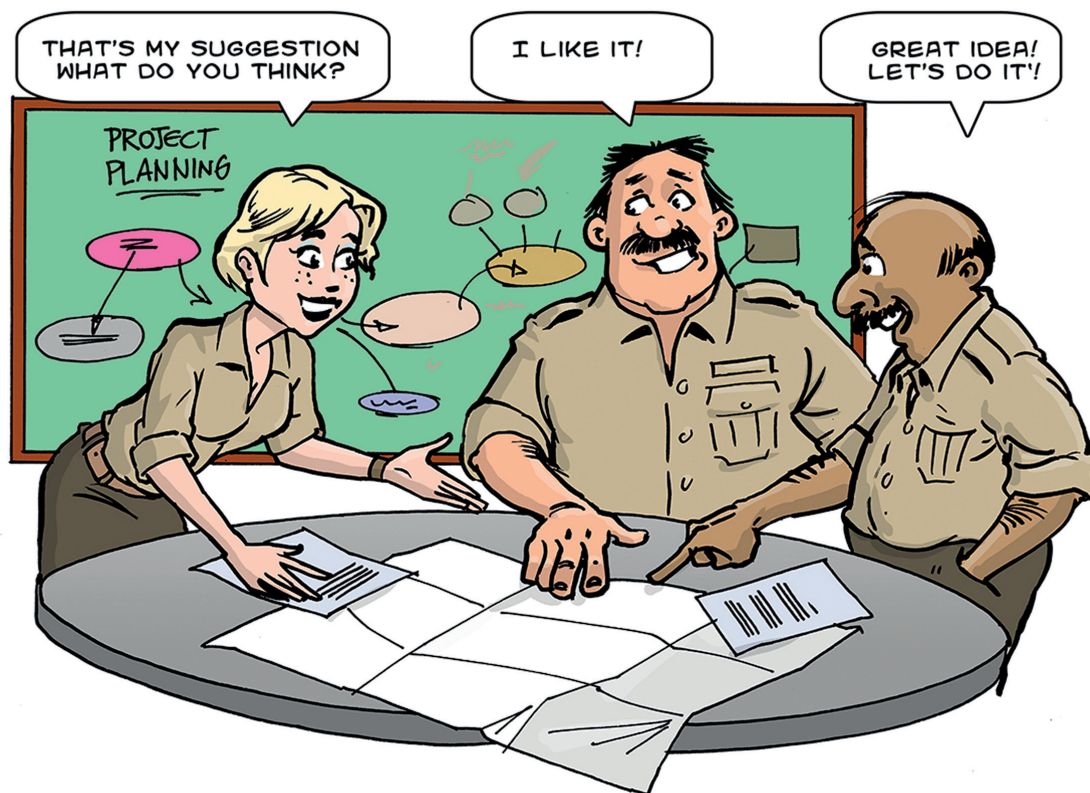
The research journey can be a lonely one and there are many things that make students feel isolated. The Team Player is a student who recognises how easy it is to fall into the trap of individualism and proactively does things to develop a community of support around them.

Within the team context, they see their place within a project not as being "less influential" or that they need to keep quiet because they are inexperienced. Rather, they nurture relationships with all team members and put a lot of effort in developing their 'voice' within the team. They contribute to discussions with well thought-through perspectives, ideas and suggestions. The Team Player also knows his/her individual success depends on the team as much as the team's success depends on his/her success.

The attributes of the Team Player are:

- Contributor – they become known for voicing their ideas and work hard at being a heard and respected member of the team
- Collaborating – spotting the opportunities for collaboration, this student does their own individual work when appropriate, but prioritises opportunities to work together with colleagues
- Included – these types of students end up being included in the activity of the project team and understand that they do not necessarily sit around to wait to be included
- Networking – with a high belief in the power of social networks, this student chooses to get to

know his/her team members on personal levels, asks questions about family and develops a social capital within the team

> An important aspect of the Team Player is their approach to communication. They are not known or experienced as uncommunicative, rather they value open and regular communication with their key relationships in the journey. Communication is a two-way street and the Team Player ensures they bring sufficient energy into the relationship by instigating conversations and making efforts to schedule regular opportunities to engage in discussions.

3.1.6 THE ANXIOUS STRUGGLER
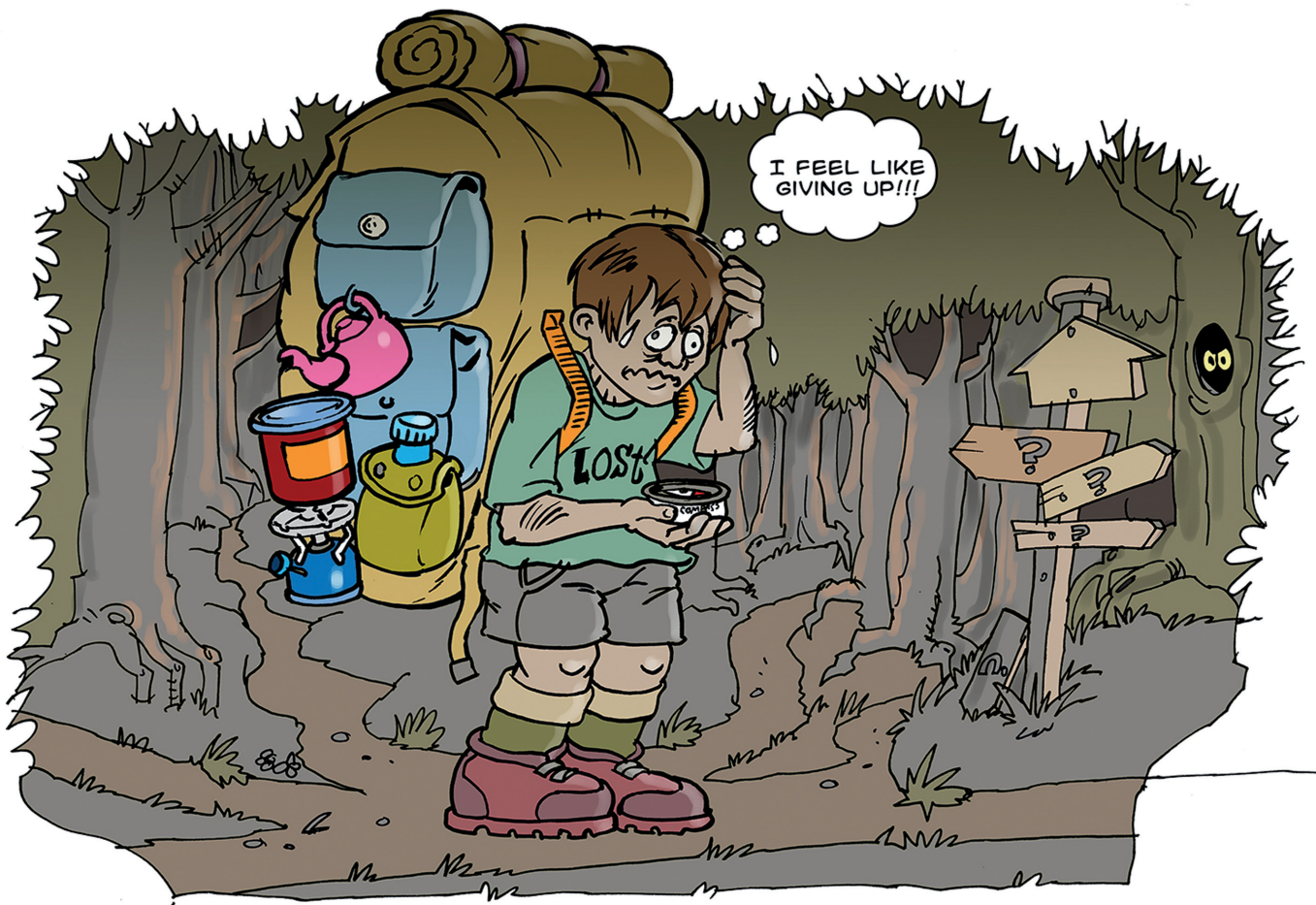
The Anxious Struggler is a persona that most students are familiar with given that there are bound to be tough times in the research journey. It is important to understand this dark place in order to transcend beyond it.

The Anxious Struggler encounters difficult external situations but the main fight is against their internal world, where they are plagued by intense emotions that increase self-doubt and eat away at one's motivation.

The feelings that typify the Anxious Struggler are:

- Pressured
- Uncertain
- Unsure
- Lacking confidence
- Feel like giving up
- Fearful
- Faltering

- Intimidated
- Disorientated
- Not up to scratch
- Stressed

3.2   SUPERVISOR/PROJECT LEADER PERSONAS

Student stories often mention the role of the supervisor and project leader, where in many instances they were one and the same person. Given the importance of the relationship you will have with your supervisor/project leader (as illustrated in the relational model earlier) we now include some of the personas that emerged from the stories.

Student experiences of supervisors and project leaders are varied, with many being difficult but others being very positive. In this section we outline the kinds of supervisor/project leader personas you may encounter. These are not actual people we are identifying here, but general traits and characteristics. They are included in this guide so that you are more informed about them. It is not your role or place to attempt to bring about a change in a supervisor/project leader's personality or style of working. No, the onus is on you and how you choose to adapt to your circumstances as a student. Again, our focus is to empower you in your own adaptation along your research journey.

As with the student personas, remember that these examples may change, where a person exhibits one set of behaviours and attributes at one stage and another set later on. Be careful of stereotyping your leader into a box based on these personas.

THE THIN LEADER

This leader has a lot on their plate and the 'attention budget' that they have at their disposal to apply to you and your research is severely limited. They are 'stretched' and overworked. It is important not to take this personally, but to acknowledge it and find effective ways of working with the persona.

RESPECTED LEADER

The Respected supervisor/project leader is highly experienced and knowledgeable. Students find them interesting to talk to and learn from. They keep updated in their thinking, methods and approaches. They are supremely efficient in their work and this rubs off in how the project team operates.

THE ALOOF LEADER

The aloof leader is experienced as unhelpful, unsupportive and uncommunicative. At times they can be seen to be reaping benefits of others' work.

STRICT LEADER

The Strict Leader is highly committed to the task of the research project and expects the same of everyone on the project team. Their expectations are clearly communicated and strive for perfectionism in everything. Deadlines are adhered to and consequences applied if there is failure to deliver.

THE NURTURER

The nurturing supervisor/project leader is experienced as taking an active interest in your development as a researcher. They're interested, supportive, motivating, protective and are good listeners. He/she will offer guidance willingly and even be involved in your work to some extent.

MR NOT-SO-OPERATIONAL

Some leaders will be experienced as being better than others at some aspects of the research project management job. Some stories speak of how leaders, while being excellent at research conceptualisation and analysis, are not so good at the operational management tasks of running a team. In this instance financial budgeting is not thorough and planning processes can be quite relaxed.

3.3   PROJECT TEAM PERSONAS

In addition to the leader personas mentioned in student stories, you will find that your work in a team context and your ability to operate in a team environment is critical to your success as student. It is important to recognise that there is no perfect team, and that you may be required to work effectively within teams of:

- Differing sizes (some may be experienced as too small or too large)
- Focused, singular disciplines while others may be transdisciplinary in nature
- Some will be at various stages of development
- Various backgrounds
- Different geographical locations

DYSFUNCTIONAL TEAM

One of the most common experiences reported by students who have gone ahead of you in this journey is that of the dysfunctional team and the impact it has had on their individual success. The common experiential attributes of a dysfunctional team are that they are: a mess; not functioning; bossy; and disorientated.

FUNCTIONAL TEAM

On the flip side, functional teams are also common and are experienced as:

- Well organised
- Target setting
- Hardworking individuals
- With a sharing culture
- Idea exchanging (a rewarding experience)
- Cooperative
- Synchronised
- Experienced
- Knowledgeable

GREAT TEAMS

There is then a third level of team effectiveness in water research projects, that of "great teams". Great teams are experienced as:

- Helpful
- Supportive
- Listening
- Reliable
- Protective
- Comforting
- Encouraging

Again, these team descriptions are included in this guide to empower you to diagnose the team dynamic you find yourself within. Too often, though, people feel that the team dynamics is emergent and that they are powerless to influence or change the way the team works. Great teams do not just happen. The same is true of dysfunctional teams. There are certain things that members of great teams share and work on at being so good. Those very things are neglected in dysfunctional teams. While you're just one person in a team, your research journey is dependent on the extent to which you attempt to contribute to your team being more effective. Consider what part you can play in shifting the dynamics of a dysfunctional team.

3.4   ADDITIONAL ADVICE

We asked students if there is anything else they would like to share about their experience as a post-graduate student involved in a WRC project that would be critical or helpful advice for future students on how best to integrate into a project team. Here are some of their responses:

- You must be able to get to learn the members and be motivated to see the project through.
- To stay focus and ask help as much as you can from your fellow colleagues who are willing to help. Do not pretend as if you know while you do not. Swallow your pride and ask so that you will get help.
- There is not much else to say other than please understand your role within the entirety of the project and don't let project leaders bully you into doing the entire project from start to finish. They also have their own roles to play within the project and, lastly, just make sure your bursary funding is assured and is secure, as you will end up with the shortfall.

- I would urge everyone to play their role to their level best and yearn for improvement in their performance.
- Being open to your supervisors and project mates can add much value in accomplishing your work than working on your own.
- Keep an open mind at all times and always try to present something during the reference group meetings it will boost their knowledge and understanding of their research topic and it will also assist to fill some gaps in their study.
- Embrace diversity and acknowledge your weaknesses and your need for assistance.

3.5   WRC RESOURCES

- For general information about the WRC visit www.wrc.org.za

- For research opportunities and Terms of Reference documents visit
  http://www.wrc.org.za/Pages/Research_Opportunities.aspx

- To submit a proposal, deliverables or student verification documents log onto the WRC FMS portal at
  https://fms.wrc.org.za/wrcweb/

- Overview of WRC Key Strategic Areas can be found at
  http://www.wrc.org.za/Pages/Research_Overview.aspx

- To search the WRC database (Knowledge Hub) for reports and other publications visit
  http://www.wrc.org.za/Pages/KnowledgeHub.aspx

- To access Water SA articles visit
  http://www.wrc.org.za/publications_watersa.htm

- To access the WRC learning page visit
  http://www.wrc.org.za/Pages/Learning.aspx

- To interact with the WRC, make contact through one of these channels:

  o   Telephone: +27-12-330-0340

  o   Twitter: https://**twitter**.com/**waterresearch**sa

  o   Facebook: https://www.facebook.com/pages/Water-Research-Commission/128752567238553

  o   YouTube: https://www.youtube.com/user/WRC448

3.6   IMPORTANT INFORMATION ABOUT WRC PROJECTS

In this section you will find extracts from the contract entered into between the WRC and your Project contractor. It is important that you familiarise yourself with these clauses.

Clause 8: Reference Group

A Reference Group if deemed necessary shall be appointed by the WRC, after consultation with the Contractor.

The WRC shall have the right to co-opt additional members to the Reference Group in accordance with the needs of the Project.

The Reference Group shall meet periodically during the Project to:

Review progress on deliverables against work programmes and time schedules;

Review work programmes and recommend amendments if necessary;

Assess the quality of the deliverables and make recommendations in respect thereof; and

Consider any matter that may impact on project deliverables, time schedules and work programmes.

Each member of the Reference Group shall sign the Reference Group Member Declaration to ensure, among others, that the confidential information relating to the Project to which they may out of necessity be given access, or receive Disclosure of, is not compromised.

The WRC shall, if required, fund subsistence and travelling (S&T) costs incurred by the members of the Reference Group to attend project meetings, provided that this shall not apply to members of the Reference Group who are also members of the Project team and/or representatives of the Contractor.

Clause 9: Intellectual Property Rights

The Contractor shall identify, record and disclose to the WRC, in writing, all Background Intellectual Property vesting in itself, in Researchers or any other third party involved in the Project, as well as any pre-emptive or other existing rights vesting in any of the above mentioned Parties, which relate to the undertaking of the Project, prior to the Commencement Date of this agreement or as soon as the Contractor becomes aware of the existence of any of the above mentioned rights.

The WRC shall treat the unprotected Background Intellectual Property, disclosed in terms of clause 9.1, confidentially, as requested to do so by the Contractor.

The Contractor shall:

Ensure that the rights to the Background Intellectual Property for the Commercialisation, use or utilisation of the Intellectual Property arising from WRC funded Project shall be on reasonable terms before the Commencement of the Project;

Inform the WRC upon conception of any Intellectual Property or improvements and continuously thereafter of all steps in the progress made in developing such Intellectual Property on a confidential basis; and

At no time disclose any such Intellectual Property or improvement or any information relating thereto, to any person without appropriate protection of Intellectual Property as required by the IPR Act.

The WRC may request the Contractor to delay the proposed presentation, publication, release or submission for a period of 6 (six) months in order to allow for the protection of any Intellectual Property disclosed therein.

The Parties shall deal with all Intellectual Property created within the scope of the Project in accordance with its obligations in terms of the Intellectual Property Rights from Publicly Financed Research and Development Act of 2008.

The WRC may on request assist the Contractor in assessing whether the Intellectual Property merits statutory protection.

It is the responsibility of the Contractor to inform relevant third parties and all Researchers whose Intellectual Property rights may be affected by this agreement, of such limitations, in writing, and in advance of the Commencement Date.

The Contractor acknowledges that in return for the Contract Amount made available by the WRC in whole or part, the WRC reserves the right to publish the results of the Project including but not limited to the WRC Final Report, WRC deliverables, and other WRC reports. Signing of this agreement therefore constitutes a duly executed assignment of copyright to the WRC in these areas.

Clause 10: Commercially Exploitable Intellectual Property and Innovations

The Parties shall notify each other promptly, in writing, of the Commercialisation potential or Intellectual Property Transactions in respect of Intellectual Property and innovations.

The Parties may collaborate in the protection and Commercialisation of the Intellectual Property and other innovations and the conclusion of Intellectual Property Transactions. The Parties will enter into a separately negotiated written agreement defining the relationship, roles and responsibilities of the WRC and the Contractor in said collaboration, which shall, be in accordance with the WRC's Intellectual Property Policy and applicable statutory provisions.

The Commercialisation of the Intellectual Property and the conclusion of Intellectual Property

Transactions shall be subject to:

Acknowledgement of the WRC's contribution;

The WRC's obligation to disseminate Scholarly Disclosures and research reports in terms of clause 11 below;

Due consideration of the public interest and other legal obligations; and

The Intellectual Property Rights from the Intellectual Property Rights from Publicly Financed Research and Development Act of 2008.

Clause 11: Disclosure & Publication

For the duration of the Contract Period and for a period of 2 (two) years after the finalisation of the Project the Contractor shall furnish the WRC with all articles or papers relating to the Project which they wish to present at conferences, symposia or at national, regional or international professional meetings, and/or to publish in journals, or to submit the methods and results in theses or dissertations, or in other formats of their own choosing at least one (1) month prior to any such presentation, publication, release or submission, in respect of which the WRC shall be entitled to comment. The WRC shall furnish the Contractor with its comments and/ or suggestions within 15 (fifteen) days of receipt of the draft paper.

The WRC shall be duly acknowledged as the full or part funder in any publication, presentation, release or submission for its funding and support in realising the methods and results of the Project.

In the event that the WRC establishes the terms of reference for any research project, the WRC shall be duly acknowledged for its role in initiating and directing the research.

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