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Student Engagement In Low-Income, High-Stress Learning Environments

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by

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Signed:

Signed by candidate

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Graduate School Of Business

Masters Of Philosophy in Inclusive Innovation

Student Engagement In Low-Income, High-Stress Learning Environments

by Bradwin Sitzer

Abstract

This study analyses the level of student engagement at youth skills development organisations which are situated in low-income, high-stress communities. It asks the following questions: What motivates youth to be engaged in their learning environments? What are youths reporting on experiencing while in the learning environment? How might we use this data to help us develop the skills of the youth better? Through capturing a day in the life of youth from a cognitive, emotional and contextual point of view, we are better able to understand what drives youth to learn and achieve. Eight themes were identified which influenced the students to be highly engaged according to Flow Theory. An important context to be taken into account in the design of learning environments for youth is the psychological impact of living in a high-stress community. An emergent case for self-managed Flow is presented, where students drive and hold themselves accountable for high levels of engagement around the eight themes.

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1 Introduction

1.1 Research area and problem

The quality of education in South Africa is increasingly under scrutiny as an enduring education crisis compounds unemployment and economic stagnancy. In the South African Bill of Rights, it is stated that everyone has the right to basic education, including adult basic education (Republic of South Africa, 1996). The United Nations Educational, Scientific and Cultural Organisation (UNESCO) states that access to *quality* education is a basic human right for each child and citizen (UNESCO, 2018). The education crisis in South Africa, Africa, and the world is common knowledge. A World Economic Forum report ranked South Africa 139 out of 143 countries for overall quality of education. In Maths and Science, South Africa ranked last (WEF, 2016). The ratings are the result of a survey of the perceptions of business leaders. In the case of South Africa, 50 leaders contributed to the survey in 2015 and 44 in 2016. These and similar other publications exposed by the media causes widespread debates and complaints from the public such as this excerpt from The Conversation which states: *"It is perhaps somewhat understandable (albeit shocking) that recent research shows that the strongest of South Africa's Grade 6 learners achieve higher scores in standardised mathematics tests than the weakest of South Africa's Grade 6 teachers."* (Rusznayak, 2014).

In South Africa, primary school children typically enjoy going to school, positioning primary schools as sites of positive learning and youth engagement. The International Survey of Children's Well-being indicates that children between the ages of 8-12 years in South Africa (all surveys were done in the Western Cape) are relatively happy with their school experience in comparison to those of children of similar age in 17 other countries (Savahl et al., 2014). This was strongly influenced by the children's reported enjoyment of socialising with friends and the safety of being at school. For students from low socio-economic status communities, it was also when they received their only meal for the day, through school feeding schemes.

In a Gallup study in the United States and Canada, an opinion survey shows a dramatic decrease in the engagement of students from Grade 5 (74% reported to be engaged with school) to Grade 11 (35% reported to be engaged with school), as they approach high school graduation (Calderon, 2017). With the high drop-out rates of youths as they approach Grade 12 in South Africa, the above trend is consistent with what is experienced in South Africa (Weybright, Caldwell, Xie, Wegner, & Smith, 2017). According to the South African Institute of Race Relations, unemployment is the most severe unresolved problem in South Africa, with education the sixth most important issue (South African Institute of Race Relations, 2017). The direct correlation between employment and education is a common topic of discussion. It is, therefore, concerning that, from the perspective of the child, there is a decreasing level of engagement with the school as they progress towards high school graduation.

Many youths leave the government provided education system with the minimum required qualification to access most jobs, a Matric certificate. Despite this, most are unable to find employment. This is in a context where according to the National Treasury, approximately 15% of South Africa's budget is spent on mainstream education (National Treasury, 2017). This is a greater proportion of the total budget than compared with the United States and the United Kingdom. The lack of candidates for jobs has led to various entities to call urgent solutions to make South African youth more employable (Robertson & El-Agamy, 2017). An important road to youth being 'more employable' is if they have acquired the necessary character traits and skills to perform in the workplace. To acquire these, one needs learners to be engaged in the learning environments they frequent. The government spends so much money on primary and high school education with the

intent to prepare them for tertiary education or jobs. Despite this, the students are leaving government schools with a huge gap between what they know and their skills and what they will need to succeed.

When adults start working, their main drive and passions are usually kept outside of work hours, as work itself is still seen as a necessary means to an end: their salary. Globally, only 13% of employees across 142 countries consider themselves to be engaged at work (Gallup, 2013). In high-stress communities where material deficits are common, work may have even less to do with personal aspirations and more to do with material gains (salaries and material resources). Many youths in South Africa, would already have experienced poor primary and high schooling conditions when they matric. The process of educating youth for employment seems to be broken. There is a chasm between the high levels of learner engagement at primary school and the diminishing engagement at the end of their schooling career. In this case, the end seems to nullify the means. This diminishing engagement at the end of their schooling career begs the question: Are there any lessons based on research that educational and workplace organisational policyholders at a state, corporate, and non-government organisational level could employ to improve the state of engagement in learning environments?

This study draws from the fields of organisational development and organisational psychology for improving the engagement of the students. The study explored to what extent students were currently feeling while they were engaged in the learning process. The nuances of these feelings and experiences revealed what learning environment designers could do to create a space where students are highly engaged in the learning journey. The research focused on two youth development centres in the Cape Flats, a low-income and high-crime geographical location in Cape Town, South Africa.

The study also consists of a review on the existing literature on what motivation strategies for personal change and on the realities of low-income, high-crime communities.

A major constraint that these youth development centres work within is the quality of schooling most children receive during primary and high school. In recent years, the Matric pass rates have been lauded by the government, the public school sector and in the press. However, there has been intense and valid criticism by organisations such as Equal Education regarding the amount of emphasis the citizens of South Africa should place on obtaining a Matric (Equal Education, 2017). With this overemphasis in mind, the Matric results paint a vivid picture of the gap in educational attainment that has not improved over the last few decades, despite the statistics on Matric pass rates.

Matric pass rates in public schools in low-income communities are almost 20% lower than that of public schools in affluent communities, as shown in Figure 1 below. Also, the few private schools in low-income communities are struggling to perform as many of them are relatively new in operation. As Matric completion is a requirement for most tertiary studies, many people living in low-income communities do not progress to attain jobs that require qualification from tertiary institutions. Therefore, there is a disconnect between youth living in low-income communities reaching their dreams and the reality in which they find themselves.

2014	Low-income community	Low-income community	Affluent community	Affluent community
	Public school	Private School	Public school	Private school
Matric pass rate	76.8%	55.45%	96.4%	98%

Figure 1-1: Matric (Grade 12) pass rate in 2014 of public vs private schools across a range of socio-economic community profiles in South Africa in (Department of Education, 2014).

Middle -class students in Cape Town were found to experience a significant disconnect from their lived experience in their communities and the school knowledge and behaviour expectations they had to succeed in. This disconnect is most rooted in the differences in the culture and knowledge practices of home versus school. Fataar suggests a bridge between the two pedagogies (that is, home and school) to meaningfully engage working-class students such that they believe that school is in their interest and meant for them (Fataar, 2012).

Technology trends

The uptake of mobile technology usage has been widely reported across all areas of life. StatsSA conducted a nationwide community survey in 2007 (Lehohla, 2015). This was in comparison to data in the 2001 Census. The census found that in the Western Cape, from 2001 to 2007, there was a 30% increase in the proportion of households that had a cell phone. For the whole of South Africa, the figure was just over 40%. This rise in cell phone usage in households is in sharp contrast to the general restriction of personal technology devices for learners in schools. While it might be argued that the reasons for these are well-intentioned, it still creates a highly controlled environment which should be noted. The contrast is that the trend has been that children in the first four years of their life spend a significant amount of time on mobile devices, this before even entering the schooling system (Kabali et al., 2015). With this early exposure, research reports across the globe have shown that mobile devices have been a phenomenon amongst teens and young people than the originally intended audience of working adults (Ling & Haddon, 2008). The South African education departments have been slowly changing their approach with the rollout of technology at schools in South Africa (ITWeb, 2017).

As research around human interaction with cell phones starts to mature, more research around the subjective view of youth interaction with their devices has been coming out (Jones, 2014). In South Africa and Africa, however, more research is needed.

Researcher motivation and positioning

A significant reason for my focus on this research is my upbringing and how it affected my success professionally and personally. I remember growing up that I had this self-belief that I would be able to achieve my dreams. Not everyone I knew had this self-belief though. There are many social factors that would influence my drive to flourish in life and other factors that would prevent some of my peers from succeeding. Looking back, I realise that there are a few fundamental elements that need to be looked at and understood better for effective change to come about. My experience is in line with previous findings of the key root causes of youth unemployment. Yu concludes that, *“...one of the most important long-term solutions to reduce youth unemployment is to reduce the size of the lowly educated youth labour force, by improving the school resources and quality of education (especially the formerly black schools), increasing the enrolment and passes of mathematics and science and reducing drop-out before Matric.”* (Yu, 2013).

At the end of my final year at high school, of the group of more than 300 learners who matriculated with me, fewer than 20 of us made it to university That is a 6.6% enrolment rate for university studies. This was the norm for the area in which I lived and in other neighbouring low-income communities. After graduating as an electrical engineer at the University of Cape Town and working at a few multinational companies, I discovered my passion for developing others. I enjoyed seeing other people flourish in an environment I had assisted in creating. In my eight years in the corporate

sector, working for multi-national organisations, I have always enjoyed creating learning environments for others. Most of the time, creating these learning environments was not part of my job requirement but a natural skill and passion. To further enable my ability to better develop others more holistically, I obtained my certification in Life Coaching through COMENSA (Coaches and Mentors of South Africa). This was in the greater pursuit to better understand what motivates people to flourish in a similar way as I was able to.

While growing up in Mitchell's Plain, I dreamt of becoming successful, which, at the time, I equated with acquiring a certain status and material possessions once a grownup. I had three goals written down in one of my primary school books:

1. Become an Electrical Engineer
2. Own a big house
3. Own a Lamborghini Diablo

I have to confess that I've only achieved the career aspiration (depending on your definition of "big house"), a career I left after just eight years as a young successful Electrical Engineer. I would say from experience that these types of aspirations are the norm for many children growing up regardless of demographic.

It is important to note these biases that the researcher carries into a social research topic like this. In a book on qualitative researching, Mason argues that it is only once a researcher recognises that the perspectives of others could tell different stories, does the researcher realise their own ontological stance of the world as a position,

"rather than an obvious and universal truth." (Mason, 2017).

In light of this then, a process of understanding the ontological views of others will be undertaken.

Business Model

The appendix at chapter 12 includes a business model which explores what a practical application of this research would entail in addressing the education issue in South African low-income communities. The business model is a requirement of the MPhil, to demonstrate and explore what the practical value of the research outcomes might look like.

1.2 Research questions and scope

The Research Questions

1. What were the key themes that resulted in the highest student engagement experiences?
2. What was the relationship between the high student engagement antecedents and the level of engagement reported by the students?

Research assumptions

Key assumptions include:

- The research method was appropriate for the Cape Town low-income, high-stress community context.
- The theory applied as the research method was the most useful theory to use, to better understand the type and level of engagement of students in learning environments in low-income communities.
- The organisations approached would have been able to accommodate me in performing this research with its students.

1.3 Purpose and Objectives

The purpose of this research is to explore how youths develop in learning environments. The intention is to find strong themes that evolve at institutions which are considered excellent learning environment creators by their communities. These learning environments would be focused on the growing post-secondary education age group. For a contextual understanding, it was important to review what the literature said about the failings of mainstream education. Understanding these failings is important as most of the youth at learning environments post-secondary schooling are from these mainstream education systems.

Through understanding the student experiences more deeply, the intention was that it would lead to recommended actionable steps to improve the level of engagement that students (and youth overall) have with education and skills development.

A process was undertaken of understanding the landscape of student engagement to-date in South Africa and globally; through data collection as to what is happening on the ground in a specific geographical area in Cape Town.

A blend of data collection methods has been carried out. These include interviews, surveys, as well as researcher observations, which were conducted over four months. Specific themes emerged through the rich data amassed from these various data collection methods and are explored in the Research Findings section.

The focus is on the nature of disenfranchisement and sub-standard education conditions in certain communities. Because of this deficit, this study focuses on learning environments in centres for post-secondary education in communities where high-quality education facilities are not found. These learning institutions will likely also increasingly look to leverage technology and/or entrepreneurial focus as major opportunities and needs in the country.

High-school graduates and those seeking jobs are those typically from 18 and up. According to the South African constitution, youth is regarded up to the age of 35. For this research, research participants would be between the ages of 18 and 30 in learning institutions situated in low-income and high-stress communities.

With this lens, it was found that the organisations well suited and thus selected to be the primary research participants are the Sozo Foundation and RLabs. Both organisations signed a formal agreement to partake in the research. Their learning environments are unique from the traditional learning environments of the secondary and tertiary public education level.

The Sozo Foundation and RLabs serve students who are mostly from low-income communities in the greater Cape Town, South Africa context. These young people have their own set of challenges as many of them would have come from (or dropped out of) sub-standard or dysfunctional schools.

2 Literature Review

2.1 Conversants

Overview:

Because of the intricacies of this topic, the literature review section will explore two areas. The first is how the effects of a low-income area affect a learning environment, and the second, how theory and strategy for student engagement can help overcome those disadvantages. Learning environments, and schools, in particular, will be reviewed from during the Apartheid era till current day, with a focus on the experience of these environments from different perspectives. This will also take into consideration the technological influence of the digital age. During this time, the transition from the industrial age to the digital age has impacted these communities and will continue to do so as digitalisation gains more momentum. The research will also look at the influences that the past decades have had on education, particularly in South Africa and what predictions look like for the future by various experts.

In this literature review, there is a focus on the impact of crime on its people in low-income, high-stress communities, and what those terms mean. This review explores the impact of low-income communities in Cape Town considering Apartheid, post-Apartheid, and future design considerations and their impact on learning environments.

The main focus being around student engagement and what that means, and how it gravitates to the main conversant, Mihaly Csikszentmihalyi, was reviewed. He developed the term Flow Theory through the feedback from people he interviewed to find out what engaged people, especially in a work and home context (Csikszentmihályi, 2012). From the 1970s to the present day, Csikszentmihalyi has been researching to understand what the key factors are to obtain optimal engagement. The term "Flow", according to Csikszentmihalyi, comes from the many people he interviewed who relayed this state of high engagement as being "Conscious Flow" or in "Flow" or a "Flow experience." (Csikszentmihályi, 2012). The term "Flow" therefore comes from the interviewees because of the empathetic nature of the theory. This research will refer to the heightened engagement experience as being in Flow.

There are various lenses through which learning environments could be examined. According to Brydon-Miller, constructivism is a paradigm that is the act of creating knowledge in their own experiences and viewpoints and within their context (Brydon-miller, 2019). My research has looked at the experience from the point of view of the students to highlight what was happening at two youth-focused learning environments during the 2016 and 2017 period in Cape Town.

Learning Environment Design

Learning Environments is defined for this research is any environment in which learning takes place. This is regardless of the physical location, context, materials, and the students themselves. The learning environments focused on in this study are technologically focused learning environments for learners who are older than 18 years old. Due to the study being mixed (both quantitative and qualitative), this study gives a seemingly more accurate subjective account of the learners' experience owing to their supposed level of maturity over primary and high school learners. A component of 21st-century learning environments is technology. An African-wide focus is to increase the accessibility of digital equipment in learning environments especially considering the so-called "fourth industrial revolution" which the World Economic Forum in collaboration with many global organisations, is driving through a project called "Internet for all" in South Africa (World Economic Forum, 2007).

For the literature review, an examination is done on the existing education system in South Africa. The primary and high school system is substantially larger than the higher education system.

According to the Department of Higher Education, over 31.2% of the South African population's youth (between the ages of 15 and 24) are not in any form of employment, education and training (NEET) (Department of Higher Education, 2017). According to this report, 66.5% of youth in South Africa, drop out during high school or fail to continue into employment or any education or training after obtaining their grade 12 certificate. The schooling system forms the majority of activity, including teachers, youth, and supporting staff to keep the entire post-secondary schooling system running. Because their thinking will be framed around it, it is essential to understand the primary and high school education system to help youth in post-Matric skill development. Also, the supply of teachers in post-Matric skills development programmes would accordingly, largely be from public schools, directly from higher education teaching accreditation graduation or internally from the institution. The review will also explore the culture of the schooling system as it influences the experience at higher education as universities struggle to assist students in continuing their learning journey due to insufficient preparation in schools. The view is that the comparison of the public schools' context in the literature to the field research of post-Matric skills development organisations will highlight opportunities. One such opportunity is how institutions in low-income communities could enhance the learning experience for their students.

2.2 Student Engagement

Student engagement has been defined as a

“student's psychological [mental, cognitive, emotional] investment in an effort [behaviors] directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote.” (Lamborn, Newmann, & Wehlage, 1992 p.12).

The multidimensional nature of psychological investment can introduce quite a bit of complexity and debate. In comparison, Astin's paper on Student Involvement Theory concludes that involving the student in different facets of college life, has a strong correlation in their overall development in terms of going on to do honours and postgraduate programmes. Astin's idea is substantially simpler in concept. Astin's involvement areas include extra-curricular activities and even whether a student lives at a campus residence or commutes into college from home. Astin uses involvement and engagement interchangeably (Astin, 1984). In the paper, student engagement is defined as student involvement in the learning process. Student engagement is generally considered to have a strong correlation of learning. Engagement also varies depending on the context. Hence, the classification between disengaged (that is, very low engagement) and high engagement. The higher the engagement, the more likely learning will happen. Fredricks, Blumenfeld, & Paris point to the nuances in student engagement. The research found that student engagement has three types. That is, behavioural, emotional and cognitive. It also concluded that of the three, cognitive engagement is the most difficult to measure (Fredricks, Blumenfeld, & Paris, 2004). As student engagement research and practical considerations continue to grow, these new depths of research will strengthen our understanding of its complexities.

The level of student engagement at which one can focus on one's development journey plays a crucial role in connecting the students' daily lived experience and their future personal and career aspirations. In search of the literature for what motivates people to high levels of engagement, frequently referenced was Flow Theory, first coined by Mihaly Csikszentmihalyi in the 1970s. The research of Richard Ryan and Edward Deci in Self-Determination Theory states that our current understanding of motivating others through extrinsic rewards is wrong and that a more intrinsic reward focus is needed. Intrinsic motivation in this case meaning motivating and connecting with something internal to or inherent within an individual. This intrinsic motivation is especially

necessary for tasks that require more than a rudimentary skill set (Ryan & Deci, 2000). Flow Theory has emerged as a Eudaimonia branch of positive psychology (Boniwell, 2006). Csikszentmihalyi states that Flow is an optimal psychological state that people experience when engaged in an activity that is both appropriately challenging to one's skill level, often resulting in immersion and concentrated focus on a task. This immersion and focus can result in deep engagement and high levels of personal and work satisfaction. These are not an objective reference but rather a subjective reference of the experience by the individual. Csikszentmihalyi particularly looks at the autotelic nature of individuals who experience flow. Autotelic, is broken down into "auto" which means self and the Greek "telos" which means "end." So autotelic experiences, according to Csikszentmihalyi are where the person is highly engaged in an activity for the sake of the activity itself with only (or mostly) an intrinsic motivation (Csikszentmihályi, 1997).

Below is Figure 2.1 showing the Flow antecedents, Flow experience (focused on in this study) and consequences.

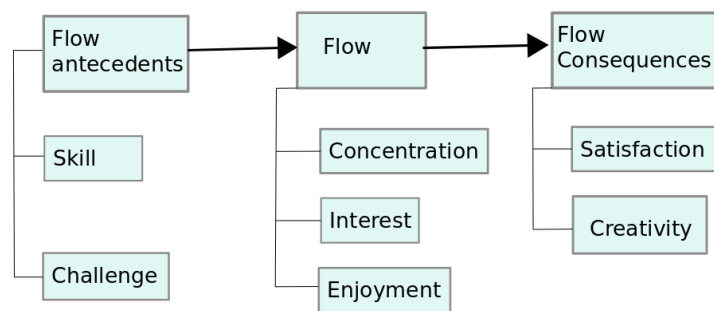


Figure 2-1: The Flow antecedents of skill and challenge that results in Flow, defined as concentration, interest and enjoyment which results in the post-experience of Flow consequences examples being satisfaction and creativity (Csikszentmihalyi, 1997).

Jane McGonigal, the first person globally to submit a PhD about the effects of electronic gaming on the human mind wrote a research paper highlighting the positive impact that engagement in video games can have (McGonigal, 2015). These and other researchers cite Csikszentmihalyi's Flow Theory in matters relating to what engages and motivate people. For this research, Flow Theory appears to be the best fit to better understand the experiences of the students in learning environments.

During much the same period when Csikszentmihalyi was developing the concept of being in Flow, Abraham Maslow also acknowledged a similar state of "high engagement" in many of his works (Maslow, 1943). Csikszentmihalyi references this in his work saying,

"Based on his [Maslow's] clinical observations and interviews with individuals he considered to be self-actualising, including creative artists and scientists, he concluded that the processes of growth resulted in fulfilling, peak experiences." (Csikszentmihalyi, 1997).

Of the three types of engagement mentioned previously, that is, behavioural, emotional and cognitive, Flow theory has been positioned mostly in the emotional engagement type (Fredricks et al., 2004).

Based on the following research areas, this can be challenged that it encompasses all three areas:

Flow in sports

In research done with Susan Jackson titled Flow In Sports, Csikszentmihalyi and Jackson look at the role of flow within various sporting codes. The research argues that Flow is most readily evident in sports due to the nature of sports, that is, having clear goals in the aim to beat the opposition and immediate feedback in referees and the actual score itself (Jackson & Csikszentmihalyi, 1999).

In Figure 2.6 below, are the resulting data from responses from more than 800 representative adolescents ages 11 to 18 years in their study. The X-Axis represents the seven areas participants had to rate themselves on. That is, mood, involvement, wish (how much they wanted to be doing the activity), challenge, skill, enjoyment, and Flow. Each of these seven ratings was for the three activities the participants engaged in, that is, Sport (Blue line), Academic activities (Orange line) and Watching TV (Yellow line). Each participant would, therefore, rate on each of these seven aspects of experience based on the three activities they were doing. Based on this data, it shows that sports are shown to rate higher than academics and watching television when it comes to experiencing flow. Sport is shown to relate higher than both academics in all facets of engagement. The wish and enjoyment of TV watching are shown to be higher than academics but not higher than sport. For achieving Flow, watching TV is shown to be a very low medium. These comparisons also highlight the need to look at various aspects of the student experience in everyday life. TV watching is not part of any skills development programme or education facility (unless educational). However, significant inferences could be drawn from better understanding student engagement in these areas of everyday experience. In lieu of our learning environment focus for this study, this data suggests that sports are a great reference and comparator to use in creating a flow friendly environment. The data also suggests there is a great opportunity to create a learning environment in which the students can achieve flow.

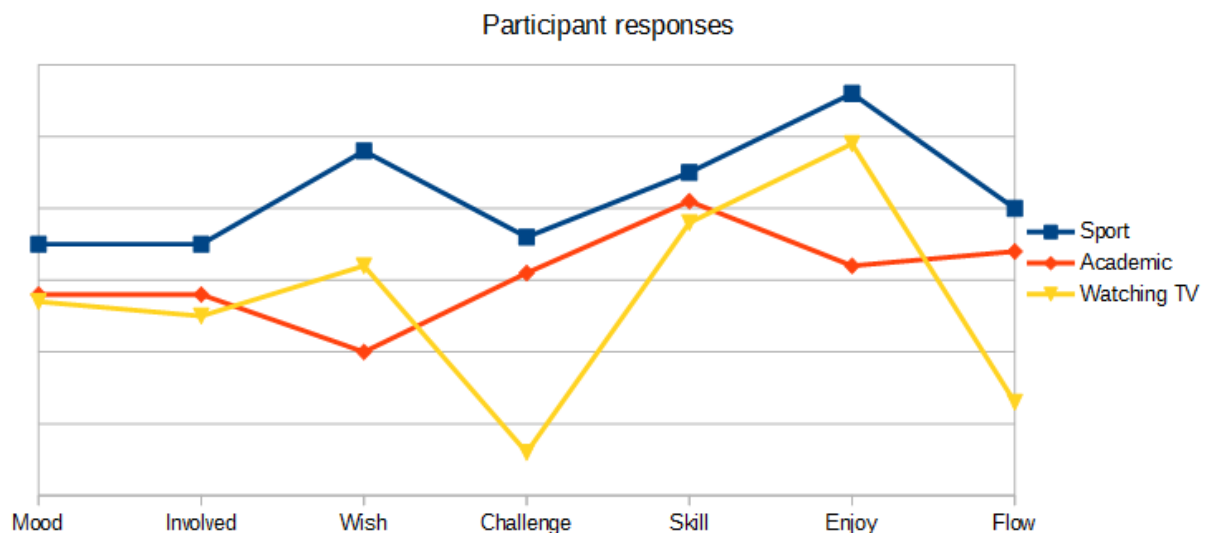


Figure 2-2: Averaged Participant Responses to Three Activities Based on Seven Criteria. This showed how participants gained the least engagement in watching TV (Jackson & Csikszentmihalyi, 1999).

Flow in learning environments

A growing body of knowledge, some of which will be discussed below, is focused on Flow Theory in different applications of learning. Many researchers are intrigued by Flow Theory and therefore overlay it with their areas of interest.

Flow is challenging to apply in conventional public schools in the United States, however, some private schools have implemented Flow Theory directly into their model. Schmidt found one such school was the Key Learning Community School in Indianapolis where the school intentionally focused teachers to design the learning environment based on the experiences of the learner. The learner would themselves also play a key role in designing the learning experiences. Many of the learning methodologies employed were project-based learning (Schmidt, 2010). The core ethos of

the school was that of *Multiple Intelligences*, a theory for a learning strategy written by Howard Gardner (Gardner, 1999).

The Multiple Intelligence Theory states that outside of the conventional "academic intelligence," which is the main one which traditional schools focus on, there are others as well. These range from creative intelligence to inter-personal and intra-personal intelligence. People are more inclined to develop specific 'intelligences' than others. To date, there are nine intelligence types recorded by Howard Gardner and are likely to increase. The challenge and the perceived skill level were key determining factors in the learner experiencing Flow, but these were not the only factors. Other important factors were autonomy and choice of activity, regular and frequent feedback, as well as environments designed to enable focus and concentration. While all of these are not always possible, the school values were for the teacher to strive for it where ever possible.

Total autonomy and choice of the task might hardly be possible unless the school employs Self-Directed learning methodologies. However, choice within a subset of options also helps the learner feel empowered to some level of decision making. The blend of academic, theoretical tasks and practical, application-based tasks is highly recommended by Flow Theory. What was found was that learners more easily went into a Flow experience while engaged in a practical task such as painting, sports, or any creative element. Because each child has their own learning strength it, therefore, makes sense to combine these and other strategies in line with Gardner's *Multiple Intelligences*. Improving the understanding of Flow experiences in learning environments requires an ever-improving understanding of how to capture the emotions of teachers and learners at certain critical moments of varied experiences.

In a book titled, *Methodological Advances in Research on Emotion and Education*, Zembylas and Schutz emphasise the need to make time to capture these emotions through the instrument for data collection. The ability of participants in any research endeavour to self-report is also important. The self-report would need to be

"aligned with real-time measures of expressive behaviour and physiological processes." (Zembylas & Schutz, 2016).

Their research notes that there is a lack of appropriate data collecting instruments in which to collect the necessary data. The instrument should be relatively easy in use so that data collecting does not inconvenience the teacher and learner. The balance is that it also needs to collect the right data reliably. Flow Theory devised the data collection method called the Experience Sampling Method, discussed in the next chapter, which aims to achieve that balance in collecting data to gain a better understanding regarding the flow experiences for individuals to further measure when and where it is happening.

Shernoff et al., reviewed Flow Theory in a high school setting to determine the subjective states of the learners' experiences. In this study, 526 high school students across the US were sampled to investigate their time in high school and the subjective experience they had through reporting of various levels of engagement. This was a quantitative study where the students were required to fill out a survey sheet when a watch beeped. The study aimed to see under what conditions specifically do the students experience Flow and how do they report flow. The researchers found that a third of the time spent was listening to lectures watching instructional videos and some sort of passive information transfer to the students. Half of their time was taken up doing activities that engaged the students at least some of the time such as doing homework, taking notes, studying, or writing an exam (D J Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003).

Only 14% of the time was found to be engaged in individual work or interactive discussions such as group work or classroom discussions. The research also found that students had very little to no choice in what activity they were to do.

"These findings collectively suggest that student disengagement may stem from a lack of challenge or meaning, which was reported to typically occur in the lecture format (i.e., teacher-initiated instruction)." (D J Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003).

Based on their findings, the researchers recommend that teachers focus on creating experiences for students that are both challenging, as well as creating positive emotions (such as enjoyment and interest). The researchers found that generally, these two experiences are mutually exclusive in classrooms. For example, exams are challenging but not enjoyable. Watching videos and demonstrations are enjoyable and interesting but do not require much expertise on the student's side. Individual and group work were the two recommendations where, if planned correctly, the teacher could influence both challenge and positive emotions in the student. Lectures were the one activity that was strongly discouraged as the research showed a decline in interest and engagement from the students.

In line with these studies, previous research has shown that up to 50% of children in the school find class boring (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Learning Environments that have the intention of engaging students with the necessary resources available have proven to be successful in their intention. Simple pedagogical tweaks are shown to be an opportunity for those learning environments which are currently not engaging their students to do so.

Enabling high engagement experiences as a strategy

In all contexts, Flow Theory argues that when the individual is in Flow, they are totally engaged with the matter at hand and experience high levels of enjoyment, concentration, and focus. Importantly, these are subjective measures and therefore rely on the individuals' feedback (Csikszentmihalyi, 1997). Based on the above literature, Flow Theory presents an opportunity to create a learning environment in which learners are highly engaged in learning to the extent of optimal enjoyment, interest, and concentration. The learning environment then becomes a place where the learner wants to be engaged in autotelic activities rather being forced to be there for a future purpose of obtaining a credible tertiary achievement leading to a prosperous career with the hope of living a fulfilling life.

Flow Theory intends to show that a fulfilling life can start, here and now.

One UNESCO consultant found many schools hidden away in the slums of a few countries in Asia and Africa, where the school was thriving with little or mostly no support from the government (Tooley, 2009). These private schools primarily in the slums of India, Nigeria, and Ghana, operated on a very tight budget, mostly from the homes of community members wanting a better education for the children of the community. The public schools had a decent infrastructure in comparison. The problem with the public schools was found to be the government administration, the motivation of education department staff members, and the overall work culture. For example, one of the greatest problems that parents reported they had with the public schools was teacher absenteeism. They chose to send their children to the private schools situated in dilapidated buildings as they could see progress in their children's education level. The teachers at the private schools often did not have formal teaching qualifications. Under these extreme conditions where bricolage is required, these schools were found to deliver a high level of education where children went on to attend universities, often the dream for most parents in these schools (Tooley, 2009).

Tooley found that it bodes well to develop inclusive models for designing schools from the bottom up due to the diversity of the countries where these themes were consistently found. Their research found that these were financially highly constrained environments that still made education work due to very high motivation of the owners of these institutions. From the lens of Flow Theory, the owner of the school (who is often the principal), teachers, as well as learners, experience Flow due

to a few factors. These factors would include autonomy, the teachers are not bound to a restrictive curriculum and pedagogy. The owners of the schools with the teachers were reported to mostly be from the surrounding communities of these schools, so there was a high level of relatedness between teachers and students. Therefore, social challenges were better understood intuitively. The challenge of educating the children was very high for the teachers. According to the Tooley, it was apparent that the teacher was highly motivated to succeed, that is, a high level of perceived skill. Even in these financially constrained environments, many of the schools surveyed awarded bursaries to the poorest families. This created a sense of purpose where the community rallied together to ensure the success of the school (Tooley, 2009). In consideration of Flow Theory, this purpose can contribute to experiencing Flow (Csikszentmihalyi, 1997).

Creating conducive environments for high engagement to happen

The learning institution that the student is a part of, naturally only has a limited impact on the success of the learning journey at the institution. The home life of the student and especially in relation to their parents or guardians will have a much greater role in the ability of the student to have Flow experiences. While engaging with the home life and the parents are out of the scope of this research, it is not out of the scope of the business model in the appendix. It is important to note here as the efforts at the learning institution, albeit important, are not the only efforts impacting the student's ability to learn. Research by Steinberg et al., done in the Child Development Journal looks at the impact of parental style on high-school students. It demonstrated that student achievement was associated with greater parental encouragement. High school students had better academic outcomes where they described their parents as authoritative compared to their counterparts from non-authoritative homes. This was over a 1-year study period, and the study was found to cut across sex, age, and social class groups, but not across ethnic groups. The study also found that parental involvement through behaviours such as attending school events and helping with student decision making processes and accountability of school results was found to play a strong role in student academic achievement and engagement. This was compared to parental encouragement of academic success of students which was found to not play a direct role in student academic achievement and engagement (Steinberg et al., 1992).

Student Engagement in relation to their emotions

In a three-experiment study, done by Wicklund and Duval, the experiences of being audio-recorded, video-recorded, and self-observation in a mirror were used to evaluate what these increased self-awareness practices had on the participant's behaviour. In the first two experiments, the study found that when the participants knew they were being audio or video recorded, that they were significantly more prone to change their current point of view and be open to another viewpoint. This likelihood increased if they observed a recording of themselves either via audio or video. The likelihood was less likely if the participants were watching a recording of someone else. In the third experiment, participants who self-observed in a mirror objectively engaged in performance facilitation significantly more than those who did not. This exploration implies that objective awareness can have a notable impact on behaviour (Wicklund & Duval, 1971). These findings could also have an impact on the level of receptiveness to new ideas from the students and importantly, self-management of the process of ongoing improvement. A student needs these types of skills to increase engagement.

A study by Baumeister et al. looking at emotions as a feedback loop and not merely as a causal relationship to behaviour also has important considerations as we look at student engagement. This study opens the discussion for the consideration that emotions serve as a feedback mechanism into our cognitive control of behaviour. These past situational experiences drive a decision-making process where one decides what the most desirable emotional outcome would be. This cognitive control is based on the emotional feedback into a memory repository and the research suggests that

it is the driver of the behaviour. In the case of behaviour based on highly emotional situations, it is offered that this is a sign of a less evolved state of emotional control, more akin to that of a child. As someone adapts and grows in emotional intelligence, they are more likely to utilise their emotions as a feedback loop (Baumeister, Vohs, DeWall, & Zhang, 2007).

As with the Wicklund and Duval study, this then makes a case for the need for an objective framing of self to facilitate self-development. This objective viewing then becomes part of the strategy for students to seek to understand better and self-manage their personal development as there is an increased sense of ownership. A sense of purpose and belief that the challenge and skill required are both at optimal levels are classic Flow Theory requirements. By creating these objective self-awareness opportunities in the learning environment, students are then more inclined to achieve Flow experiences.

Cognitive framing and Self-talk

In 2004, Cleveland clinical physiologist Guang Yue wanted to know if purely using mental energy without performing physical exercises would result in actual strength building of specific muscles. Thirty young study subjects were placed into four groups. The first group did mental exercises for the little fingers, the second group did mental exercises for the elbow, the third group did no exercises (the control group), and the fourth group did physical exercises for the little finger. They did this for 15 minutes a day, 5 days a week for 12 weeks. The control group showed no significant changes. The group that did physical training showed a 53% increase in strength. The finger and elbow mental exercising groups showed a significant increase of 35% and 13.5% respectively. The conclusion then is that through the mental exercises, there is a neurological stimulation that drives the muscles to higher activation levels and thus increases strength (Ranganathan, Siemionow, Liu, Sahgal, & Yue, 2004).

These neurological findings can have an impact in the classroom too. Doing the right mental exercises can help students activate the same neuro-pathways as during examination time. Davidson's study looks at how such mental practices could be tested within the education sector. With the results of its success in the physical training sector, the understanding of how the brain is able to adapt over time through its plasticity and is not a static organ, it lends itself to suggest that such tactics could be employed in the realm of self-control and academic success for children as well (Davidson et al., 2012). In light of these research findings and recommendations for future research, opportunities exist to engage students at a higher extent through simulated mental exercises for physical and academic development.

Bias in learning environments

A study was done which looks at the impact prejudices and overall stereotypes have on women when doing Math's tests (Spencer, Steele, & University, 1998). The three tests conducted were:

1. Men and women writing one easy test and one mildly difficult test.
2. Men and women writing two tests. In the first test, they were told that the test showed no real differences between the ability of the two genders. In the second test, they were told that it indicated a difference in the ability of the two genders.
3. Men and women wrote two tests. The one test they were told produced no difference in the results between the two genders. In the other test, nothing was said.

When the test was easy, no real differences were found. When the test was moderately difficult, then the men's results were significantly better than the women.

When the groups were told by a man that the test results showed gender differences, then men did significantly better. When nothing was said, men also did significantly better. Only when the groups

were told that normally, the results showed no real gender differences, were the results equal. Steele has also done related studies exploring the impact of stereotypes of the different races and has found similar results which perpetuate the stereotype of the perceived dominant demographic (Steele & Aronson, 1995). This study explores the benefits of how the teacher/facilitator in the room can have a tangible impact on the performance of the students, especially if they relate to the students, notably in terms of demographics. Lastly, it shows the impact that words can have on performance. Only when it was explicitly expressed that gender/race/etc. had no impact on performance, were there no significant differences in performance.

Learning Experience Design

In the non-academic sectors but the business sector, the Learning Experience Design (LXD) Methodology, first coined in 2007 by Niels Floor, focuses on the design of the learning experience (Floor, 2007). One of the significant issues in the current findings in the literature review is the teacher-centric nature of the current learning environments. With LXD, the learner is the primary focus in the design process. Figure 2.3 below shows a graphical positioning of LXD in the broader landscape of methodologies. The Business Model Canvas (Strategyzer, 2017) has been popularised in the past few years and adapted to other methodological frameworks. The adaptations of interest are the Flow Canvas developed by Christoff Oosthuysen (Oosthuysen, 2015) as well as the Learning Experience Canvas developed by Niels Floor (Floor, 2007). In the Learning Experience Canvas, the designer of the learning environment takes 11 factors into account. These are Strategy, Environment, Location, Constraints, Resources, Process, Learning Outcomes, Learning Objectives, People, Characteristics, and Activities.

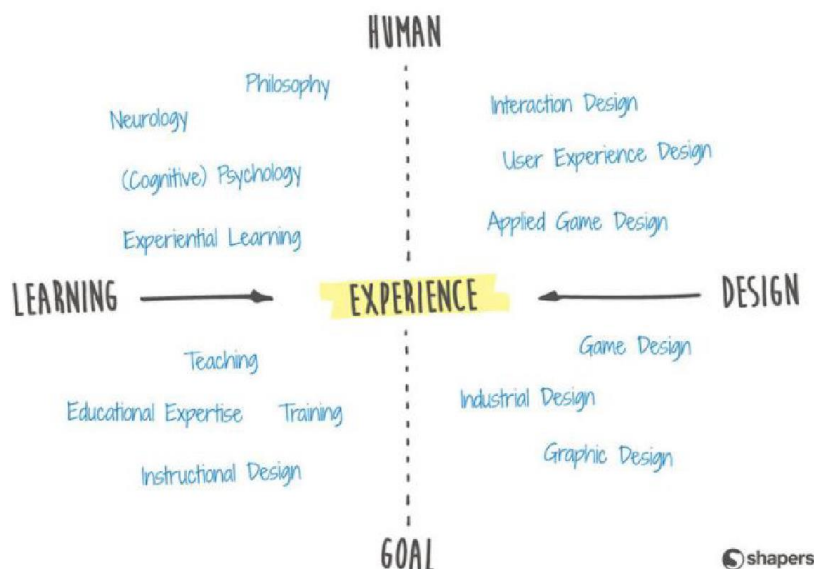


Figure 2-3: Learning Experience Design Graphical Positioning. This shows a framework where you can position where the priorities of your learning experience lie (Floor, 2007).

The canvas would be populated with the relevant information of the learning environment. To canvas would undergo a process of improvement through the actual learning environment. Each version of the Learning Experience Canvas would be saved (either soft or hard copy) to show the progress and improvement. The main purpose of this canvas is to visually create a learning environment which places the student/learner as the key co-creator. The key to the Flow canvas is that it uses Csikszentmihalyi's Flow experience to achieve flow from the perspective of business planning. The Flow Canvas consists of 9 key factors to create a Flow conducive business. These are Purpose, Focus, Attention, Audience, Desire, Transactions, Delivery, Culture, and Improvement in that recommended order.

Either of these canvas strategies would go through an iterative process and are key elements in creating a more Flow conducive learning environment. While these canvases do not provide or specify the programs and interventions required, it does give an excellent framework. This framework is then used to decide which programs and interventions would be appropriate to utilise to achieve Flow like learning experiences.

Creating high-engagement environments

Sugata Mitra courageously attempts to dispel the myth that children do not want to learn (Mitra & Rana, 2001b). Through 'FOLE' mentioned previously, Mitra paved a new pedagogical approach. Learner-centric learning, technological access, and empowerment of children from low-income communities intersect to provide a crucial missing element. Through the learner-centric approach, learners express their desire to learn and are given the platform to present these learnings. By adding Flow Theory as a strategy into this environment, a few opportunities are apparent. Firstly, the bricolage that generally needs to happen in low-income communities is now brought into the learning environment. Learners can learn what they want to learn through engaging facilitation.

This sets up the stage for educational environments to employ Flow Theory. The goal of learning, driven by the learner, is created and feedback mechanisms are then set up by the learner and facilitator. The careful management of the subjective level of the challenge and the skill level of the learner becomes key. When the learning outcomes are not driven by the learner, it becomes more difficult for them to attain Flow. This research aims to monitor learning environments in low-income communities in the Cape Flats region to ascertain whether Flow Theory is being employed at any rate and what are the opportunities for furthering the case of Flow experiences. These opportunities would be evaluated specifically in terms of the development of a potential framework in which learning environment designers can use to promote students and teachers seeking and attaining Flow.

Student engagement in South Africa

Intending to create a benchmarking opportunity of the student engagement levels in South Africa compared to countries such as the USA and Australia, a research paper by Strydom, Kuh & Mentz used the South African Survey of Student Engagement (SASSE) as a data source to measure student engagement in postsecondary institutions. The SASSE is analogous to the National Survey of Student Engagement (NSSE) used across 75 colleges in the USA since 1999. These surveys require students to stipulate what they put in their time into at university and the intellectual, personal, and social gains they have realised from their studies. The researchers contextualised the SASSE form for South African cultural considerations. The surveys focus on five broad categories: reading, writing and educational programme characteristics, time usage, personal growth, and opinions about school/college (Strydom, Kuh, & Mentz, 2010). A challenge with a once-off and purely survey-based approach is the room for situational triggers to skew a student answer. That is, if they had a negative or positive incident at the institution shortly before doing the survey, the survey would most likely be skewed the same way. For reasons addressed above, Flow Theory and its approach to data collection can address these issues. I will address this in the Research methodology section.

A research study done at the largest university in the Eastern Cape used a Student Life Survey (SLS), which is a 39-item questionnaire designed to assess experiences with and interests in co-curricular opportunities. The same issue arises in the survey's one-off nature and room for interpretation. The researchers recommend a longitudinal approach for further research (Wawrzynski, Heck, & Remley, 2012).

No academic research has been done on Flow Theory in South Africa until now. This presents an excellent opportunity to further utilise Flow theory and its research instrument for exploration of the South Africa education landscape.

Criticism of Flow Theory

The criticism levelled towards Flow Theory has come mostly from Csikszentmihalyi himself (M. Csikszentmihalyi & Csikszentmihalyi, 1988). This criticism was a form of evaluation was from the feedback received from others. There are only two other notable critics of Flow Theory in that of Carl (Carl, 1994) and also Sun's comparison of Flow Theory and Yu Philosophy (Sun, 1987).

The other critic, Carl, highlights two main apprehensions regarding Flow Theory. First, is the need for other states such as sleep and relaxation. Carl argues that Csikszentmihalyi, through Flow Theory, implies that these states are not important (Carl, 1994). Second, Carl questions the practicality of Flow Theory. He calls for this to be detailed similarly as has been done for the practice of Zen.

In Sun's comparison, many Eastern meditative practices or deep concentration practices are not focused on any goal. It instead focuses on being present in the moment.

Csikszentmihalyi addressed these criticisms in later writings (Csikszentmihályi, 1997). He explained that Flow Theory is indeed different from Eastern practices, because of its intent of having a specific goal. The state of being in Flow is highlighted as being part of a greater grouping of states with sleep and relaxation being important aspects of it. Flow cannot and should not be maintained for too long a period as it will lead to exhaustion. Csikszentmihalyi has left the practicality of Flow Theory as intentionally vague. Csikszentmihalyi gives some high-level practical examples when in management (M. Csikszentmihalyi, 2004). The premise is for the learner to apply it in whatever context is necessary and relevant.

Latest Developments in Flow Research

Neuroscience research, trying to capture the essence of Flow experiences, has also been on the rise. One such study by Stikic, Johnson, Tan, and Berka in 2014 measured the neuro states of its participants to try and predict performance. The researchers utilised Electroencephalography (EEG)-derived cognitive workload and engagement sensory data and ECG-derived heart rate sensor data while participants performed two primary tasks. The one group performed combat marksman activities while the other group performed golf activities. In each of these groups, the combined vector created based on the three data types, that is, EEG-derived, cognitive workload and engagement. Lastly, ECG-derived heart-rate correlated with performance estimation as well as skill acquisition. These were scored to consider the individual characteristics of each participant. In short, using these neuro-feedback mechanisms, a participant could be directly measured whether they are experiencing flow. In the study, the researchers extrapolated the possibilities to interpreting the neuro-feedback for,

"testing the effectiveness of different marketing advertisements, user's reactions to different movie storyline endings, or even to political speeches." (Stikic, Johnson, Tan, & Berka, 2014).

L.H. Sherlin, N.C. Larson, R.M. Sherlin wrote a paper looking at the relatively unexplored area of using neurofeedback to improve sports performance. The paper focused on training sessions done with five sports professionals. The training sessions were conducted at various times of the day across a 30-day period. The goal was to achieve a consistent training routine with a minimum of 2–3 sessions per week, once per day. During the activities done in the training sessions, the participants were connected to electroencephalography (EEG) sensors. These EEG sensors are electrodes which

attach to the head and measure the electric responses of the brain. Amongst the measured behaviours were speed, reaction, stress, and focus. Overall, a remarked increase in the EEG ratings showed that cognitively, the sports professionals had a remarked improvement in the measured behaviours. When interviewing the players, they all indicated an improvement in their sports performance as well. A recommendation by Sherlin et al. for further research is needed to determine whether or not their sports performance has quantitatively improved (Sherlin, Larson, & Sherlin, 2013).

EEG research has been done in relation to Csikszentmihalyi's Flow Theory where it was shown that it is possible to distinguish between Flow states and non-flow states in brain activity. The research looked at three main activity states, that is, boredom, Flow, and overload states. The researchers noticed a clear distinction between brain activity in the Flow state versus the boredom and overload states (Katahira et al., 2018). These and other studies show a growing body of knowledge delving deeper into understanding the nature of human engagement. This focus of research also looks more specifically at the cognitive engagement type. These new research developments are showing new ways of measuring engagement. This would include Flow theory into the cognitive engagement type.

2.3 Learning Environments

The Education Influence on Youth Skills Development in South Africa

The issue of youth unemployment is a multi-sector and complex issue to unpack. From when youth are in primary and high school to employment considerations or tertiary studies, there are areas to be improved upon, new policies suggested, and overall reform recommended. The linkage between education in schools and employment opportunities is the focus of this research paper. That is, skills development organisations for youth have emerged over the years as a critical interface between school-leaving youth and employers. Unemployment is unevenly distributed in consideration of education, age, and race demographics. According to a study by McGrath & Akoojee in 2007, of those who have matriculated from school, approximately 58% were formally employed, compared with the total working-age population only being at 38% (Akoojee & McGrath, 2007).

The study found that the value of a school-leaving certificate itself is quite low, with 36% of those with a school-leaving certificate being able to find employment. In addition, 56% and 30% of the unemployed are in the age categories 30 years or younger and 15–24-year-olds respectively (Akoojee & McGrath, 2007).

The education system has many failings but has also started on the back foot since 1994 on trying to repair the damage of previous damaging educational systems. The special programmes in youth development institutions then become a necessary endeavour to bridge the gap between employers' requirements and youth capabilities. For context and understanding as to how the education department has evolved since Apartheid and since 1994, the next section looks at the history of South African education.

School curriculum and pedagogy history in South Africa

In research done by Msila in 2007, in South Africa, education has a history of being used as a political tool to divide people according to racial lines. Msila notes that many people deemed the curriculum of the apartheid era as irrelevant and monocultural as it served to strengthen one race group over the others (Msila, 2007). The historical underpinning of formal learning environments in South Africa gives one an understanding of the many learning difficulties that more senior youth experience today after leaving high school.

The education system during the Apartheid Era (1948 till the early 1990s) was designed to be racially segregated. The people of white, European descent decided they were superior to other races. Using

the power of the government, different departments within the education system were responsible for different population groupings based on race classification. This led to a curriculum that was unjust and as noted by Hoadley,

“The selection of content reflected the tenets of the philosophy underpinning the system, known as Christian National Education, which was essentially an expression of Afrikaner nationalism.” (Hoadley, 2009).

Apartheid South Africa and its education system created an extremely authoritarian environment (Davidoff & Lazarus, 2002). The emphasis of education for black students was on rote learning (mindless memorisation) and not on learning concepts and skills. The curriculum was highly prescriptive which were like job cards to be carried out (Hoadley, 2009). Through its authoritarian nature, the regime of the inspection was particularly autocratic. The teacher appraisal system was known to be punitive and vindictive. These judgemental means of assessment seemed to characterise inspection and appraisal in African schools (Chisholm et al., 2005).

Many observers highlight that the education system was highly authoritarian with instructions and material coming from a centralised source and filtered down to the teachers. In the classroom, the teacher was the autocratic voice with pupil responses often only in the form of group chorsing (Chick, 1986). Observers also point out that rote learning and a teacher-centric environment characterise the teaching style. In African schools, learners are discouraged from speaking up or asking questions as it would be considered a sign of disrespect (Thembela, 1986). This would have a major impact once these students graduated from high school and sought employment.

Hoadley in their 2009 paper, notes that there were two curriculum reform efforts in the 1980s and 1990s. The first reform effort was well-intended in that it sought to change the curriculum and pedagogy from a teacher-centric to a student-centric model where the students' experience and local context was taken into account (Hoadley, 2009).

The paper does note that the impact of this shift was extremely limited. The second reform effort was an initiative of the Apartheid government called the Education Renewal Strategy, which aimed to

“rationalize and modernize curricula, and make them more relevant (especially in terms of economic demands and that of the labour force).” (Hoadley, 2009).

Government influencers would continue to be an important deciding factor as to what education looked like in schools. These are important to note because if we are to make meaningful developments into education, we need to better understand who the drivers are of the current education system and how it came to be in this form currently.

The transition from the Apartheid regime to the democratic regime in 1994 entailed a negotiated settlement between the previous government and the new government (Hoadley, 2009). This settlement influenced how education, which included the new curriculum, was developed. According to Maodzwa-Taruvunga & Cross in their 2012 research paper, this development culminated in the new curriculum, which was called Curriculum 2005 (or C2005). It was developed with South Africa's attainment of democracy in 1994 as an outcomes-based curriculum. Maodzwa-Taruvunga & Cross (2012) comment on how the change process and resulting policies were rooted in initiatives from Australia and New Zealand. These initiatives were focused on labour institution agenda's and informed by outcomes-based education (OBE) experiences. Maodzwa-Taruvunga & Cross found that the policy was seen as outdated and impractical which summoned the beginning of the end of OBE. OBE ended after 12 years of opposition from the academic and political factions (Maodzwa-Taruvunga & Cross, 2012).

Taking from the experiences of Australia and New Zealand, South Africa aimed to utilise globally successful approaches and apply it in their context. Hoadley notes that Curriculum 2005 was looking to be a very different form of pedagogy from the previous education systems inherited from the Apartheid regime. The learner was the intended centre of the whole experience and the teacher performed the role of facilitating the learning experience. These experiences would take the learners' local culture into account and a level of competency would be expressed as an outcome through an assessment process (Hoadley, 2009). This “learner-centredness” approach was a strong move and giant leap from an educational system focused on the teacher and the learner knowing the content. While the intentions might have been pure, the chasm between the two systems was too great and a more phased approach would have been a significantly more strategic and pragmatic option.

Based on growing criticism, a review of the curriculum occurred in 2000. The new curriculum was coined 'Transformational outcomes-based education' or OBE. It was reviewed in retrospect in *“No thought is given to the existing curriculum. Instead, schools (or local districts) are told they can choose any content and use a wide range of teaching methods as long as these develop citizens who display the agreed-upon critical outcomes.”* (South African Department of Education, 2000). Professor Jonathan Jansen was a vocal critic of the OBE curriculum. He wrote about it saying *“My thesis is that OBE will fail... because this policy is being driven in the first instance by political imperatives which have little to do with the realities of classroom life.”* (Jansen, 1998). He argued that the teachers, especially in low-income communities, were ill-equipped to carry out the OBE curriculum effectively. The challenge was substantially higher than the level of skill held by many teachers across the country.

Fataar notes that in the past, the previous Apartheid government had openly used education as a political instrument. They also note that in search of distancing itself from the Apartheid governments' autocratic and population group segregation method of educating, the new post-Apartheid government was initially mainly influenced by the Labour organisations (Fataar, 2006). While the outcome of creating an inclusive education for all South African's was a challenging task, there was the lack of listening to what was happening on the ground, in the grassroots schools that caused the biggest issue. As criticised by Jansen, the Education Departments' lack of knowledge of what was happening on the ground would lead to their efforts ultimate demise (Jansen, 1998).

As noted by Fataar, these labour organisations, such as the Congress of South African Trade Unions (COSATU), were closely linked to the new ruling government, the African National Congress (ANC). Thus, the Department of Education (DOE) created a curriculum that was strongly aligned to the Labour organisations view of what would benefit them the most. As criticism grew from the initial implementation in 1997 to a point in 2000 when a review was done by the DOE, the voice of influence had changed. Once it was established that Curriculum 2005 was a failure, the labour organisations' involvement in educational policy processes significantly declined (Fataar, 2006).

It was with the review of Curriculum 2005 that happened in 2000 that the Academic Policy Network (APN) took the lead role in informing policy procedure. The APN consists of a network of educational academics mostly from a grouping of universities in South Africa, provided a much-needed conceptual platform from which to further the reform of the curriculum. With the emphatic sidelining of the OBE curriculum by the Ministry of Education, the Department of Education gave the APN a major platform to influence the review and revision process of education policy (Fataar, 2006).

The rate of change from a deductive to inductive education system was too drastic during the post-1994 period. A crucial lesson in change management was being learned through trial and error. At

the great expense of the children of South Africa. After the review of the OBE curriculum occurred in 2000, the National Curriculum Statement began in schools in 2002 with the first Matriculants (high school graduates) completing the new curriculum in 2008.

Figure 2.4 below shows the intended changes that the Curriculum 2005 was intending to effect in the classroom. In Figure 2.5, further differences are highlighted between the system approach at the time and the intended approach with Curriculum 2005.

Tradition classroom	Constructivist classroom
The curriculum is presented part to whole, with emphasis on basic skills	The curriculum is presented whole to part with emphasis on big concepts
Strict adherence to a fixed curriculum is highly valued	The pursuit of learner questions is highly valued
Curricular activities rely heavily on textbooks and workbooks	Curricular activities rely heavily on primary sources of data and manipulative materials
Students are viewed as 'blank slates' onto which information is etched by the teacher	Learners are viewed as thinkers with emerging theories about the world
Teachers generally behave in a didactic manner, disseminating information to students	Educators seek the learner's point of view in order to understand learners' present conceptions for use in subsequent lessons
Assessment of student learning is viewed as separate from teaching and occurs almost entirely through testing	Assessment of learner learning is interwoven with teaching and occurs through educator observation of learners, learner observation of learners at work through learner exhibitions and portfolios
Students primarily work alone	Learners primarily work in groups

Figure 2-4: Traditional to constructivist classroom setting - (South African Department of Education, 2000).

Old	New
Passive learners	Active learners
Exam-driven	Learners are assessed on an ongoing basis
Rote-learning	Critical thinking, reasoning, reflection and action
The syllabus is content-based and broken down into subjects	An integration of knowledge, learning relevant and connected to real-life situations
Textbook/worksheet-bound and teacher-centred	Learner-centred; the teacher is a facilitator; the teacher constantly uses group work and teamwork to consolidate the new approach
Sees syllabus as rigid and non-negotiable	The learning programme is seen as guides that allow teachers to be innovative and creative in designing programmes
Teachers responsible for learning; motivation dependent on the personality of the teacher	Learners take responsibility for their learning; pupils motivated by constant feedback and affirmation of their worth
Emphasis on what the teacher hopes to achieve	Emphasis on outcomes – what the learner becomes and understands
Content placed into rigid timeframes	Flexible timeframes allow learners to work at their own pace
Curriculum development process not open to public comment	Comment and input from the wider community is encouraged

Figure 2-5: Content-based to outcomes-based approach - (South African Department of Education, 2000).

While the intention was clear, the execution was not. By trying to rectify the problematic pedagogy of the Apartheid era, Curriculum 2005 inadvertently changed the content of the curriculum as well. *“What was entailed in this was a displacement of the ontological with the epistemological, which in a sense captures the shift from traditional to constructivist pedagogies that Curriculum 2005 attempted to accomplish.” (Hoadley, 2009).*

As Fataar points out, substantial direction and advice in the formation of the educational system came initially from labour organisations such as the Unions and Civic Unions (Fataar, 2006). When the Curriculum 2005 review happened, the subsequent school results were poor from these early influences in labour organisations. The controlling voice of the formation of the educational systems was then placed firmly in the hands of a group of academic educationalists. The above mentioned poor results gave more focus on curriculum content and pushed the emphasis on pedagogy to the background (Hoadley, 2009).

The South African Department of Education reports how a full review process was once again done, with a change in the representation. They note that this time, there were more government and union representatives and less of academic representation. A refocus on the experience of the teachers was instituted (South African Department of Education, 2000). It seems an over-correction then happens as the Education Department reports that a subsequent nationwide campaign happened to communicate the changes that were decided in this review process (South African Department of Education, 2000). This review, known as the National Curriculum Statement (NCS) Review Report, communicates a focus on a knowledge-based curriculum (Hoadley, 2009). Hoadley notes that the attempt for both education systems was to control the pedagogy through the curriculum. These attempts and adjustments at formalising a schooling pedagogy and curriculum at a national scale are understandable to Hoadley when one considers it as *“a response to the tyranny of ‘fundamental pedagogics’ in schools under apartheid.” (Hoadley, 2009).*

With an overview of the political influence impacting educational reform, a summary of the government’s Action Plan 2019 now ensues. The Action Plan 2019 aims to work towards the educational aspects of the National Development Plan 2030 (Department of Basic Education, 2015), (National Planning Commission, 2011). Of the 27 goals stipulated in the plan, there are five priority goals.

These five goals are:

1. Improve the access of children to quality Early Childhood Development (ECD) below Grade 1.
2. Improve the professionalism, teaching skills, subject knowledge, and computer literacy of teachers throughout their entire careers.
3. Ensure that every child has access to the minimum set of textbooks and workbooks required according to national policy.
4. Ensure that the basic annual management processes take place across all schools in the country in a way that contributes towards a functional school environment.
5. Improve the frequency and quality of the monitoring and support services provided to schools by district offices, partly through the use of e-Education.

The first 13 goals refer to the actual outputs, where goals 14 to 27 focus on how these outputs will be achieved. The 2019 action plan is an iteration of a document that first began in 2011, and has been revised annually since.

The National Development Plan 2030's vision includes a specific vision for the role that the education department would play in forming the South African nation-building experience:

"Innovation is critical for introducing new products into the market and producing goods and services more efficiently. Research and development should be significantly expanded. Collaboration across the South African education system and with internationally accredited institutions should lead to higher levels of innovation. The education system will play a greater role in building an inclusive society, providing equal opportunities and helping all South Africans to realise their full potential, in particular, those previously disadvantaged by apartheid policies, namely black people, women and people with disabilities." (National Planning Commission, 2011).

The goals that form the action plan 2019 and the greater NDP 2030 are of little use if the reality of what is happening on the ground, within the classrooms, is not improving. All the effort of senior educational experts come to nothing if it does not relate to meaningful change on the ground. The top-down approach that is being employed by the government is a crucial point of contention. The need for a more balanced approach is great in terms of top-down vs bottom-up strategies. In the above NDP 2030 vision, the inclusivism the government seeks will be insurmountable if they continue to impose excessive requirements for reporting and general administration that doesn't add value. There is an opportunity where education has collective ownership between public, private and community organisations.

However, the injustices of the past government through the system of Apartheid have scarred the nation. The letting go of control of the government in the education sector needs to coincide with a realisation that authentic influence is much more pertinent right now. The road to this pathway would do well in being implemented in pockets throughout the country of public-private collaboration and innovation of the education system processes. There is little sign of this happening, however. McGrath and Akoojee comment that according to the state, the greatest success usually happens when they have the greatest control over the implementation of the policies. There is a disconnect between the public and private sector where priorities are not aligned. One example of this disconnect that McGrath and Akoojee give between public and private partnerships is that of employment equity (Akoojee & McGrath, 2007).

Governments view of the youth skills development sector is that it needs greater control of the sector to effect change. This is a strong indicator that it does not have a great appetite for democratic, collaborative activities with potential partners. Van Oostrum has shown that the South African government's attempt to control all forms of education is unconstitutional (Van Oostrum, 2014). Van Oostrum argues that education is not specifically defined at a national level, but it is at a United Nations level, to which South Africa is subject. The United Nations defines education as the holistic development of the person. In South African law, the parent is ultimately accountable for the free exercise of the right to education of their child/children. The state can only stipulate restrictions on that free exercise to influence the development of abilities in children that serve the nations' interests (Van Oostrum, 2014). Van Oostrum concludes:

"Given the lack of transparency in the policy-making processes, and the totalitarian assumptions from which those processes seem to stem, it is inevitable that the outlaw educators (home and cottage schools not registered with the education department) of South Africa will continue to increase in number." (Van Oostrum, 2014).

In a 2013 report published by the Department of Basic Education, only 4.1% of learners are in Independent schools (Cliffe Dekker Hofmeyr, 2016). Moreover, a large proportion of them would be from more affluent communities. Montessori and Waldorf schools amongst others utilise more progressive teaching methods but are largely placed outside of the affordability bracket of most of the South African population. The Centre for Development and Enterprise does a report on the

landscape of public and independent schooling in South Africa where the paper concludes that unless the public schooling system improves its quality, the migration of children from public to independent schools will continue (Hofmeyr, McCarthy, Oliphant, Schirmer, & Bernstein, 2016).

Learning environments in low-income communities: Legacy design of the school system

From a government education perspective, those in low-income communities were the ones most affected by the Curriculum 2005's failures. According to Hoadley, research has shown how the working class and lower ability student, develops in individualism but is essentially a failed mathematics learner (Hoadley, 2009).

The lack of communication across strategic stakeholders is often cited as a common issue in education. Government is not engaging meaningfully with employers in terms of the needs and even if they were adapting the education experience happens too slow. This with the added requirement to hire personnel that more authentically reflect the general population adds further difficulty. McGrath & Akoojee found in their study that curriculum reform, in general, was not happening. They found that the relationships between the Department of Education, the Department of Labour, and the South African Qualifications Authority (SAQA) are still not stable after the review was launched 5 years prior. Also, the researchers found that colleges are largely hamstrung in making curricular decisions and are particularly unsure of how best to

"balance their financial imperatives and their educational goals." (Akoojee & McGrath, 2007).

Lastly, it was found that the desire to grow the sector even faster whilst effecting a thorough transformation across a range of elements points to the real danger that any success might not be sustainable (Akoojee & McGrath, 2007).

McGrath and Akoojee's points can be summarised into three challenges that need to be prioritised:

1. How to build robust institutions (including finances and staffing) that can deliver efficiently on education and skills, including public vocational providers, and sectoral bodies.
2. How to ensure that provision is relevant to both economic and social needs rather than a reflection of the institutional interests of particular departments.
3. How to build the skills and culture of the public service rapidly whilst also delivering services.

They also end off by acknowledging that the existing strategies that the government has implemented are designed to address the above challenges (Akoojee & McGrath, 2007: Page 219-220).

Grappling with Youth Employability is the title of Carmel Marock's paper for the South African Human Research Council (Marock, 2008). The researcher looks at the role of schools as well as those serving special programmes designed to fill the gaps for employment opportunities. They see the concept of employability as the

"capability to access and maintain employment." (Marock, 2008).

They address the need for government, companies, organisations focused on youth skills development and other stakeholders to understand the role each of them needs to play in addressing the issue. The issue being around analysing the skills needed by the market, as well as the education and employers working together to develop youth who are capable of functioning in key sectors (Marock, 2008). Looking at primary and high schools, they note a movement of vocational skills training happening in the latter years of schooling and in some settings even to tertiary institutions. This movement has occurred as a global shift is happening where a greater percentage of people are accessing primary schooling than ever before, minimising the need for early vocational options before leaving school. In looking at the perceived outcomes of formal education, Marock finds that according to research, the below list are the critical elements needed to develop employability skills:

- “ - Include employability skills among the instructional goals and ensuring that these skills are explicitly taught.*
- Ensure that students understand the skills and talents they have and how they can contribute to their and the country's economic well-being.*
 - Ensure students know how to present themselves to employers.*
 - Provide students with a reflective process that will be of use both currently and in the future.*
 - Develop students who are ready and prepared for their next step.*
 - Provide students with experiences that simulate the world of work.*
 - Provide students with actual experiences of the world of work.*
 - Instructors holding and communicating high expectations for the learning and behaviour of their students.*
 - The overall culture of the school holds high expectations for the learners.” (Marock, 2008, p. 10)*

If the above items were largely achieved by schools, the need for special programmes such as youth skills development institutions would fall away in many areas of the country. However, South Africa has a distinct history to be acknowledged.

Most teachers and school employees come from a government-affiliated schooling system in South Africa. For those coming from these legacy learning environments, their way of thinking is strongly influenced by their personal experience in an education system that has been largely ineffective. This review of education is pertinent to better understand what the systemic leverage point might be for those looking to develop youth and increase their employability. Any shift to more authentic options for skills and educational development should be done in cognisance of what the system is moving from.

Outside of government education, there has been an increasing number of attempts at creating education alternatives. Many of these are at ages 6 and younger as well as the over 18 age group for post grade 12's. This latter age category generally aims at developing youth who will be employable within the corporate sector (Lannoy, Swartz, Lake, & Smith, 2015).

Conclusion:

Without proper consideration of the history of pedagogical and curriculum reform in South Africa, previous education officials overshot the need on the ground and have had to reset their actions on multiple times. Any entity interested in positively influencing the learning environment landscape in South Africa needs to better understand it's history as to why it is where it is currently. The strong political connections that education carries were highlighted. The need for these youth skills development organisations is largely due to the failure of the primary and high schooling systems not adequately preparing youth for the job market and tertiary study. Lastly, the trajectory of future education development plans for schools through the action plan and NDP shows that things are potentially not on the right path either. As shown in the introduction, global benchmarking exercises have revealed South Africa to be falling behind the rest of the world in quality education attainment.

2.4 Low-income communities and their belief systems

The International Monetary Fund (IMF) argues that inequality in moderation is healthy because it creates competition and internal drive amongst citizens. The IMF article says that once the level of inequality rises above a threshold, more and more people stop believing that they will be able to

achieve and even survive (Dabla-Norris, Kochhar, Suphaphiphat, Ricka, & Tsounta, 2015). The IMF article titled *Causes and Consequences of Inequality: A Global Perspective* looks at the drivers of inequality globally with the given data. It particularly focuses on income shares of the middle class and poor, as it recommends policymakers focus on the income shares of these to reduce inequality. It shows that many countries, including South Africa, still has its inequality rating rising rapidly. For South Africa, this is shown to be due to the middle to upper-class growth, leaving the poor behind in income shares. It also shows a figure called the Education Gini which is a measure of the variation of average years of education for different income levels. In Sub-Saharan Africa, 60% of youth (aged 20-24) in the poorest quintile have less than four years of education. For the richest quintile, that number is only 15%, compared to emerging countries in Europe where the values of 5% and 0% respectively.

A growing body of research such as one research paper done by the World Bank has shown the correlation between high inequality high and particularly violent crime. Entitled *Inequality and Violent Crime*, this report looks at 39 countries over three decades in the late 20th century as to the empirical data on inequality and the causal relationship with violent crime. Even when there are varying measures used of income inequality, whether for homicide or robbery and different econometric estimations, the result of the proportional relationship between inequality and the crime rate persists. It lastly also takes into account measurement error in crime data and correlations in the crime rate and any of the explanatory variables. It concludes that overall the relationship between inequality and the crime rate of various countries studied is robust (Fajnzylber, Lederman, & Loayza, 2002).

Comparisons to Latin America and Africa have also been done in this regard. One article makes a comparison between Colombia and South Africa (Diaz, 2017) about the parallels of protest action and public agency between the two countries. One tangible outcome of high levels of inequality is not only crime but also many legal forms of protest. The protests show a growing dissatisfaction and lack of patience with the current circumstances they are experiencing. Unless something is done to create short- and long-term change, these protests, as well as crime statistics, will only increase.

The World Bank furthers its research looking at the direct correlation between the rise of the Gini Coefficient and crime which the approach of the public administration focused on at the time was called the War on Drugs (Enamorado, López-Calva, Rodríguez-Castelán, & Winkler, 2014). The crime was found to become significantly worse because of the War On Drugs campaign. This is interesting because in South Africa, and Cape Town, in particular, the public and the local provincial government advocate for a tough War on Drugs campaign. The War on Drugs continues to be a debate despite this research, which suggests it is an incorrect strategy.

The Global Peace Index, published by The Institute for Economics and Peace, has ranked South Africa at number 123 out of 163 countries, in terms of the state of peace. In the report, the Economic Cost of Violence in South Africa is the 16th highest in the world. The Economic Cost of Violence is direct and indirect costs to the victim and resulting from the violent event. Direct costs are the costs incurred by the victim of the violence, the perpetrator as well as government. These include a multiple of costs including policing, treatment measures etc. Indirect costs can also accumulate after the incident of violence which include trauma counselling, medical treatment, loss of productivity of the victim etc (Institute for Economics and Peace, 2017). In South Africa, these result in a cost per person of US\$2,582 (roughly R33,049 at the time of writing this) or 22.3% of Gross Domestic Product (GDP). The report attributes that the impact of this extends into business confidence and the rate of education solutions being rolled out due to a fear of some sort of crime (Institute for Economics and Peace, 2017).

These findings can reasonably be related to the fear that parents and children might well have walking to school in some of the most dangerous communities in South Africa. It would also potentially impact the concentration and performance of children at school based on the impact crime have on them in their community. These experiences cannot always be directly changed. However, if it is taken account of, and thought through, more meaningful and authentic learning environments can be created.

Strategies can be devised to create a more engaged school community, learning environment, and learner experience. There are empirical findings of this through research done in the Caribbean in an evaluating chapter called the SocioEconomic Costs of Crime (United Nations Office on Drugs and Crime & World Bank, 2007). Overall, they find many positive social activities stop due to fear of crime. Research also exists that tries to position various program interventions for crime affected areas as having a tangible economic benefit (McCollister, Frence, & Fang, 2010).

This type of research can assist policymakers and funders in allocating resources to programs who are considering the socioeconomic cost of crime into account and quantifying the benefit of their programme in economic terms. This assists in bridging the divide between social and economic impacts. There is still lots of work to be done in this area though, as this report itself has many limitations, one in that it excludes many areas of crime in its model. It is therefore limited in its applicability.

Cape Town

Stats SA's last examination on the poverty line in South Africa was done in 2011 (Statistics South Africa, 2014). According to this report, R620 per person per month is deemed enough for food and non-food essentials (the upper bound poverty line). Low-income communities in this report have been those communities that have greater than 35% of the households within the community earning less than R3,200 per month.

The Cape Flats is a geographic area in the City of Cape Town municipality that used to be seabed, which later becomes homelands for displaced non-whites during the Apartheid era with the implementation of the Group Areas Act. Most of the Cape Flats area are under-resourced communities where the majority of residents are Coloured and Black African people.

In two of these suburbs, Langa and Manenberg, 72% and 61% respectively of the households in these suburbs earn less than R3,200 per month. The data source for this can be found in Appendix B. The Cape Flats area in Cape Town will be the focus of my research. This area is characterised by high levels of crime, unemployment and drop-out rates from primary and secondary schools.

Within the Cape Flats region, there is still significant racial segregation as shown by a StatsSA (Figure 2.6) below (StatsSA, 2016). Where the areas are completely yellow (majority Coloured people) or Blue (majority African people), it generally equates to it being a low-income community. In Mitchell's Plain, Langa and Manenberg, the unemployment rate is currently at 24.13%, 40.21% and 36.20% respectively (Appendix B). These are high levels of unemployment compared to areas such as Kenilworth (3%) which is regarded as an affluent suburb in Cape Town. The high unemployment rate relates strongly to the high crime rate.

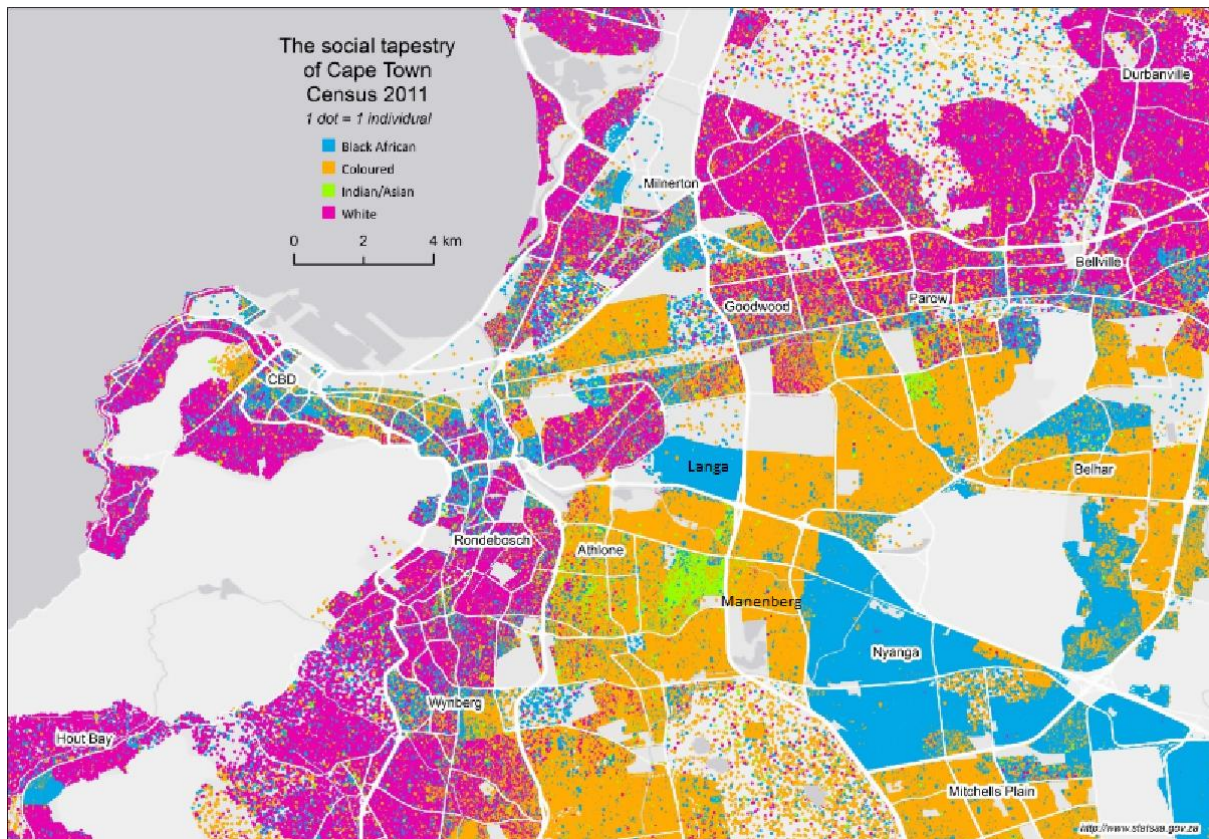


Figure 2-6: Social Tapestry in Cape Town - Census 2011. Legend: Blue = Black African; Orange = Coloured; Green = Indian/Asian; Purple = White. This shows the population groups according to race that was designed by the Apartheid government (StatsSA, 2016).

In Figure 2.7 below, 8 of the top 10 highest murder precincts in South Africa are in the Cape Flats area (Crime Stats SA, 2016). Gangsterism and unemployment have strong correlations as noted in Don Pinnock's book, *Gang Town*, which takes an in-depth look at the causes and strongholds of gangsterism in Cape Town's Cape Flats (Pinnock, 2016). Don Pinnock, a criminologist and investigative journalist, has written extensively throughout his career about the Cape Flats area and the roots and operation of gangsterism.

Contact Crimes (Crimes against the person)		
Murder: Worst ten precincts in 2015		
Precinct	Province	Number of Crimes
Nyanga	Western Cape	300
Inanda	Kwazulu-Natal	179
Umlazi	Kwazulu-Natal	170
Gugulethu	Western Cape	165
Delft	Western Cape	163
Mfuleni	Western Cape	154
Khayelitsha	Western Cape	146
Harare	Western Cape	141
Kraaifontein	Western Cape	141
Mitchell's Plain	Western Cape	141
Total		1700

Figure 2-7: The National Murder Statistics – The Western Cape shows up in 8 out of 10 of the precincts in the country with the highest murder rate (Crime Stats SA, 2016).

South Africa currently has the largest Gini Coefficient in the world.

"Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution." (World Bank, 2017).

A value of zero indicates complete equality (that is that everyone has the same wealth), and 100 indicates total inequality (that is that one person owns everything). As can be seen in Figure 2.8 below South Africa has a rating of 63.4 as of 2011. It has been consistently high which is a major concern as has been previously stated that this points to the high level of crime (and violent crime) in South Africa.

The physical and social landscape contribute to the troubles of the Cape Flats. Factors such as the spatial design of residential communities, the design of the public transport system, language barriers, and sports and education all contribute to the struggles of the Cape Flats region. Here is a large social narrative of a people that were lawfully oppressed during Apartheid, and post-1994 citizens are expected to perform and adapt in an unequal playing field nationally and globally.

Country Name	2011 (%)
South Africa	63.4
Honduras	57.4
Colombia	54.2
Brazil	53.1
Paraguay	52.6
Guatemala	52.4
Panama	51.8
Chile	50.8
Costa Rica	48.6
Dominican Republic	47.4
Bolivia	46.3

Figure 2-8: The Gini Coefficient rankings showing South Africa as the most unequal country in the world (World Bank, 2017).

The inheritance of the Apartheid regimes housing, education, and municipal facilities have left many of the people from the Cape Flats on the proverbial back foot. As mentioned previously, this general dissatisfaction of affairs plays out in South Africa being known as the "protest capital of the world." In the previous section on Learning Environments, researchers acknowledged that there are many moving parts in the issues of lack of quality education and unemployment from Basic Education, to Higher Education, as well as Skills Development and Employers. A consistent problem is that these entities do not communicate and collaborate, which creates further issues in the system (Fataar, 2006).

Based on the previous section and this literature review, there is a failure of the education and employment sectors mixed with rising levels of inequality, as well as high levels of public dissatisfaction through protest action. This is a potent and dangerous mix for any nation to have where the inequality gap is widening, while the education system for those in low-income communities continues to fail.

Adaptation-based Approach to Resilience

Studies of a more affirming nature have also been done to explore the development of children who live in high-stress environments. They define high-stress environments as when specific social-ills are prevalent, such as abuse in the home and high crime in the neighbourhood. They find that children who live in a home of physical abuse, for example, will be able to read body language and determine

when a physical threat is high, much quicker than the average person. These children are also more inclined to have short-term survival strategies than delayed, long-term strategies for general task completion. These studies look at a strengths-based approach. Before Ellis et al., the prevailing research has been predominantly of a deficit-based approach.

According to the research done by Ellis et al., the deficit-based approach views children from high-stress environments as individuals in need to be 'fixed'. In their view, this faulty assumption is that children from high-stress environments have the same strengths and needs as children from low-stress environments. They also did comparative studies with birds and rodents in addition to human subjects in testing two hypotheses. The hypotheses are,

"The adaptation-based approach to resilience thus converges on a pressing research agenda: to uncover a high-resolution map of the skills and abilities of children and youth from high-risk backgrounds (specialization hypothesis), and to determine how developmental exposures to stress interact with current psychological states and conditions to regulate learning and performance (sensitization hypothesis)." (Ellis, Bianchi, Griskevicius, & Frankenhuis, 2017).

The authors provide a framework for educator demonstration strategies in an educational environment. They show four categories for consideration in the framework. Namely: Hypothesis type, developmental, stress exposure, and proposed function. In the below example of one student, it shows the acknowledgement that the student has a high ability in rapid tracking and working memory updating but reduced ability in long-term storage and information retention (Ellis, Bianchi, Griskevicius, & Frankenhuis, 2017).

This would be important to take into consideration as a traditional classroom would expect average levels of each of the two classified cognitive functions mentioned above. The student, however, has a high working memory processing ability and low long-term memory retention ability. In discussing future research focus areas Ellis et al. end off with an acknowledgement that more research is required in the area in collaboration with behavioural scientists, teachers, workforce development specialists and other community-engaged professionals. The intention of this research by Ellis et al. is to better understand the lived experience of students and employees who are stress-adapted individuals. They intend to use this cross-disciplinary approach to leverage the skills and abilities of these individuals (Ellis et al., 2017).

It would often be the diversity in approaches and people involved that bolsters the strength of the intervention while at the same time being a hindrance to collaboration and getting to a place of mutual understanding through empathy. A bit of looking ahead from Ellis et al.:

"Interdisciplinary collaboration will be critical for translating basic research into applications that enhance educational and life outcomes in children and youth growing up under harsh, unpredictable conditions. Although much research needs to be done, this work holds the promise for transformative interventions that work with, instead of against, the skills and abilities of individuals from a diverse range of life circumstances." (Ellis et al., 2017).

These conditions are not easy. Yet, it will be important to know that this approach will reap a future reward that is more meaningful to the youths positively impacted.

Assumption: Technology always a winner in low-income communities

Even in learning environments where technology access is high, the utilisation of such technology by teachers and students alike can be low. In a study done by Stanford University in two schools, in the technologically advanced area of Silicon Valley, two main reasons were attributed to this low uptake of technology usage. The first reason was that teachers did not have time to evaluate the software. The second reason was that the training offered to learn how to use the relevant software was not at convenient times. The age, experience and gender were found to not be factors in their lack of technology integration (Cuban, Kirkpatrick, & Peck, 2001).

Cuban et al. found that the supply of technology is not the most important aspect of creating a technology-integrated environment that inspires engaging experiences. Rather, it is the design of the total ecosystem within which the technology is placed that determines the level of integration and usage of teachers and students (Cuban, Kirkpatrick, & Peck, 2001).

Technology's influence in learning environments in low-income communities

Technology's influence in learning environments is becoming increasingly expected normality and learning environments who do not conform, risk being left behind.

With the perpetual price decline and the quality rise of consumer electronics, electronic devices have become much more accessible to people. Open-source software has also seen a rapid rise in popularity and quality. High-quality open-source software development is done at a fraction of the cost of conventional retail options. Many organisations and researchers have sought to utilise this accessibility for educational purposes within the low-income community context (Caldeweyher, Zhang, & Pham, 2007).

One of the leading pioneers is Sugata Mitra who most notably did his education and technology research called "The Hole in the Wall Experiment." In this experiment, he places a computer, which is connected to the internet, in a rural village in India. The inhabitants do not understand English, which is the only language on the computer, nor have they ever worked on (and supposedly never seen) a computer before. When Mitra and his team returned within a few weeks, they found that children in the village had taught themselves, not only how to operate the mouse and computer in general, but ultimately also the English language to understand the commands needed. After many other iterations of this experiment, Sugata Mitra developed a pedagogical method called Self Orientated Learning Environments (SOLE).

In SOLE's, the students are placed in an environment where the primary tool utilised is a computer with a high-speed internet connection. In this environment, it is the students who decide on a question they want to answer. The facilitator assists the students in following out the process of SOLE. The students divide themselves into groups of four to every computer. The students self-organise into groups can change groups at any time, and research on the internet to answer a question they chose. After an agreed time, they present their findings to the other groups in turn on a large sheet of paper. What Mitra surmised was that children intrinsically want to learn, but it is the existing dogmatic environments that essentially teaches students to hate the process of learning. Students, therefore, differentiate between learning and fun as being two different experiences where the fun is usually outside of the classroom (Mitra & Rana, 2001a).

SOLE has further evolved from SOLE to a Facilitator organised learning environment (FOLE). What Mitra found was that a purpose was needed to be influenced by a facilitator to ensure that learning was happening towards a directed intention or question. It is still the students who self-organise, however. The programme has become very successful and is a global phenomenon.

There has been criticism about the Hole in the Wall experiment. Payal Arora has been a notable critic. It is mainly the transferability of the experiment that the researchers questioned (Arora, 2010). On further research of Mitra's subsequent experiments in other regions of India and other countries, it was found that the experiments were not always successful in terms of the village being able to sustainably utilise the computers provided. With these criticisms noted, the experiment and intent are still a positive step forward in providing people in low-income communities with high-quality content and support via online sources. Importantly, it places the students in the driving seat of their own learning.

From Youth and Skills Development to School Curriculum and Pedagogy reform attempts in South Africa, the trend has been notable in the literature review above: South Africa's quality of education is on the decline. The review ended off with attempts happening around the world, in creating bottom-up approaches to quality education environments. The clear message that this literature review demonstrates is the great need for fresh approaches to education in South Africa.

Montessori Schools vs Traditional Schools

A comparative study, done by Rathunde and Csikszentmihalyi checked for the level of Flow experiences between 20 traditional middle-schools and 6 Montessori middle-schools of a similar demographic and socioeconomic status (Rathunde & Csikszentmihalyi, 2005). The main aim was to compare to what degree the children experienced being in Flow in their academic activities and their non-academic activities within the school environment.

Rathunde and Csikszentmihalyi ensured the selection criteria of the two school categories (Montessori and traditional schools) were distinct. The Montessori schools selected actively encouraged intrinsic motivation and had a strong self-directed education culture. They did not have block periodic times (e.g. 45 minutes per subject). The selected schools also did not do conventional testing practices or examinations. The students played an active role in the decision making of the school operations. Lastly, the selected schools did not have classical teaching format (that is, lecture-style) (Rathunde & Csikszentmihalyi, 2005).

The traditional schools that were selected did not encourage intrinsic motivation nor any self-directed education principles. These schools also had a conventional 45 minute block period organisation. They also focused on standardised testing and examination mechanisms as well as not being able to participate in decision making structures. Lastly, the pedagogy of lectures was the norm and strategies to engage better in this pedagogy was taught by the school (Rathunde & Csikszentmihalyi, 2005).

The study by Rathunde & Csikszentmihalyi highlighted how, even though the in Flow experiences were equally matched when comparing non-academic activities (e.g., sport) when it came to academic activities, the Montessori school children had a significant 7% higher in Flow experience rating compared to the traditional school children. This equated to a significant number of about 90 minutes more time spent in Flow per week. The annual number of hours for this would be significant and have a lasting impact on the children's experience of academic activities at school.

This higher Flow state rate was attributed mostly to the above criteria mentioned between the criteria for Montessori versus Traditional schools. The findings, therefore, show a substantial overlap of the antecedents required for Flow experiences to happen and the design of the learning environment at Montessori schools. The point of the research was not to discredit traditional schools or to promote Montessori schools. The research showed how the philosophy of education of someone like Maria Montessori is instilled in schools to the benefit of the children attending. There are many other schools, like Montessori schools in South Africa (Rathunde & Csikszentmihalyi, 2005).

2.5 Synthesis

This review covers three broad areas: learning environments, low-income communities and their belief systems, and student engagement.

Student Engagement

In a search for finding attempts at maximising engagement, Flow Theory has emerged as one of the most effective ways to do this. These attempts at maximising engagement are looked at in differing contexts and intentions. The first question within Flow experiences is to seek what are the aspects

within youth and skills development institutions that create Flow experiences? Secondly, what is the relationship between the emotional situation of a student and their experience of being in Flow? Lastly, what could further enhance the learning environments in skills development institutions across the country?

Learning environments

Public schooling in South Africa has been a constant struggle since the dawn of democracy in educating black and coloured communities across South Africa. The current trajectory through global benchmarking looks to be heading in the wrong direction as discussed in the introduction. Ignoring the history of the educational landscape would be to make changes in a system without understanding crucial components to this system. Children who complete part of high school or who Matriculate, have had a largely negative experience of school as explored. At times, across the globe, alternative and higher impact educational solutions often work separately from the public educational systems. South Africa is in the lowest rankings in terms of academic achievement.

Low-income communities

The high levels of inequality have been shown to be sure signs that crime in that area will be very high as previously mentioned in research conducted in Mexico. Also, access to technology for education is minimal in low-income communities and so learning environments by extension also have limited access to it. The result of living in a low-income and high-stress community means that youths from these areas often have different priorities as to how to succeed in life versus those from safer, more affluent communities. This was depicted in the research reviewed earlier on an adaptation-based approach to resilience (Ellis et al., 2017).

3 Research Methodology

3.1 Research approach and strategy

The three primary areas of focus in the literature review were student engagement, learning environments in low-income communities, and the overlap of these. With this platform, the research gained an understanding of how students achieve experiences of high engagement. This research explored what were the drivers for creating high engagement experiences in two learning environments in low-income communities in Cape Town. The research also aims to learn what this could mean for learning environment designers, teachers, and students to have intentional high engagement experiences to facilitate learning opportunities.

A strategy of this research is to better understand the ontological perspectives of the students who experience the learning environments on the Cape Flats. As noted in the introduction, the researcher notes the presence of their own ontological position and epistemological underpinnings in relation to other key stakeholders including the students, staff of the institutions, and the broader education department officials. A research method is required that would gain insights into the social worlds of the students. This method needs to examine the relation to their level of engagement in their learning environments as well as the broader social experiences connected to the learning. The requirement is for a research method(s) and tool(s) that would give voice to these students, potentially in new ways compared to previous academic research. Developing this strategy is in line with Mason's framework for qualitative researching for acknowledging the researcher's position, as well as the ontological perspectives of those being researched (Mason, 2017). It is from this platform that targeted research methods can be used for specific research questions.

As noted in the literature review, people experience a high sense of enjoyment and the fulfilment of a higher purpose when they spend time highly engaged or in Flow. From a learning environment point of view, it is desirable to have the students spend an optimal amount of time engaged. Due to the high level of engagement and the amount of energy needed during a Flow experience, it is also not desirable for the students to spend too much time highly engaged either. Rest and relaxation are needed to recuperate. Therefore, a balance needs to be found (Csikszentmihályi, 1997).

This research was an analysis of the subjective experience of the research participants (students between the ages of 18 and 30 years), within a technology-focused learning environment situated in a low-income community. For this research, a technology-focused environment is defined as any environment where learning happens, either through the utilisation of technology and/or about technological content.

The aim was to obtain information from the students, as to how they experience their environment. The type of questions asked was strategically enquired from different angles on whether the student was experiencing a high level of engagement or not and to what extent. The survey was also short enough (2 minutes to complete) to help make the survey quick enough to complete for the student. It was important to understand the criteria for the selection of research participants. A few of the considerations were:

- What sampling logic was amenable to meet the synthesis purpose, within the available resources and pragmatic constraints, efficiently and sufficiently?
- What logic will guide the decision to cease searching for further evidence?
- What were the justifications for these decisions?
- What were the caveats associated with these decisions? (Suri, 2011)

For this research, there were a few criteria that needed to be met to be a research participant organisation:

1. Technology-focused either through instruction or through resources available.
2. Developing specific skills with youth between the ages of 18 - 30.
3. Situated in a low-income, high-crime community on the Cape Flats region, Cape Town.
4. Have been operating for five years or more.

The two organisations that stood out in this regarding were RLabs and the Sozo Foundation. While there were quite a few others, not many had been in operation for as long as these two with their establishment in the community.

Experience Sampling Methodology:

Psychology is viewed as being borne from the intersection of natural science and philosophy (Leahey, 1994). One of the unfortunate fates according to the Reed and Csikszentmihalyi is that consciousness became prey to reductionist scientific exploits. They argue that while many are busy trying to find out the neurological roots of consciousness, not enough has been done to clarify the epistemological state of it (Csikszentmihalyi, 2014). They note,

“All that is being claimed is that processes that involve the total individual as a system are most usefully understood in a holistic context.” (Csikszentmihalyi, 2014).

Systematic phenomenology has been one development in understanding human consciousness in natural environments. Hektner et al. define the lived experience as being the contents of consciousness, that is, thoughts, feelings, and sensations. The Experience Sampling Method (ESM) was devised to meet the methodological challenge of developing a way to reliably measure the events occurring in the day to day activities of a person over a period of time. ESM was developed to be a method of gathering data about the experience of the individual as well as the context of that experience (Hektner, Schmidt, & Csikszentmihalyi, 2007). It is, therefore, further development of systematic phenomenology. ESM data contains a lot more of the experiential information of students than a survey would. However, it is not as detailed and rich in data in comparison to ethnography. The design of the ESM captures a significant amount of the elements of the participants lived experience in a systematic way. ESM and Ethnography have been used together in a research paper looking at what activities kids engaged in at their homes (Elkington, 2010). ESM is positioned to be the midpoint between the traditional student engagement surveys mentioned previously and ethnographies (Hektner et al., 2007).

A research paper by Sloboda, O'Neill and Ivaldi (2001) explains how the ESM is useful in that it is possible to examine the subjective experiences of research participants in their everyday real-life activities. ESM becomes the blend of observational type exercises and inconspicuous journal entries. The former focuses on the ecology, the latter focuses on the consciousness of the individual (Sloboda, O'Neill, & Ivaldi, 2001).

Larson and Csikszentmihalyi mention four questions that might be limitations in the ESM (Csikszentmihalyi & Larson, 2014). One is the people most likely to participate in ESM surveys and what this says about a potential self-selection bias that might exist. Two, are there certain areas of their lives that are missed by the ESM (for example, sex, use of illegal drugs etc.). Three, what impact might the process of engaging in filling out the survey for the ESM impact the experience being reported on? Fourth, how does ESM data compare with other measurable data of the same experience? They conclude that each research yields different answers for the above questions depending on the research participants demographics, the environment of the space and other factors (Csikszentmihalyi & Larson, 2014).

In my research design, the aim was to strongly motivate from an intrinsic reward point of view for potential study participants. This included motivational messages by me to them as to why this research is so important and how they can assist in making it a success. This, and by me enabling them to have access to the research results afterwards, has been proven to be the most successful methods of gaining the trust and participation of the students in previous ESM implementations.

In Hektner's research, there was no questioning of the trustworthiness of the ESM by any of the participants. The data provided by previous studies have found to be reliable and accurate. This is attributed to three main reasons:

1. The phenomenological approach assumes that it is the best way of objectively recording the experiences of an individual and other ways only reduce the objectivity in the record.
2. The nature of the ESM is to obtain data at various snapshots throughout an individuals' life. Thus, the comparison of, say happiness, can be done for an individual across various experiences in their daily lives. The frequency of these data collection periods means that a meaningful set of data is obtained to draw accurate inferences. Hektner notes that there are no other methods that offer the same intra-personal analysis of psychological variables as the ESM does.
3. The third reason for this is that the experiences are sampled at random in many cases. When this happens it overlaps specific areas of an individuals' life. It thus gives glimpses into the experience of an individuals' work, home, and other spaces they might frequent. Their relation to each other is an important aspect as it opens the door for future researchers to utilise the data for studies with a potentially very different focus (Hektner et al., 2007).

Researchers across different study contexts have used the ESM to gain insight into consciousness. In the United States, it has been used many times in the educational context in schools, discovering the experience of students in relation to the school activities, even as early as the 1970s (Mihaly Csikszentmihalyi, Larson, & Prescott, 1977). The ESM is undoubtedly obtaining information from study participants as to what they are thinking at a particular point in time. What their state of mind is at that point in time can never really be known other than through neuroscience tools. However, through the use of prompting, the questions in the natural environment of the person, ensuring a frequency that validates the data and randomising the prompts so as to obtain data in varying contexts, the ESM has been shown to be one of the few methods of systematically obtaining subjective data from study participants.

In addition to the ESM, a Systematic Qualitative Analysis was also be done from interview notes. This is crucial as it gives a broader picture to the experience of the learning environment which includes staff members. It also includes the experiential data of the researcher in terms of their interpretation of the experience in relation to what has been said through the interview notes and ESM data.

3.2 Research design

The intentions of the research were primarily to discover how the students experience their learning environment while engaged in various activities.

This marks the development of social science, in general, to explore how an individual interacts with their environment. To achieve this with the ESM, the following methods have been employed:

- A descriptive survey

The research sought to understand three core elements of information from participants were environmental data (such as where exactly they are, what is the main activity they are engaged in), their cognitive state (focused, relaxed, distracted) and emotional state (happy, motivated, frustrated).

- A cross-sectional survey

The participants who sign up were a fixed set of participants. It was the intention that the group will have a level of transferability of their experience to the larger student population in Cape Town and beyond.

- Self-administered surveys

The participants primarily interacted with the surveys using their own cell phones. The second option was to complete the survey on a computer (which was located in their learning environments). The final option was to complete the survey through pen and paper. All three were made available with the primary method of the cell phone application being the focus as it provided the most benefit. This benefit is that because they could take their mobile phone anywhere, the survey was able to be done in their most natural environment. Moving to a computer to do the survey there or getting the paper-based survey and needing the right place to write, have a lesser external validity but is still very acceptable. After giving informed consent, each participant in the interviews was briefed on the types of questions that would be asked. The researcher also asked a few follow-up questions that were not scripted. This ensured that interviews both flowed more naturally but also covered all the intended areas of focus in student engagement.

3.3 Data collection methods and research instruments

A Systematic Qualitative Analysis was conducted on the interview notes compiled. The interpretations made from these compilations are complex by nature of the type of data shared. The richness of the data was then overlaid with the experiential considerations of the researcher. Significant statements which ultimately resulted in themes were found.

ESM's strength lies in capturing an individual's momentary or episodic representations rather than more global perceptions (Hektner et al., 2007). The lens was from how individuals experience life in different situations throughout the day. It is for this reason that a cell phone application is an excellent modern method in which to gain access to the experiences of individuals in everyday life. Over the decades, this process has evolved from pen and paper to pagers and now to cell phone applications. The researcher designed the questions on an online platform which is the actual survey which the students will fill in (Appendix B). According to organisations' requirements, an alert on the student's phone would signal them to fill out the survey.

These triggers can be either dynamic (relative to a certain occurrence) or static (at a specific interval or frequency). There were also at times no triggers went off and participants filled in the survey at their own discretion. The participants would then complete the survey on their phone, computer, and paper. The frequency of the survey completion per student was anticipated as being at least twice a day. Each of the surveys took about 2-3 minutes to complete on the cell phone. The duration of the study was aimed to be over a 2-week interval where possible. At times, violence in the area or some other interruption of the learning environment prevented these plans from being followed. The cell phone requirements were any Android or iPhone with relatively easy operating system requirements.

The research method assumes that even though the organisations are based in low-income communities, the students are largely in possession of a smart device, especially since they are participating in learning environments who have strong technological focus areas.

3.4 Research Ethics

Student Engagement

While ESM is a well-suited way to better understand the lived experience of the participants, there is a significant shift from the researcher to the participant as the creator of knowledge that needs to be reflected on. Through ESM the data collection process itself affects the everyday lives of the participants.

Three ethical issues are noted by Kirk in her paper. They are power relations, informed consent, and confidentiality. She also notes how the power dynamics are different when the participants are children compared to adults. In my research, the participants were youth which would be considered young adults. Therefore, these power dynamics are definitely relevant. A focus during the ESM process was to enable the youth to increase their participation by showing them the control and influence they have on the research experience.

Research by Koro-Ljungberg, Bussing, Williamson and M'Cormack-Hale on reflecting on the ESM technique from a knowledge production and power perspective with youth, notes that an interesting power dynamic results in this method. They note that power shifts to the participant as they become key knowledge creators in the process and participants have control over their experiences and data (Koro-Ljungberg, Bussing, Williamson, & M'Cormack-Hale, 2008). This can be quite distressing for a researcher who might have aspirations of collecting a certain amount of data. Koro-Ljungberg et al. also note that the researcher, as someone from a university and authoritative stance, will still hold a significant amount of power in the relationship. They conclude that it is important for researchers to note that while care is taken through ESM to open up communication and understand the lived experience, a "true reality" can never really be reported on. The power dynamics in the relationships and the agency of the participant to present data in a way they see fit will always be present (Koro-Ljungberg et al., 2008). In my research, it was, therefore, important to not defend low data points for certain individuals or overall and allow the amount of data collected to reflect a story in itself.

The research received ethical clearance from the University of Cape Town in October 2016. This included the research questions and the clearance to obtain data on the grounds of educational research.

Consent was required from the participants before they could commence with the research process. It was emphasised that they were not required to be a part of the research process and that it was completely voluntary. In the Appendix, chapter 9, the research participant consent form can be found. I also ensured the confidentiality of their answers in that as the primary researcher, only I would have access to the data and that the data would only be shared with written consent from the participant. As the researcher, I have committed to keeping the identities of the students anonymous to preserve the integrity of the data, as I shared with them verbally and on the written consent form.

Data Collection

Metric Wire has developed a comprehensive software application to conduct this type of research. It is a major time-saving tool for data collection and analysis in comparison to the traditional methods previously employed such as pen and paper methods (Metric Wire, 2017).

The usage of an application on a participant's cell phone would have ethical concerns. Examples of these concerns include but are not limited to:

- What data does the application access on the participants' cell phone?
- What outputs does the application send out of the participants' cell phone?

- Is the security of the application enough to protect the participant in line with required regulations?
- Is data usage excessive, especially for participants from low-income communities?

The application would be installed by the participant, once they have signed the consent form. The application would periodically load the survey for the participant to complete. The data is accessible on an online platform for only the primary researcher to analyse.

In terms of privacy, MetricWire's privacy policy has been written in accordance with the Canadian Personal Information Protection and Electronic Data Act.

"MetricWire as a company does not view, share or alter any data without the permission of a researcher. Participant data collected through the app or web portal is hosted on our servers and accessible only to the researcher account that is collecting that data." (De Souza, 2017).

The data is thus secure and confidential with only the main researcher having access to the data.

A key advantage is that because it is available for iPhones and Android phones, it is a seamless addition to the participants existing accessories. As these are generally technology-savvy individuals, the research anticipated that most learners would have smartphones. From a security point of view the phone applications only

"allows for response submissions. . . It is simply a tool that facilitates mobile data collection." (Metric Wire, 2017).

The privacy policy applies to the web application as well as for the phone applications, which has a link in the phone application stores. It is a free application to download, as well.

3.5 Sampling

The process of participant selection was vital to ensuring that the data obtained is satisfactory. The process was as follows:

1. The study was introduced to all the facilitators of the organisation. A question and answer session was then done. The facilitators played a key role in encouraging and holding the students accountable during the data collection period. Because of the time constraints, they had the trust of the students more than the researcher.
2. The facilitator initially introduced the study to the class. This shows the organisation in part endorsed the research and were involved.
3. The researcher then introduced the study to the class and had a question and answer session thereafter. An open invitation was extended to the whole class through registration forms. This added uniqueness of an external person introducing the research study to the students.
4. Each person who completed a registration form was then the researcher reminded them of the significance of the study. Much effort was placed in communication and advertising the research study as something desirable to be a part of for altruistic reasons. This helped in that only those who wanted to be a part of the study joined.
5. Reviews were done to ascertain how the participants are doing in completing the surveys. The researcher was on-site during the survey period. This was to assist with any technical issues or for any general questions/concerns. The researcher did not inform the students what answers needed to be filled in. Participants eligible for the study were anyone able and willing at Rlabs and Sozo Foundation. The requirements of the study were less than the requirements of the learning environments the students were a part of. The only exception would be the preference that smartphones are used instead of a computer or pen and paper.

Given that the learning environments being researched are focused on technological development, many of the students already had smartphones. Hektner et al. indicate that ESM studies have a modest sample size by social science research standards. This is attributed to the amount of effort required when partaking in ESM studies. The richness of the data of even 5-10 participants is enough to produce meaningful data. The conclusion is that the relationship between the participants and the researcher needs to be carefully considered (Hektner et al., 2007). If there is a significant enough suspicion by participants that their responses would have an adverse effect on their well-being at the learning institution they are at, then the data becomes less usable. Through the above-mentioned process of enrolment, the researcher clearly articulated that their individual responses would not be made known to the organisation. The researcher also stated to the participants beforehand, that if any criminal activity or potential danger to themselves or others are detected, that the researchers are bound by law to report this to the appropriate parties.

The aim was to have a total of between 15 - 30 participants from Sozo Foundation and RLabs. The duration of the study was aimed to be over the course of two weeks. The requested amount of responses per day were aimed at two responses per day. The main concern was the motivation and commitment of the students, to the study. Especially over the two weeks or longer period. Regularly encouragement and motivation were needed to keep them going.

3.6 Research criteria (validity and reliability)

Validity

The validity of the research had two main concerns. First, is the control of variables in the learning environment and relating this to the data to be studied. Second, is the transferability or generalisation of the conclusions to other environments and contexts. This is called internal validity and external validity, respectively.

The traditional approach to maintaining high levels of internal validity was to have human or animal subjects in a research laboratory to control any variables necessary. However, this loses any valuable insights that may be made from external validity. The unnatural environment in which the laboratory studies were conducted, meant that the conclusions made by researchers could not realistically be transferred to the real world (Hektner et al., 2007). Hektner et al. explain that the benefit of ESM surveys in non-experimental studies over once-off surveys is that the frequency of the completion of the ESM surveys, results in an added level of authenticity compared with the situational data collected in once-off surveys. With once-off surveys, participants are also more likely to reply based on the answers that they think the researcher wants to receive. When there is the frequency that ESM requires, participants are significantly more likely to answer authentically. A significant concern in ESM studies in addition to reporting accuracy is dealing with reactivity. *"Reactivity is a methodical confound that occurs when respondents report accurately but change their behaviour or internal experiences as a direct result of their participation in a method."* (Hektner et al., 2007).

Hektner et al. give examples where a participant is woken up by an ESM signalling device. This would directly impact their mood and, therefore how they complete the survey. The impact of the survey triggers on the research participants has shown to not significantly impact ESM studies if handled correctly and if the signalling schedule is designed with the participants in mind. The student can put the cell phone triggers for the survey on silent, for example, should the student not want to be interrupted for a reason. The triggers could be disabled, and the participant could access the survey at their convenience.

External validity:

The result of a sampled study is, usually to generalise the sampled population to reflect some greater population. In ESM research, the population refers to either a population of people or a population of experiences. The research has considered the following concerns to ensure external validity.

One is the signal response rate of the participants. That is, that proportion of responses by participants for each signal activated. Hektner et al indicate that signal response rates between 50 to 75 per cent for computerised ESM studies can be expected based on recent ESM studies conducted with college students. Two is the attrition rate. That is, through refusal, non-response, or attrition there is a decrease in the received data from a sampled population. Hektner acknowledges that critics often point out that it is generally playful, healthy and sound-minded people who volunteer for ESM studies and this means there is a danger of the studies using ESM not being representative of the greater population (Hektner et al., 2007). The reality is that a researcher cannot force engagement, regardless of the conditions created. ESM has been found to provide a high level of ecological validity as participants can go about their daily lives while capturing their experiences as it happens or close to when it happens before it is filtered by memory or subsequent self-reflection.

The Validity of ESM measurements:

Here, we will look at how well do the questions asked in the survey, address the intended measurement. As with Hektner et al's ESM textbook, we will focus on three key areas, contexts & activities, internal states, and individual traits & characteristics:

1. Contexts and activities

The questions focused on here are the primary activities of the participant; who they are with and in what environment are they in. It is important to know these and compare these contexts and activities with their responses. Trends could be inferred in terms of their responses when alone versus with others when doing one activity versus another. The researcher can compare this with reported internal states, individual traits, and inferences drawn as well. The participants' point of view based on contexts and activities are under inspection here. There are many different permutations in terms of how the analysis could play out.

2. Internal states

The internal states of participants are particularly their thoughts, emotions, and motivations. The ESM has shown to be a valid way of exploring participants' internal states due to the extended nature of the surveys over a pre-determined period.

3. Individual traits and characteristics

In measuring the validity of ESM measures, the measurement is sometimes done for an aggregated person-level characteristic or trait. Convergent or equally divergent behaviour could indicate a correlation between an internal state and a groups perception of their individual characteristic. Inferences could be made of participants with certain characteristics and the ESM data and further inferences of those without those same characteristics. The comparison of the ESM is often made to a single once-off questionnaire for reference with the participants. Hektner et al. note that *"In every case where ESM data were compared to other evidence of individual characteristics, convergent validity has been documented."* (Hektner et al., 2007).

Reliability

The reliability of more traditional research methods is measured quite differently from the ESM method. Reliability is the stability and consistency of data results. Where the researcher might question the reliability from one survey to the next if different results are found for one person, this

is not the case for ESM studies. The nature of ESM is such that from one survey to the next, the conditions of environment and activity could be different, therefore warranting a varied response per survey. ESM reliability focuses on the aggregation of several responses and then measures these with patterns of aggregated responses from the past (Hektner et al., 2007). Rather than looking at isolated responses per individual, the researcher measures the patterns of behaviour per individual over a period of time. To test this, the first half of the survey data would be compared with the second half of the survey data for the same individual. For this research, the reliability of contexts and activities and internal states will be reviewed briefly.

Context and activities

The primary consideration in terms of participant context and activities is to ensure that the researcher correctly analysis the data the study periods and correctly reflects them in the research findings. For example, study reviews by Hektner et al. have shown that a study of students started on a Thursday produced inconsistent results as the weekend had a lack of classroom activity. The inconsistency was with the first half of the reporting period, including a weekend, whereas the second half did not. Researchers can mitigate these situations by ensuring the comparisons are always on weekdays.

Internal states

One of the strengths of the ESM is that it collects data at a regular frequency and thus, validity and reliability of research studies overall are significantly strengthened. The internal state of emotion of an individual such as joy, happiness etc. is rated by that individual. For internal states, the aggregated approach of researchers of measuring certain constructs is usually enough. When the researcher does not use aggregation, multiple-item scales are used within ESM studies such as Cronbach’s alpha (Hektner et al., 2007). Cronbach’s alpha is a measure of internal consistency, that is, how closely related a set of items (in our case emotions) are as a group (UCLA: Statistical Consulting Group., 2017). The higher the alpha value the higher the correlation of the items being studied. A Cronbach alpha value of 0.7 and greater has generally been viewed as the accepted correlation between items. Figure 3.1 below shows Cronbach alphas for various ESM studies conducted:

Scale Variable with Items Comprising the Scale	Alpha	Studies Reporting
(Positive) Affect Happy, cheerful, sociable (or Friendly), Relaxed	.75 - .85	1, 3, 4
Negative Affect Angry, Frustrated, Irritated, Lonely, Nervous, Strained, Worried	.90	4
Potency (or Activation) Strong, Active, Alert, Excited	.76 - .87	1, 3, 4
Role Salience Caring, Importance of activity, Responsible, Proud	.82	4
Self-Esteem Living up to own expectations, Living up to others’ expectations (or ability to deal with the situation), Control, Feeling good about self, Succeeding	.79 - .90	2, 3, 4
Intrinsic Motivation Wish to be doing something else (reversed), Enjoyment, Interest	.72-.76	2, 4
Love Affection, Love, Caring, Fondness	.91	5
Joy Joy, Happiness, Contentment, Pride	.80	5
Fear Fear, Worry, Anxiety, Nervousness	.91	5
Anger Anger, Irritation, Disgust, Rage	.91	5
Shame	.94	5

Shame, Guilt, Regret, Embarrassment		
Sadness	.93	5
Sadness, Loneliness, Unhappiness, Depression		
Notes: Studies from which alphas are reported 1. Csikszentmihalyi and Larson (1984), 2. Hektner (1996), 3. Csikszentmihalyi, Rathunde and Whalem (1993), 4. Koh (2003), 5. Dirner, Smith and Fujita (1995) A scale was used on a once-daily self-report in which participants rated how much of the time during the day they felt that emotion.		

Figure 3-1: Commonly Used Composite Variables and Their Internal Consistencies - (Hektner et al., 2007).

In a study done by Larson and Csikszentmihalyi, a comparison was done between the ESM surveys filled out and independent measuring instruments. In one example, participants were asked to fill out a survey when prompted answering one questions, “How physically active were you in the last 3 minutes” which required a 1 to 10 rating (Csikszentmihalyi & Larson, 2014). A comparison was done with heart rate monitors and participants were asked to predict what they predicted their heart rate reading would be. Results showed that self-awareness depended on participant personality differences, certain activities were easier to predict than others and other factors. The point Larson and Csikszentmihalyi were making is that even when independent measurement devices have been used in conjunction with the ESM surveys, each study would be different and analysing the different relationships between data points and participants is part of the process (Csikszentmihalyi & Larson, 2014).

3.7 Data analysis methods

The approach of the data analysis has been both quantitative and qualitative. The two levels of data are response-level data and person-level data. Much of the person-level data was through interviews with a select group of participants. These were students, facilitators, and leaders of the organisations. With response level data, the data is captured as database entries from the students. Each signalled entry by each individual is entered as a separate row in the database. The unique identifier being the entry number and another distinguishing (albeit not unique) identifier would be participant identification number created by the Metric Wire software assigned for anonymity purposes.

Response-level data focuses mainly on the experiential data of participants, without much focus on personal demographics different from the overall student group. When analysing response-level data, it is essential to compare it to specific patterns of data acquired and not in isolation to another participant. In a hypothetical example created by Hektner et al, the importance of aggregation is shown via the use of a z-score. They highlight how one person named Heather has a smaller range for their scores (1-7) and generally scores more positively (closer to 7) in their survey responses. The other person, Michael, has a higher range between their scores but has more negative scores in their survey responses (closer to 0). When comparing an isolated activity such as watching TV, Heather scores the activity as a 4 and Michael a 3. A logical conclusion would then be that Heather is slightly happier than Michael during this activity. This is what happens when only the raw scores of the surveys are used. For the following explanation, the z-score definition is a measure of a values' in relation to a subset of values. The z-score is the standard deviation from the mean where a z-score of 0 means it is the same as the mean. A z-score is positive when the value is higher than the mean and negative when it is less than the mean. When Heathers scores for watching TV are compared with the other activities she is recorded doing, watching TV is a Z-score of -1.2, a relatively negative activity in comparison to her other responses. Michael's TV watching experience is at a Z-score of -0.5 in comparison to the other activities he has done, which means it is a lot less negative an experience than Heather's experience overall (Hektner et al., 2007).

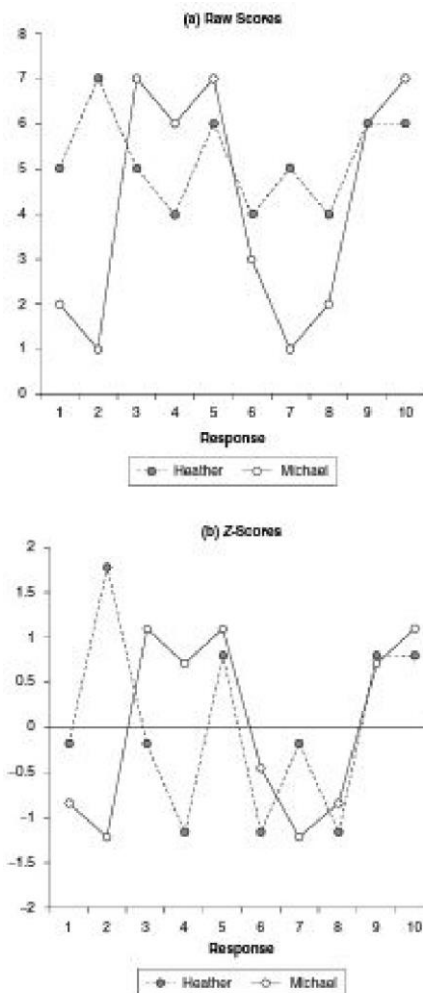


Figure 3-2: Comparison of Raw scores and Z-scores Over Ten Responses of two Hypothetical Participants Note: (a) shows the raw scores, and (b) shows how the same scores would look when transformed into Z-scores. This shows the importance of Z-scores in normalising the differences in participant responses in relation to other responses they have given (Hektner et al., 2007).

The comparison of activities using Z-scores during my research would largely be done on an ad hoc basis. Person-level data is useful in determining the effect of responses based on the environment in which the participant finds themselves in. Location, activity, and the company we keep all could have an impact on the responses of participants. Also, the researcher can code details such as ethnicity and gender into a separate file for additional analysis at a person-level. The comparison of situations has been the line of analysis for this study. That is, how students experience their environment during different activities and contexts.

Measuring Flow

The experience of Flow was sought to be determined at Rlabs and Sozo at certain survey trigger points. The ratings given by participants was analysed by me and is the reference from which Flow is determined. Flow Theory defines being in Flow mainly when the challenge and the skill level of the individual are both high. These measurements are from the subjective perspective of the individual. Figure 3.3 at the end of this section shows the mental states as adjudged by Csikszentmihalyi. While a high challenge and high skill level strongly influence Flow experiences; low challenge and low skill level supposedly result in apathy or boredom. Fullagar, Knight, & Sovern challenged this conclusion in a study done with music students where low challenge and low skill level was found to result in anxiety due to the social expectations of ease in performing the task (Fullagar, Knight, & Sovern, 2013). They attributed low challenge and high skill level to relaxation and control. Lastly, high challenge and low skill level are attributed to anxiety and worry.

This study has focused on three core variables, that is, concentration, enjoyment, and interest. It is the relationships between various variables that will be of most interest and where the inferences will be made. Alternatives for data analysis within ESM are up to the researcher in terms of what the objectives are. When researching students in learning environments, this study focused on concentration, enjoyment and interest in relation to challenge and skill to determine Flow experiences in these learning environments. Another key factor considered in my research has been autonomy. In Csikszentmihalyi's research, autonomy plays a key role in learning. The level of autonomy given to an individual differs by varying degrees in task selection or elements within the task. Lastly, the researcher must consider extreme social environments in which the participants live and where the learning institutions are based. The mindsets developed by the students in these high-stress communities have been assessed through analysing previous studies dedicated to this as well as gathering information through observations in these learning institutions as well.

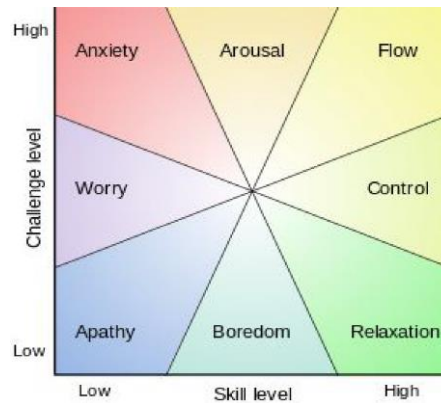


Figure 3-3: Mental state in terms of challenge and skill levels concerning Flow Theory. It locates the Flow experience with other experiences with the challenge/skill matrix (Csikszentmihalyi, 1997).

Interpretivist Paradigm

As the researcher, I spent a significant amount of time independently observing the learning environments as well as engaging with staff and students in interviews. During these experiences, I was involved with learning about the experiences of various individuals in these learning environments. Through detailed interviews and observation exercises, an interpretive view can be developed. According to a research methodologies paper written by J. I. Bakker, *“The details are important because it is argued, we can fully grasp human meaning only when we have a detailed account.”* (J. I. Bakker, 2012).

During the data collection period, it is important as the researcher to note one's own bias regarding matters, especially when emotions might flare-up. Engaging in interpretivism means the researcher needs to note ontological and epistemological stances throughout the research. Ultimately, the interpretivism approach assists in gleaning the human meaning behind the experiences of the learning environments. In observing and interviewing participants, a researcher can better understand how to increase student engagement in learning environments.

Methodological Strategy

A methodological strategy helps the researcher think through the relationship between their research questions and the research methods. Below is a chart layout for this research:

Research Questions	Data sources and methods	Justification	Practicalities (eg. Resources, access, skills)	Ethical issues
1. What are the key conditions were needed that resulted in the highest student engagement experiences?	Experience Sampling Method (survey data)	The surveys will be targeted to understand their ontological position of the students of their learning experience.	Software to collect and trigger the surveys at a certain frequency. Students to be diligent to fill out the surveys and have the technical skills.	Personal protection of personal information agreement. Ethical sign off from the students (over 18).
2. What was the relationship	Interviews and observations of	Understanding the nuances of	Time alone with students to	An agreement that their

between the high student engagement antecedents and the level of engagement reported by the student?	key stakeholders and Experience Sampling Method (survey data)	the student experience requires more situational questions via interviews as well as observation exercises.	interview, time to not engage with anyone and purely observe the activities in the learning environment.	personal details will not be shared. Privacy while interviews are in progress.
------------------------------------------------------------------------------------------------------	---------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------

Figure 3-4: Chart layout of linking research questions, methods, practicalities and ethics (Mason, 2017).

3.8 Limitations and challenges

The ESM was a coordinated undertaking with limited human resources. Once the research started, a series of purposeful steps needed to be taken to ensure the data obtained was valid and reliable. The participant commitment was one of the most important factors for the research. Without it, research integrity and usefulness would have been impacted negatively. Therefore, simplicity was a key design factor. The surveys were made to be seamless and convenient to be filled out. If this were not the case, then the study would have been limited in its data collection potential. I also took into consideration the students schedules for the surveys to be completed at certain times in the day. This required buy-in and collaboration with institutional facilitators and leaders, discussed in the validity and reliability sections previously.

The research focus was on learning environments in low-income communities and, therefore, this was a natural limitation in terms of transferability to other communities. The intended inferences are primarily for these criteria only. The target audience was from low-income areas and would have previously come from schools that were operating well below required standards in these communities surveyed. Therefore, getting buy-in, the diligence of survey completion, and overall cooperation in a high crime environment where trust is generally low, was a major challenge. The very real challenge of the social context is what causes many researchers to avoid these unpredictable and risky methods, which significantly increases the external validity of the research. It was a challenge worth pursuing, though.

3.9 Research Plan

Outline of research plan:

1. “Research Design meeting” with the learning institution staff:

The objective of this meeting was first to introduce the concept and purpose of the study. Second, high-level discussions as to the current context of the learning environment and how might the ESM tool fit into the schedule of the organisation was conducted. It was also to establish the initial trust-building process, crucial to the success of the research so that the staff and students meaningfully engaged with the researcher.

2. Conduct a test survey round:

The purpose of this was to evaluate a group who would be used to learn any barriers that might not have been apparent in the design of the process. This group would not be part of the survey sample population.

3. Introductions:

As part of the phased introduction process, the researcher introduced the research to the facilitators

and staff of the organisation. The staff then introduced the researcher to the students. The researcher then introduced the research, the purpose, and how the student could make the research a success. These steps are again all part of trust-building as well as creating an intrinsic motivating for the students to engage in the research.

4. Application:

The researcher then invited all those who were interested, to complete the application form. The forms were filled out while in the researchers' presence.

5. Interviews:

Thereafter, if necessary, an individual or small group interview process took place with the completion of the consent forms.

6. Training:

The study participants were then taken through training on how to use the cell phone or computer software application and the researcher demonstrated the survey itself. It was also an opportunity to check for any isolated technical issues. That is technology hardware, software, and cell phone networks that could have given problems.

7. Data collection:

The research data collection process then started. Students were required to complete the surveys as close to the cell phone trigger/signal as possible if they agreed to create a trigger. The researcher was present during the data collection period to assist in any way with technical issues or any questions or concerns.

8. Mid-review:

After an agreed-upon predetermined period, a review was done and any adjustments were made to improve the process.

9. Data analysis:

The process of coding and arranging data then began.

10. Debrief:

After the data collection period was done, each participant went through a debrief to recall the experience of going through the ESM process. More formal interviews were done with a few of the participants as well.

11. Post-review:

After the data collection period, an informal review was done with facilitators and staff as to their experience of the ESM process.

12. Data analysis completion:

The process of analysing the data and seeking relationships or patterns in the data was completed.

13. Final write-up:

Final thesis write-up completed with conclusion and inferences drawn from the data and address the research questions were then done.

3.10 Research Handbook

A key approach was to develop a research alliance with the facilitators of the organisation. It was important to communicate that the high-level findings will be made available to each of the organisations. While not required, ideas to build trust would be to spend time with the members to get to know them a bit better and build rapport. The researcher emphasized the importance of the research as well as the level of the strain it will place on the students (needing to fill out forms several days a week).

Recruitment

When I was considering the data, the collective and individual level answers were important, as this represented a day in the life of the participant. In the initial presentation with the participants, it was important to paint a picture as best as possible as to what it looks like to be a part of this research.

Having an engaging question and answer session surfaced any concerns they had. The appeal was made to the altruistic side of the participants. It was stated that the purpose is for action out of this research to be taken to assist schools in being more effective in the long term. I aimed to build up excitement regarding the publishing of research results.

At the recruitment meeting, an invitation to sign-up was extended. Beforehand, they would have been informally briefed on it as well. They were then given the consent form to read off-line on signing-up. An online version was also offered. The sign-up sheet they filled in required their email address. They were also asked to download the Metric Wire software application. I needed to ensure a WIFI hotspot for this download to happen to save on data when downloading the application. They attended an orientation meeting for a more detailed discussion.

Orientation

The orientation entailed the signing of the consent form, which was handed out at the sign-up stage. This could also, be done on the Metric Wire application on the cell phone itself. I then gave the students a background of the study, the purposes behind it, and what role they needed to play. This was mostly repetition from the recruitment session to strengthen the memory retention towards the endeavour.

The size of the group varied at the orientation meetings. What was key was to connect meaningfully with the participants to build the trust level. Time did not always allow for one on one engagement but small groups worked well. The participants then logged-in to the survey on the cell phone/computer software and did a test run of the survey. A question and answer session then ensued. The test runs were not included in the data analysis. I communicated the start date to them and that they could test the survey process out leading up to the start date. During this test period, it was envisioned that the participants would have some issues or questions regarding the survey. The researcher was then contactable to sort out these issues.

Feedback sessions

As with Flow Theory, consistent and regular feedback meetings are crucial to ensure that participants know they are on the right path and can focus on the task at hand. After the first official day of the study running, the researcher had open and informal feedback sessions with the facilitators and participants. These sessions were a short length of time, just to assist with any questions and help with any problems that they might have encountered with the cell phone application.

3.11 Case study

The Experience Sampling Method (ESM) provides a rich set of data which researchers can use on its own. ESM locates itself between a survey and ethnography in terms of the number of data points and richness of data. For this research, I used a mixed approach. The ESM is a mixed approach which provided quantitative and qualitative data. If quantitative and qualitative approaches are a continuum, then a mixed approach can be seen as being in the middle of this continuum (Creswell, 2003). Many of the ESM data are closed-ended questions. Those ESM questions that are open-ended might well miss many of the nuances that I experienced while interacting with the two organisations. I therefore also conducted interviews with facilitators, leaders, and students of the two organisations.

These interviews gave me a much deeper understanding of the reasons why the organisations exist, what they hoped to achieve from a student engagement point of view, and the outcomes they hoped to achieve. These interviews were specifically exploring the environment created by the organisations and the experience of the students.

Case studies are known to have 5 main components (Yin, 2009):

1. The research questions.
2. The study's propositions focus areas, constraints, and possible links between phenomena.
3. Study's unit of analysis - main units must be at the same level as the research questions and typically, comparable to those previously studied.
4. Linking the data to emerging themes.
5. Discussion of interpretation of the findings based on the themes and synthesis of these.

One of the major criticisms of South African education by Jonathan Jansen has been that the designers of learning environments are often not aware of what life is like in many of the diverse communities across South Africa (Jansen, 1998). These interviews at Sozo Foundation and RLabs were to delve deeper into the challenges that are experienced in creating effective educational environments.

The questions revolved around the following themes for those from the organisation:

- How and why did the organisation start-up?
- Why did you choose your initial start-up location?
- What was the specific change you were looking to see?
- What were the major learning themes in your learning environment design?
- How has your business model evolved over time?
- What continues to be the challenges in engaging students?
- What is the difference between your organisation and most other organisations in youth development?
- What are the big goals for the future of your organisation?

The drawbacks of interviews are that all answers given by the interviewee are received by a researcher who has their values, worldview, biases and assumptions (Creswell, 2003). With my own upbringing on the Cape Flats and then going on to study at one of the best tertiary institutions on the continent, it is important for me to acknowledge that there will be various judgements I might implicitly make that I would need to set aside to focus on the data. Creswell has also noted that the interviewees often give answers that they think the interviewer wants to hear or that would make their organisation look good. By being completely present in the moment and delving deeper into understanding, I could attempt to probe the authenticity of answers.

As per the five components of a case study mentioned above by Yin, a process of understanding the organisations' relation to the study is needed. These served me in the selection of the correct organisations to do case studies with. This also ensured the unit of analysis was correct, that is, the focus revolved around two organisations geared towards youth and skills development situated in the Cape Flats. During the interviews and data collection period, including with the ESM, key elements of the data stood out concerning the research questions. Out of these data elements, themes emerged and are listed. These interpreted findings are discussed and reflected on with the intent on recommending areas of implementation for these and other like-minded organisations. Future research topics are then detailed.

3.12 Summary

This research methodology is a mixed approach using the ESM as well as interviews to better understand the nuances that would not ordinarily be captured through the ESM alone. The role of the researcher is to better understand the world of youth development organisations in tackling a seemingly overwhelming issue in South Africa. I set out to better understand education from the perspective of both the student, as well as the staff, as it relates to the research questions about student engagement. The ESM, as well as the case study interviews, needed to be rooted in an empathetic journey of understanding.

4 Research Findings

4.1 Research Participants Background

Most of the information on the backgrounds of both the Sozo Foundation and R Labs were obtained from interviews with the staff of each organisation. When information was also obtained from their websites or third-party sources, this is noted as such.

Sozo Foundation

The website of the Sozo Foundation says it

"is a non-profit organisation (NPO), based in the impoverished Cape Flats community of Vrygrond, Cape Town. Vrygrond is a low-income community where according to the last census in 2011 (City of Cape Town, 2013), 77% of the households, earn less than R3,200 per month. 26% of the households also do not have proper sanitation. The census population size is recorded as 18,498 (estimated to be closer to 42,000). With a vision to see the community of Vrygrond living with dignity, purpose and hope, Sozo creates opportunities for holistic development through four key areas: Education, Skills, Youth and Well-being." (Sozo Foundation, 2017).

The idea, which became the Sozo Foundation, started with the Bay Community Church in Capricorn Business Park, which is situated right next to Vrygrond. A group of people wanted to make a change in their community. Youth workers from the local church noted the great challenges many children in high school face. Because there were no high schools in Vrygrond, children must attend high school in neighbouring suburbs and townships, while crossing many gang-infested areas. Many of the youths that were part of the church's Friday night youth group came from Vrygrond.

The other reason Vrygrond was a viable option for the Sozo team was due to its geography. It is a distinct area, separating it from other communities. This meant that there would be little interference from neighbouring communities compared to the generally more densely populated areas of the greater Cape Town area. Vrygrond was therefore chosen due to its high need but also as a strategic motive for maximising impact.

Initially, the youth workers offered tutoring programmes for high school children at the church. After about a year and identifying that it is a great need, the youth workers decided to move their sessions to the local library in Vrygrond. After about six months of doing this, they launched a tutoring centre in a large container on the grounds of a local primary school. At this time these were mostly volunteer-led operations. The tutoring programme has now grown to focus on especially Science, Technology, Engineering and Maths (STEM) subjects. These sessions with the high-schoolers are done by staff members of Sozo internally as well as willing volunteers who are not staff. Due to the knowledge of negative social disruptors in the community, there has always been a holistic youth development focus rather than only focusing on academics.



Figure 4-1: Defined boundaries of Vrygrond and Sozo Foundation Location. Vrygrond was noted by Sozo Foundation to be an interesting location as it is seen as a ‘closed system.’

The first funder, The Learning Trust, gave a small grant which was the next big step the team of youth workers needed. The Sozo student group grew from 40 in 2012 to 95 in 2017. The Sozo Foundation focuses on training unemployed youth between the ages of 18 and 25 in three primary skills: mechanical labour, barista (coffee making), and graphic design skills. This research conducted surveys with graphic design and barista students.

When the students enrol for the programme, they embark on a 4-month journey. The first month is mostly focused on personal development, working on the emotional and psychological core of each student. This is also strategic as it helps Sozo ascertain who are the students willing to commit to the full programme. The skills development happens thereafter for the remainder of the programme in conjunction with more personal development activities to a lesser extent. Sozo has structured it this way as the skills development component is generally more expensive than the personal development component.

Sozo seeks to develop skills based on the perceived need for these skills in the market. For example, their barista program is motivated by Cape Town’s growing coffee culture represented by the steady increase in coffee consumption over the past decade (Holmes, 2016). Cape Town has seen an increase of 4% coffee import rates which is almost four times higher than the global average (International Coffee Organization, 2016). With this major increase in coffee consumption and high growth in new coffee shops opening, there is a high demand for baristas, those who prepare coffee. This is Sozo’s main focus in skills development and has its largest participant group compared to their graphic design and mechanical programs. Sozo partnered with a local coffee roaster and coffee shop, who train the baristas at Sozo’s offices in Vrygrond. To ensure that each student-barista is enhancing their skills, they need to make at least one or two cups of coffee a day on the coffee machines. There is also an online coffee course provided by a third party where the students learn about the process of coffee making from bean to cup.



Figure 4-2: A leadership discussion in progress. The team have noted that the vibrant colours and modern environment inspire them to also engage in a vibrant and inspiring manner.

The mechanical students of Sozo have also created a mobile coffee mobile. The barista's use this stand to set-up mobile coffee shops for many events which pay for the students to serve coffee. The movement from a pure NPO to a social enterprise is a crucial part of Sozo's strategy for the future. Their existing funders have pushed them to create streams and opportunities for revenue generation.

As more funders came on board, a partnership with the government developed. The increased funds led to the building of their own headquarters in Vrygrond. This trendy two-storey building is shown below.

During a period of numerous riots in Vrygrond, about two years after the building was completed, Sozo's building and property were not touched even though the surrounding buildings were severely damaged. The leaders attribute this to the community understanding that Sozo is trying to positively influence their community. Many of the staff come from Vrygrond as well, further creating a sense of purpose and a bridge to the community. The building is equipped with four classrooms for the children for after school, a computer lab especially for the students on the skills development programmes, and two high-quality coffee machines for the barista classes. Outside there are vegetable gardens and other horticultural implementations as they also have students learning about permaculture.

With a key eye on converting student programme completion to job placement, Sozo begins with the end in mind. Throughout the journey, the students experience what life in the working world might be like. This has made Sozo a preferred recruitment option for many employers.



Figure 4-3: The vibrant looking Sozo Building located in the heart of Vrygrond.



Figure 4-4: Peer mentorship in PC training in action.

RLabs

Reconstructed Living Labs (RLabs) is an organisation that aims to be providers of hope in low-income and high crime communities. It is situated in Bridge Town, a largely coloured community in the Cape Flats in Cape Town. The level of income is higher than Vrygrond, but the level of crime is higher in this community due to the drug trade. RLabs has been a shining beacon of light in the community. It is surrounded by some of the highest-ranked policing precincts for murder in the country (Crime Stats SA, 2016).

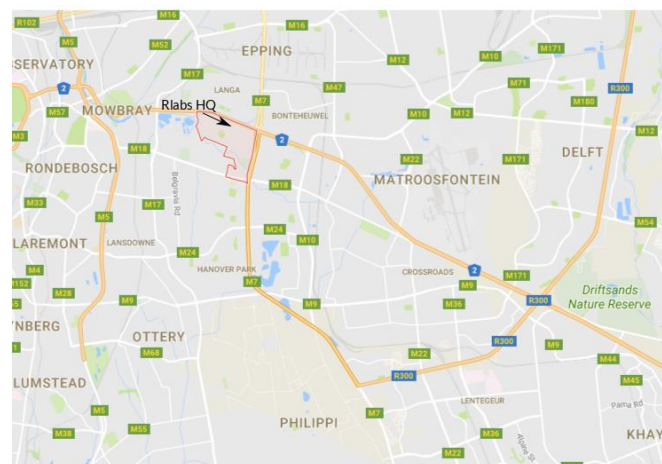


Figure 4-5: Defined Boundaries of Bridge Town and the location of Rlabs HQ. This is in the heart of the Cape Flats where unemployment and crime are rife.



Figure 4-6: RLabs Headquarters in Bridge Town. The spaces are always colourful and creative. Staff have said that they feel the learning environment inspires them to be creative.

RLabs have, over the years, developed various partnerships with government and private organisations. The website says that

"RLabs is a social enterprise that has impacted more than 7.5 million individuals globally in 22 countries reconstructing communities through training, innovation and entrepreneurship." (RLabs, 2018).

Marlon Parker, Founder of RLabs, started the organisation from very humble beginnings. It began in 2007 when he took a few members of his local community to attend computer classes at the Cape Peninsula University of Technology (CPUT) in Cape Town. The training recipients were gang members within Marlon's local community in Athlone, an area which struggles with crime and drug addiction. According to Marlon, this was a very uncertain time for him, as he had to deal with the concerns of both CPUT management and the recipients who felt insecure as students. However, there were common goals with CPUT management wanting to make a difference in communities, and the new students wanting to improve their online skills, as well as wanting to change their gangsterism ways.

Since then, the organisation has blossomed, pivoted, and moulded into a social enterprise impacting millions across the globe. Many former gangsters and drug addicts have provided testimonies of how they changed their life around through the impact of RLabs. Many of them are part of the senior leadership of RLabs today. After the initial computer-based classes, Marlon saw the opportunity for the initiative to grow. He partnered with a grass-roots organisation, Direct Impact Ministries, to launch a project called the Reconstructed Living Labs (RLabs) project. This project later grew to be its own non-profit organisation, RLabs. A few digital opportunities came their way.



Figure 4-7: RLabs, another picture of the vibrant paintings and décor of their spaces.

They quickly became an award-winning organisation for the intersection of social media skills and community development. Most notably, RLabs developed a platform called Jamiix that hosts various services. The Jamiix platform was hosted at the time by the Mxit messaging platform. Some of these services were for mobile counselling for those struggling with various forms of drug addiction (Ventureburn, 2010). Another service, utilised by the World Health Organisation (WHO) in Asia, was for creating an aggregated platform for a Single Point of Data Entry (SPODE) which greatly assists relief efforts after natural disasters have occurred (Mail and Guardian, 2011). Mxit has since stopped operations of the messaging platform.

After rapid scaling to 21 countries in its first five years of operation since its 2007 launch, RLabs now seeks to work with governments in creating youth-friendly spaces where they can develop digital and social skills. In Cape Town, RLabs have increased the number of youth spaces which they call Youth Cafes. The types of programmes RLabs offers are diverse and relevant for the area in which the Youth Cafe finds itself.



Figure 4-8: An RLabs colourful space with facilitators and students in discussion.

Training includes Social Media, Occupational Health and Safety, Basic Computing, Photography, Human Resources, Personal Financial Management, Entrepreneurship, Office Management, and others. They have programmes for older mothers and grandmothers called MOM that is a basic computer skills course that includes social upliftment factors. All the mothers receive a manicure so that while typing others are also able to admire their nails. They include many other creative aspects of the course to make it enjoyable for the participants. During school holidays or on weekends,

RLabs have programmes aimed at children in primary and high school. Often these are centred around the development of digital skills such as computer programming. They often utilise games that teach computer coding to ensure that children are enjoying the experience while learning.

One of their flagship programmes is called Innovia, which is an entrepreneurship incubator. The incubator is an 8-week programme that gives potential or current entrepreneurs the opportunity to gain access to an environment of expert mentorship as well as resources to test and decide whether the business is viable or not. The journey culminates in a "pitch night" where the participants present their business models to potential investors, mentors, industry enthusiasts, and peers. The pitch night is much more focused on the celebration of an end of an often exhausting, but most rewarding, eight weeks than on securing any business deals.

The Youth Cafe focuses on a programme called the Global Leadership Academy (GLA). The students part of the GLA programme were the ones at RLabs that this research primarily focused on. The locations were at the headquarters in Bridge Town as well as at the Youth Cafe at the Vangate Mall in Vangate, both on the Cape Flats. Through a 3-month programme, these students are exposed to in-depth personal development, as well as a wide range of digital skills training. The digital skills include creating their own blog, social media, online research, entrepreneurship, website creation amongst others.

The background of the two research participants clarifies what makes them so different from most other organisations with a similar mission. In many respects, these organisations have been pioneers of post-secondary school youth development. Many other NGO's, local government, and private companies have been started getting involved in a similar style intervention as RLabs and Sozo Foundation.

4.2 Data Collection experience

The leaders and facilitators at both Sozo Foundation and RLabs indicated they welcomed the research. In exploring student engagement in learning environments, Sozo and RLabs said they saw the value that the research might add. The purpose was to find out what were the conditions under which students were engaged. Also, exploring how this data could be leveraged to further improve organisations in the youth development space. A total of 52 people were involved in the ESM, interviews, observational exercises. The data collection was part of the daily life experiences of the research participants for six months.

With the enrolment process at both organisations, most of the students volunteered to do the surveys and the interviews. The facilitators briefed the students of the research and who I was as the primary researcher. Then I conducted a presentation of the overall research endeavour and its purposes. I told the students that their participation was totally voluntary. The one challenge noted was the issue of cell phone data costs. At Sozo Foundation, quite a few of them did not have smartphones. At RLabs, all of them had smartphones, but some of them did not have data credits to access the internet all the time. At the Sozo Foundation and the RLabs venues, they had WIFI to which the students could connect to, but at home, there was mostly no WIFI. For these circumstances, I implemented backup plans for using computers at their respective venue or paper survey forms for them to fill out and hand back to the researcher individually the next day. Once they realised how little data the surveys used on their phones, they were more willing to do the surveys at their own cost. As this is the first academic paper on Flow Theory in Africa, these are valuable insights for further research.

The main challenge was ensuring that they remember to do the surveys. The students who attended

the programmes at both institutions are largely those who were unable to make it into a tertiary institution or make it into employment. Bearing this in mind, I observed that their motivation levels, in general, appeared to be quite low. Sozo Foundation facilitators indicated that the internal post-course surveys that they conducted were also filled out after much persuasion. Often the students did not do the surveys, especially at home. The researchers' presences seemed to be a positive factor in the completion of surveys. The additional task of doing the surveys seemed to add further difficulty to the overall student experience.

The ESM surveys also placed an additional task for the Sozo and RLabs facilitators to get done. Both institutions are in communities with high poverty and high crime on the Cape Flats. During the data collection process at the Sozo Foundation, there was one day where the facility was forced to end off the day early at noon due to anticipated violence and protest action in the area (which indeed occurred a few hours later). The facilitators escorted everyone, including the primary researcher, safely out of the community at short notice. This is a reality for all involved at these institutions and the community at large. These experiences also speak to the participant's lived experience of navigating life-threatening situations regularly. This would be quite different from someone who lives in a low crime community in Cape Town. This is interesting considering research done by Ellis, Griskevicius and Frankenhuis mentioned in the literature review regarding adaptation-based approaches to resilience. The core focus for Ellis et al. is how youth in high-stress communities develop differently to those from low-stress communities. Learning environments, in general, have not amended their education programmes considering this research.

The researcher's observations were that the youth seemed to be attentive to the movements of others. When the researcher would interact with the students, the students would not often make eye contact, but more be looking at the rest of the body or elsewhere, as if checking and reading body language. In observing their conversations, they seemed to pick up social cues quickly. This would make sense considering the research by Ellis et al, as it is needed to navigate the dangers in their communities and homes. During the data collection process, a correlation was found between those students who were performing well in class and those who were regularly completing the surveys. This is an interesting correlation which speaks to the motivation, performance, and character of each student. This connection was noted by previous ESM studies as a deterring factor as it means that the diligent are more represented than those who are not filling out the surveys and not performing well in class. This might be true and unavoidable. All the students researched are from low-income communities, including those who filled out surveys more than most. Therefore, all participants are representative of the target audience. The facilitators who were there came across as highly motivated and passionate about their work. There was a sense of a deeper purpose behind what they were doing. They were not outsiders, as most of them were from the surrounding community around Sozo Foundation and RLabs. The learning environment facilities in which the students worked was very colourful and trendy. If the research were done at a traditional school, with often less motivated teachers, dreary-looking classrooms, I hypothesize process would have most likely have been more difficult.

The researcher was highly relatable to the students. Having come from a similar background and similar age to the students, this might have played a role in my relatability. A contrasting result was that they might not have taken the surveys as seriously if it was more of an authoritarian figure, such as someone significantly older than them. The researcher appealed to their altruistic values rather than giving tangible rewards for compliance.

The researcher notes that it was a complex environment in which to do research. This was in terms of the researcher working with the students themselves and in the external residential/organisation

location. However, the daily lived experience of these students, and hence the most authentic and externally valid way to conduct the research, was worth the effort despite these challenges.

4.3 Experience Sampling Method Data

The positioning of the data

As unpacked in Chapter 3, certain data is regarded as independent and others as dependent.

The independent variables were:

1. Location
2. Main action
3. Main thought focus
4. People present in the space
5. Challenge level
6. Skill level
7. The autonomy of task selection

The dependent variables were:

1. Enjoyment
2. Concentration
3. Interest
4. Emotions

In the surveys, the dependent variables were given ratings between 1 (not at all) and 5 (very much) by the students. In total, 338 surveys from 35 students were received over a three-week period collectively from the Sozo Foundation and RLabs. The aim was for the researcher to do the data collection over two weeks but it ended up being three weeks. This was in part due to the violence in the area and so there was a break in between. These types of community violence experiences are not new for the two learning environments. The survey relates to those experience in terms of the engagement of the student around an activity. The distribution of data per participant was not ideal, but still meaningful to produce valid data inferences. This will be dealt with later in this chapter. By design, the researcher intended the surveys to be completed during break-times at Sozo Foundation and RLabs based on a session just completed, as well as while at home. The ratio was to be about 3 to 1, surveys that were done in class to surveys done at home or at other personal locations. This is because our focus was around the learning environments of Sozo Foundation and RLabs. The home surveys were to check for student bias of home experiences in comparison to their learning environment experiences.

Experience reflections

At Sozo, the participants used a blend of paper and digital ESM surveys. Needing to adapt to the experience on the ground was important and worked well. At RLabs, all the students who participated had smartphones and were able to partake in the cell phone-based surveys. This simplified matters greatly. There were a few technical difficulties initially. The application kept timing out on registration. Eventually, we connected the students to a faster internet connection and registration worked fine. Thereafter, the application worked fine regardless of connectivity. The reason attributed to this is that the amount of data submitted at registration is significantly more than the data for each survey. Hence the time-out issue and they needed faster connection at registration only. These were not a consideration for the supplier of the software before, whose only other clients are in countries where the internet connectivity is usually very good. This was the first time the survey software was being used in Africa and so I anticipated many learnings.

Because youth might feel obliged to give high ratings for their learning environment provider, the students were intentionally asked to also complete a few of the survey's outside of their learning premises. These spaces could be their homes, friends and family visits, or any other space away from the actual learning providers premises. This was important where the participant might be overly positive or negative in general and comparing the responses in the learning environment is then possible with reference to the experiences in their personal lives.

Surveys

The surveys were conducted by the MetricWire application, as previously explained in the introduction. At the Sozo Foundation, due to the lack of smartphone access for some of the students, they conducted it on a personal computer (PC) while at Sozo, and on a computer or pen and paper while at home. Due to low literacy levels, a few of the students were often reluctant to engage with the surveys at all. Feedback from the students was that the design of the surveys was easy. Once they completed the surveys a few times, many of them committed to it more and according to the software reporting dashboard, it took them three minutes to complete at most.

Figure 4.9 below shows a diagram of the number of responses for each user ID. There was attrition in the number of students who completed the surveys. The data is enough to draw strong correlations, patterns, and inferences. This data, in addition to the leadership, facilitator and student interviews conducted and the observations done, all paint an interesting thematic picture. One of the participants completed 50 surveys. This was significantly more surveys completed compared to the average amount, but the data set is still a representative sample.

As noted in the student interviews section, as this participant is very much part of the target audience of research, their dedication is of interest in how to cultivate more Flow experiences. Even those who gave a limited number of responses contribute to the data set as the analysis is task-specific. Therefore, patterns in the participant activities are considered but are not the only measure. The gathering of data around the task itself bears much weight. The highly constrained social-economic realities during the data collection process add to the overall complexity. Many of the students were constantly worried about income generation, hoping that the programme they are in would be a means to that end. Surveys are not an obvious task to assist in that outcome, and therefore, the attrition is expected. In the below statistical analysis, the total data collection amount is considered as well.

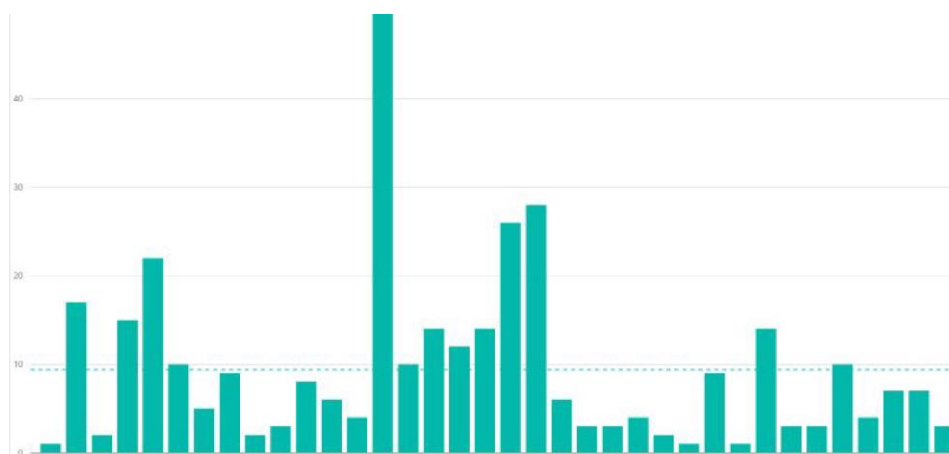


Figure 4-9: Number of Responses per participant

Figure 4.10 below shows the time of day the surveys were typically filled in. These would be mostly during their session times which are from 9 am till about 1 pm.

Thereafter, they normally took a break and then filled out surveys again in the evening. These evening surveys were particularly to deal with the issue of participant bias. The student might feel obliged to place the institution in a positive light, and therefore, rate highly for all in-class sessions. To ground their experience, surveys were also filled out at home to gauge the responses at Sozo Foundation and R Labs in relation to areas such as their homes. The amount of data gathered was lower than I expected, a key learning in doing this method of data collection. The amount of data gathered, however, is still enough to observe patterns and draw meaningful conclusions. It also assists in guiding future Experience Sampling Method research studies.

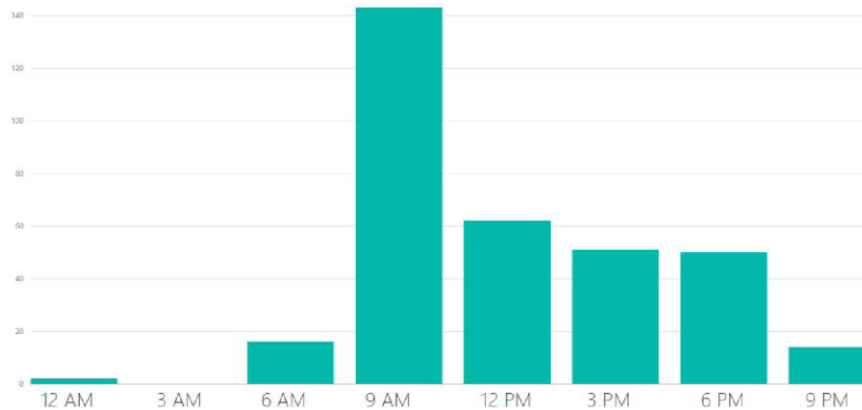


Figure 4-10: Time of day of survey completion

4.4 Significant Themes

In the research findings, the primary data collection sources are the multiple interviews conducted with staff and students to better understand various elements; observational exercises where the researcher did not participate directly in any activities but sat back and observed daily life in the learning environments; and lastly, the Experience Sampling Method (ESM) data collected through the frequent surveys conducted.

These interviews were not single interviews per person, but multiple engagements conducted over the course of a few months. These interviews were a key part of the data collection process and provided rich insight into various aspects of the student engagement focus. As with the Experience Sampling Method, all interviewees gave informed consent to use their insights as part of this research on the condition that their names are not used. They were briefed on the types of questions that would be asked beforehand as well.

In Figure 4.11 and 4.12 below, a high-level profile of each organisation's interviewee list is given. A few of the questions were looking at the higher-level operation of the business. The questions probed around the primary research questions, that is, the key conditions needed resulting in highest student engagement experiences as well as the relationship between high student engagement antecedents and the level of engagement reported by the student. These revolved around in-class engagement and out-of-class factors. The questions probed a bit further based on the answers given to go a bit deeper at times.

Interviewee number	Position at Sozo Foundation	Core responsibilities
1	Senior Leadership Council	Strategic direction of Sozo Foundation. Driver of community engagement in Vrygrond. Relationship management of potential employers.
2	Manager of the Youth Café	Efficacy and efficiency management of the café. Management of team of six facilitators.
3	Barista facilitator	Teaching and facilitation of barista training.
4	Barista facilitator	Teaching and facilitation of barista training.
5	Graphic Design facilitator	Teaching and facilitation of graphic design training.
6	Student #1	
7	Student #2	

Figure 4-11: Sozo Foundation Profiles of Interviewees

Interviewee number	Position at RLabs	Core responsibilities
1	Senior leadership team	Coordinating the assessment and development of academic programs within the RLabs Training and Development
2	Senior leadership team	Heads up the Course Lab division.
3	Grow Leadership Academy facilitator	Operational planning and running of the Academy
4	Grow Leadership Academy facilitator	Operational planning and running of the Academy
5	Personal Development facilitator	Facilitation of personal development journeys
6	Student #1	
7	Student #2	
8	Student #3	
9	Student #4	

Figure 4-12: RLabs Profiles of Interviewees

The thematic data is obtained from the various data collection methods mentioned above. The thematic data is not equally distributed between the data collection segments, there are often overlaps and sometimes the theme did not emerge in a certain data collection method.

Emergence of themes

Qualitative research seeks to understand the nature of humans from a certain perspective in different contexts (Patton, 2002). The researcher needs to take a strategic approach in considering available resources at hand. According to a Sage Research Methods paper, content analysis is the process of taking data collected from interviews, observation exercises etc and categorising it accordingly. In the paper, it recognises that this is a commonly used method of making sense of data collected and is often referred to as latent content analysis. The categorisation can often be discrete, that is, either true or false. It can also be represented as degrees of attributes as in this research, that is, the degree of student engagement factors (Julien, 2012). Within this research, the content analysed was in the realm of student engagement within learning environments. Where ever student engagement was influenced by other factors, this was noted down and where the number of occurrences was dominant these emerged as themes. Content analysis is adaptable where the organising and understanding of data can be done in a systematic way as noted by Julien in a research methodology paper written for Sage Publications. They also note that longitudinal data can be analysed to show change over time. This analysis is also non-intrusive as it is using existing data in its application (Julien, 2012).

Personal bias:

A researcher will inherently have their own personal bias that they carry with them while doing research. Here, Julien notes that

“because meaning is context-dependent and subjective, a single piece of text can indeed be open to different qualitative interpretations by different researchers. Reliability of judgment remains important nevertheless, and researchers must always be mindful of the perspectives they bring to their analytic work as well as of the context for the text being analyzed.” (Julien, 2012).

Themes:

Throughout the data collection process, there were a few stand out themes that emerged. These were:

1. Change from the inside out: Home-grown personnel.
2. Learning environment look-and-feel, combined with facilitator energy.
3. Relationship between theory and practice.
4. Maintaining Flow experiences.
5. Survey data: Concentration, interest, and enjoyment experiences.
6. Emotions in relation to getting in Flow.
7. Psycho-social focus through listening and being heard.
8. Values-driven.

All the themes feed into the realm of student engagement as depicted in Figure 4.13 below.

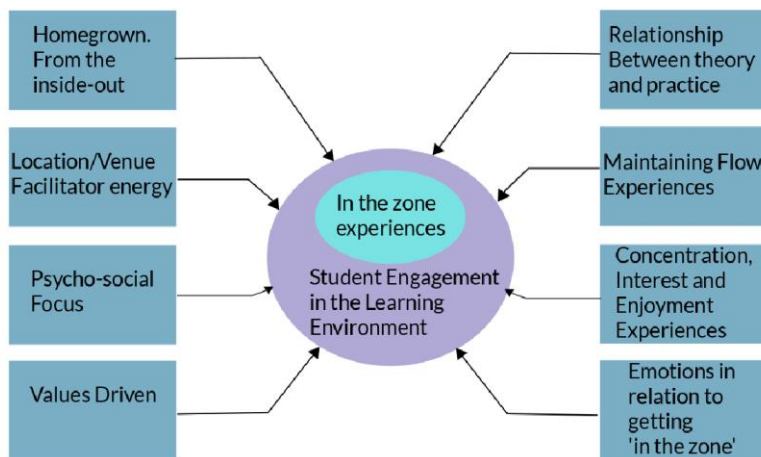


Figure 4-13: The themes that the leadership focuses on trying to maximise impact on student engagement

4.4.1 Change from the inside out: Home-grown personnel

Data from interviews and observations:

One of the hallmarks of R Labs' start-up period was that a few of the staff reported having experienced the struggle of unemployment, gangsterism, drug addiction, and other social ills which plague the community. With this experience and transformation in their lives, many of them are now crucial senior advisers within the enterprise. A few of the leaders have created videos of their journey from gangsterism to the role R Labs played in getting them on the right path. One leader I interviewed said,

"After dropping out of school, I used to just roam the streets of Cape Town without direction. After years of drug addiction, I had a major medical scare due to my reckless life. Someone advised that I

visit RLabs. They welcomed me with open arms. I now aim to empower others through education so that they don't have to walk the same path I did." (RLabs leader, mid-thirties, male, coloured).

There is an emphasis on co-creation of the physical learning environment according to the staff and the students. Multiple staff members mentioned that they are more invested in the success of RLabs than merely collecting a salary. In the personal journey presentations of the staff, they use their story of transformation to encourage the students who come from the same communities. Local representation has been a challenge for many other organisations across the Cape Flats, especially in the youth development space. Many of the leaders of other organisations are from outside the communities they aim to serve. Relating this to Flow Theory, the connectedness that is reported by the students and the staff means that students could develop self-confidence that they can achieve great things too. According to the Flow Theory literature by Csikszentmihalyi, this self-confidence and belief are mainly what will drive high levels of student engagement and thus higher occurrences of Flow experiences. One of RLabs' key focus areas is on integrating technology into the whole experience. This is via computer programming courses or through methods to enhance parallel career streams, such as the utilisation of social media for marketing purposes. RLabs is developing and educating youths from low-income communities. Through what they regard as innovative and vibrant physical learning environments, RLabs aims to change the negative perspective many youths have towards learning. The community in which RLabs operates has a high crime rate. By having a staff that is from the community, this enterprise has an inherent understanding of life in high crime areas and the impact it has on the students. It also assists them in their mission to create learning environments which are authentic for the needs of the youths they are aiming to impact. RLabs also indicated that they are forming stronger links with government, private corporations, and tertiary education institutions looking for collaboration opportunities. Having the youths develop their skills from within the communities in which they reside means that they are more likely to feel at ease and comfortable, again resulting in greater self-confidence. This self-confidence is one of the crucial elements of Flow experiences. That is, the high skill level required in Flow is noted to strongly correlate with an individual's confidence in themselves (Csikszentmihályi, 1997).

At the Sozo Foundation, a crucial element has been their intentionality in believing that the solutions to the issues in Vrygrond will come from the existing community. In this regard, the hiring of staff has been primarily from Vrygrond and surrounding areas. The staff reported on the lived experience of gang violence and other social ills. The staff from the community indicated that they feel they are more able to put themselves in the student's shoes, as they lived in more difficult circumstances than many of the staff who come from the outside. This then becomes an important part of increasing student engagement. When asking one of the senior leaders of Sozo why their organisation is such a rare breed in impacting others successfully and what are others doing wrong the response was interesting,

"Those doing work in communities like our Vrygrond, often have access to people, resources and funding (as with Sozo's leadership which they indicated is mostly Caucasian and middle class). The key difference is those other organisations often do not recognise this as a privilege. We recognise our privilege. We do not see our access to resources as deserved but as part of a systemic problem." (early-forties, male, white).

This individual went on to say that this results in Sozo seeing those in Vrygrond as equals. Sozo regards the youths in the community as individuals who are more than capable of succeeding, and just need some guidance and support to come up with their own solutions to their own problems. Sozo sees this "relinquishing of power and privilege," which many organisational leaders are not willing to do, as a crucial solution to the problem why many community organisations do not flourish.

Sozo Foundation reports on increasingly being more integrated with its surrounding community. Even though the residential community has experienced frequent riots and protest-action, Sozo's

has largely been unaffected in terms of any damages to their building and assets. The most frequent result of these riots is generally damage to infrastructure. According to one of the leaders from Sozo, the community leaders understand that Sozo exists to help the community in meaningful ways through social and economic development. Activities that Sozo does for the community is hosting parent meetings, riot and protest resolution talks, and have even provided food for these sessions as a form of showing commitment to the community priorities. Building trust between Sozo and the community has been and continues to be an important focus of their work.

All of this serves to uphold one of Sozo's important activities, which is a peer to peer mentorship. In their peer-to-peer mentorship model, they actively seek out competent and motivated members of the Vrygrond community to be leading the initiative. Sozo has many staff leaders who are already mentoring students, both of whom are from the Vrygrond community. According to Flow Theory, Autotelic activities are those where an individual is aiming to advance other people's goals often ahead of their own (Csíkszentmihályi, 1997). The staff facilitators who are from the community have expressed "more and more wanting to serve the students and see them succeed and find jobs."

A shift in values that the Sozo leader reflects on resulted in a change in what they were teaching. In the early days of operation, Sozo reported having mostly international teachers and facilitators and international content, which the students were not finding relevant or contextualised. Over time, they evolved to more contextualised content with a strong peer-to-peer model, where many of the facilitators were from the local, surrounding community and slightly older to the participants of the Youth Café. The leaders and facilitators at Sozo found these changes positively shift the mood and level of engagement of the students at the Youth Café. The Sozo leader indicated that the relatedness and empathy involved in the interactions were apparent and these then resulted in a robust sense of self-confidence for the students. Both the training methods and the trainers themselves are contextualised and more local respectively, according to the interviews conducted and observation sessions. According to the Flow Theory literature, these higher levels of relatedness between the students and their leaders is a strong influencer of higher engagement (Csíkszentmihályi, 1997).

4.4.2 Learning environment look and feel, combined with facilitator energy

Observations:

The Sozo and RLabs learning environment spaces all have a distinct "Google-like" signature look and feel to it. On the Cape Flats, the public schools are places that look dreary and dull in colour. The researcher noted that the staff and volunteers at RLabs carry this high energy and optimism in how they engage in the space. The researcher notes that whenever I entered any of the RLabs spaces, I was welcomed with great enthusiasm and always offered a cappuccino. There was a distinct willingness from the staff to serve while upholding their roles and responsibilities as leaders within the organisation.

Interviews:

A Sozo senior leader when interviewed said that the trainers and facilitators are also carefully chosen and are highly dedicated and talented individuals which is a general theme of all Youth Cafés (including RLabs and other Youth Cafés across Cape Town). They indicated that the hands-on training and the colourfulness of the space, increase the student engagement of the participants.

When interviewed, the senior leader at Sozo said he has placed a premium on the look and feel of the training facilities, as well as its conduciveness for learning,

"From the outset, we made sure the standard of the training rooms was high. We put in the coffee machines, multimedia equipment and made it feel vibrant with the colours and décor. The collaboration with businesses has led to 'master class' style sessions which are run in a professional manner by volunteers from these businesses. These relationships in turn also attract Corporate Social

Investment (CSI) funding. We focus on unconditional love and giving hope to our community rather than focusing on the negative aspects." (early-forties, male, white).

Conclusion:

Both spaces seek to promote hope and pride through physical space, which they feel results in excitement for the facilitators and the participants in engaging with and in the space.

4.4.3 Relationship between theory and practice

Interviews:

In terms of engaging the students, both organisations mentioned the importance of finding the right balance between theory and practical teaching. A key learning according to one of the facilitators (male, early thirties, coloured) at RLabs has been to increasingly lean more on practical teaching for the students,

"In teaching our digital courses, for example, we began to better understand the experience of the students. Each time we reviewed the programme, we became more convinced that we need to increase the number of practical activities for the next course."

According to this RLabs facilitator, these learnings are solidified through their train the trainer model embedded in their approach. Most of the facilitators of their flagship programmes such as the Grow Leadership Academy (GLA) have reportedly mostly been participants previously. This has really helped the RLabs staff develop an empathetic programme based on the lived experience of youth from the surrounding communities. At RLabs many of the youth who are about to join the GLA programme report to not have a clear direction for their life. Once completing the GLA programme, the learners report their direction as being significantly clearer and focused. According to one RLabs facilitator (mid-twenties, male, coloured):

"It (The GLA programme) really assists youth who are struggling with their identity and what their vocation is after this programme. It helps them decide on a possible career decision or doing a community project."

The participants might be reporting this as a sense of obligation to the organisation. However, one indicator of this feedback's truth of actual impact and authenticity in the organization is the retention of participants who become staff.

One facilitator interviewed (female, late twenties), said that they believed in the purpose of RLabs to be "hope givers" in their surrounding communities. This element of deeper purpose further engages the students and staff alike, as mentioned in the literature review, as to what deeply engages people. Csikszentmihalyi states that high engagement in Flow is mostly experienced when someone is engaged in an activity bigger than themselves (Csikszentmihályi, 1997).

When interviewing the Youth Café Manager (Vrygrond resident, male, mid-thirties, black), at the Sozo Foundation, much of the training for the Youth Café is around training and preparation of the youths for work environments. According to him, this means that issues of late coming, discipline and other factors are dealt with as they would be in a conventional work environment and not a school environment. Instead of theorising what a work culture would be like, the Sozo team enables the students to experience the pressures and realities of work life.

According to the manager, the employers who have partnered with Sozo have highly appreciated this training as this means much less training and effort needed on their side to shift mindsets if these employers are employing students from Sozo compared to the average job applicant. He also indicated that new students at Sozo will naturally relate and discuss what the Sozo programme is like with community peers who already went through the Sozo programme and have now found

employment. Sozo has found that the perceived tangibility of possible employment by the new students is motivating the student engagement as there is a profound willingness to succeed and do well. According to the Youth Café lead, this also, in turn, ensures the staff have a firm eye on the exit process of participants of the Youth Cafe as early as when they join Sozo which further impacts strategies around student engagement.

Another shift from theory to practice for Sozo has been towards greatly increasing the amount of time the students spend job shadowing. Sozo staff have found that this generates work-references much easier for the employers. Work references, in addition to Sozo's certification, results in a higher likelihood of employment for the students. The positive experience reported by students of job shadowing, resulted in Sozo to focus more on increasing the amount of time each student spends on it. The overall Sozo leader said he noticed an increased rate of learning of the students and therefore an overall increase in student engagement. He attributes this to the potential pressure of performing while job shadowing saying,

"...with a customer at a coffee shop at hand, there are no excuses, they need to be active and focused."

To increase student engagement, RLabs is looking at strategies like hosting post-session "news-anchor-like" interviews which are done via a platform such as Facebook Live. This drives regular reflection activities but in a fun way. Csikszentmihalyi also notes that getting into the zone will require a bit of work. By having the theory and practical balance right, RLabs for one has found more opportunities for Flow to be achieved (Csikszentmihalyi, 1997).

Observations:

During my observations, at RLabs, their focus areas were mostly on digital skills and entrepreneurship. The sessions would be interactive, conversational, and practical in the sense of doing assignments on laptops or doing group work. The close relationship between the theory of the digital skills sessions and its practical implementation was intertwined throughout the sessions for the students. During the research observations, there would be a back and forth all the time between the facilitator explaining the theory of the content and then having the students do a practical implementation. One strategic factor that seemed to make this possible was that each student had access to a laptop while the facilitator was busy. Each student could practice and learn throughout the session. It was interesting noticing the difference in reception when offered to embark on doing the surveys. Those who were interested in participating appeared to be listening more intently and engaged more by asking questions.

During the survey completion period, there were concerns raised of the cell phone data costs playing a role in ensuring the surveys are filled out. RLabs did not have WIFI connectivity available all the time. One of the facilitators offered his own data to ensure the students downloaded the application at least. Even when they were provided with data to do the surveys by the time the surveys needed to be done the next time around that data would have been automatically used by other applications often running in the background such as social media applications. These social, emotional, and technical challenges led to less data collection than originally desired.

From a student engagement point of view, one interesting observation I made at RLabs was the acknowledgement of roles of facilitator and student while also having a very much blended function and interaction with each other. The facilitators made barista-style coffee and served the students. Lunch, which was usually sandwiches, were also served to the students. In the classroom, all the facilitators interviewed and observed were at one stage students in previous years. The sessions mostly focused on the practical application of learning new digital skills, had students glued to the screens. They appeared to be highly engaged in the task at hand. When interviewed afterwards,

many of the students mentioned that they were captivated by many of the sessions with hands-on interaction with the laptops.

At Sozo, substantial time was spent observing the activities without being direct. One observation was the difference in the attitude of the barista students when doing the theory activities on the computers compared to doing the actual coffee-making practicals at the machines. During a morning briefing, the barista trainer mentioned to the students that many of them were falling behind in the theory sections. The non-verbal cues observed by the researcher seemed to strongly indicate that the theory activities were not something the students were enjoying at all.

4.4.4 Maintaining Flow Experiences

Interviews:

A Sozo project manager (black, female, mid-twenties) manages the student engagement factor at the Youth Café. She mentioned a few strategies to influence student retention,

"We kick off the programme with a one month intensive in life-skills development. We have found this helps us retain more students for the entire journey, which also helps us save costs during the skills development phase."

According to this project manager, this strategy achieves two main endeavours. One is to prepare the student to better present the soon to be acquired skill set with personal development skills to potential employers. Two is to ascertain the committed learners versus those who are uncommitted before the more expensive element of skills development begins. Sozo also indicated they have work readiness components where the students have similar demands placed upon them as would be at a work scenario in terms of time and attendance, and the repercussions if there are any deviations. Sozo's motivation is that, in this way, when the students do begin at an actual employer, they are already accustomed to the demands of work life.

The project manager has the challenge to create a learning environment that maximises the engagement of the students to achieve the above. The project manager indicated that she places a considerable focus on matching the right programmes with the right facilitators. Post-session reviews are led by the project manager to determine if each session meets the needs of the students and facilitators,

"There is support from the broader leadership to ensure there are many people assisting in maintaining high levels of engagement by the facilitators. We view this as very important and not one person's responsibility but the whole team." (Sozo project manager, female, mid-twenties, black)

On interviewing the Sozo Youth Café manager (white, male, early forties), he indicated that as of 2017, the Sozo Foundation has experienced a near doubling of staff growth, year on year since 2014. With this fast growth, their existing donors have challenged Sozo to explore ways of generating their own revenue to assist with sustainability. Sozo experienced the transition from a pure non-profit organisation (NPO) to a Social Enterprise as having many challenges but also many innovations. They have experimented in generating income through outsourcing their trained baristas for events for coffee making, charging a fee for planning events for clients, and exploring opportunities for opening a coffee shop.

The leadership is growing, transitioning, and experimenting, all while trying not to overwhelm the staff and students to such an extent that Flow experiences are not possible. The Youth Café's manager also shared that the sharp rise in staff size also presents the challenge of keeping staff engaged and relating that to the engagement of students. During the first few years of operation, the connection was between the students and a handful of staff members, but this has quickly

changed and evolved as the staff count reached over 30 at the time of these interviews. The Sozo leader interviewed said,

"Together we have thoughtfully developed a staff-handbook which we take each employee through to ensure that the values and ethos of Sozo are understood and maintained. We have found the handbook to be a great tool to ensure we are all on the same page."

Observations:

During the observational activities carried out, in spending just over two months at the Sozo Foundation premises, there were very interesting observations made. The data collection period was extended by an extra week due to violence in the area a few of the days. This was to ensure that enough data was collected. Throughout the time spent during the data collection period, staff and students were interviewed to discuss various points in and around the research questions.

One of the standout anecdotes of the research, which exemplifies Flow experiences, was observed one morning when a senior facilitator was encouraging a group of barista students to not congregate around one computer. He presumed they were watching unrelated YouTube videos and wasting time. He said, "Come, guys let's be serious here. You still have much of the work to do to update your CV's and prepare for your interviews." When he noticed that they were not moving from the computer screen and he went over to see what the interest was, to his amusement of the facilitator, they were watching 'master-class' videos of expert baristas making coffee art. The facilitator walked away laughing and telling them they can carry on as it is part of the practical part of the interviews they would do. There were six of them standing around the computer, so captivated by the skill of the expert doing different coffee designs, they did not pay attention to the facilitator's warnings. The researcher noted that this would be an example of being highly engaged.

In relation to the Flow Theory literature, at that time of watching the videos they were not in Flow as watching videos is a low challenge and a high skill level. Comments made were, *"Wow, check how they create that flower"* (a student referring to Café Latte art on a training video) or just exclamations of awe followed by silence as the video continued showing more expert demonstrations. Even though they were not in Flow, they were, however, preparing themselves for Flow experiences when they needed to do the coffee art themselves. This was a case of autonomy in learning, the students choosing to watch these videos even they were not required to, to improve their level of skill to match a difficult challenge.

The theory section of the training also requires this balance of challenge and skill matching. However, because of the low levels of literacy among the students, the designers of the programme might need to try very different learning methods and content than conventional question and answer style learning on the computer. This is an amazing opportunity for Sozo to further improve the engagement of the students utilising freely available content on platforms like YouTube. One other observation is that it is quite an exhausting task to maintain these levels of Flow for the students. The facilitators and other staff are highly motivated but there were also signs of fatigue. This is not uncommon for various youth development facilities including schools, but it does give rise to a strategy for creating more sustainable high-Flow environments. From the perspective of Flow Theory, understanding the level of skill would be important to match it with an appropriate challenge. There is a strong motivation for students to be part of the programme, which will make things very tricky as that might mean they would be less likely to honestly reveal inadequacies in these areas out of fear of being rejected from the programme entirely. These types of securities would also need to be put in place to encourage a more authentic environment where students and facilitators feel more comfortable to be vulnerable. From an actual content point of view, the growing barista orientated online content availability might be an opportunity for creating better

theoretical experiences for the youth. Creating their own customised learning solution might be their most effective alternative for the short-term utilising available Learning Management Software. These would all need to be decisions made by the staff and hopefully in collaboration with the students. RLabs have indicated that they have amazing traction in terms of maintaining high levels of engagement.

RLabs pride themselves on the energy and collaborative learning spaces they create. On observation, it has been apparent that the students are remaining highly engaged over long periods of time in their space. Students have also noted that they can easily relate to the facilitators and have a desire to be a facilitator as well. One facilitator (male, mid-twenties, coloured) mentioned that they, *“feel the energy trickles down and is infectious”* and so the students are impacted by them positively. An opportunity for RLabs lies in moving the accountability of student engagement away from the facilitators to the students. that there is an element missing in not depending wholly on the facilitators to ensure the engagement is high. There is an opportunity to get the students involved as well in maintaining these high engagement environments.

4.4.5 Survey Data: Concentration, interest and enjoyment experiences

In terms of measurement via the Experience Sampling Method (ESM), Flow experiences centre around the level of the challenge and the participants’ skill level, both from the participants’ perspective. On the quantitative portion of the research, via frequently triggered surveys, the student was required to give ratings of the variables. These ratings had a scale from 1 to 5. A rating of 1 being "not at all" and 5 being "very much." A high skill and challenge rating was judged to be a combined rating of 4 and greater.

According to the data, when the environment was not conducive for Flow (that is, a combined challenge and skill rating of 2 and lower), the following average ratings were found overall: Interest = 3.07, Concentration = 3.07, Enjoyment = 3.14. This is shown in Figure 4-14 below. Conversely, when a high Flow environment was present (that is, high challenge and high skill level), then the following average ratings were found overall in the surveys: Interest = 4.46, Concentration = 4.08, Enjoyment = 4.33. That is, after the activity when the student adjudged to be of a highly engaged state while doing the activity, they had the above ratings for the level of interest, concentration and enjoyment for the activity at hand. This is shown in Figure 4-15 below.

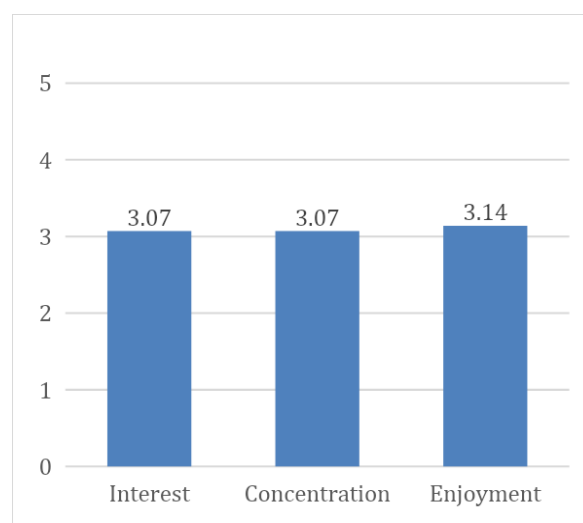


Figure 4-14 Low Flow environment showing low interest, concentration and enjoyment ratings too.

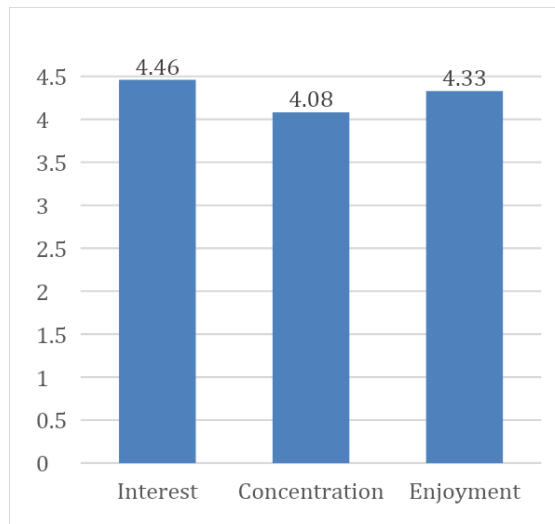


Figure 4-15 High Flow environment showing high interest, concentration and enjoyment ratings too.

As can be seen in the above graphs, the level of interest has a 27.8% drop when challenge and skill required moves from both high to both low. For the level of concentration, there is a 20.2% drop when challenge and skill required moves from high to low. For the level of enjoyment, there is a 23.8% drop when challenge and skill required moves from high to low. From an observational level, when students were engaged in the activities that most often induced a state of being in Flow, there was a drive for repetition of the task, pursuit of mastery.

At Sozo Foundation, for these students, one purpose they mentioned was to provide a better life for their families (most of the participants had children). The barista job market is a highly contested field and the coffee culture continues to strengthen and broaden in Cape Town. Therefore, the students know the stakes are high as the number of jobs available are currently limited while growing. They are reported going for job interviews which can create the urgency of preparation and self-drive (autonomy and mastery). At Sozo Foundation, according to the surveys, the primary activities the students were involved in were barista practising (making cappuccino's and latte's), CV creation/editing, online job searching, computer graphics editing, making or eating food, listening to or making music and, lastly, spending time with friends and/or family.

At RLabs, the facilitators were more focused on developing IT skills as well as teaching entrepreneurship to the students. This included the students learning about critical online research through Google, website creation, graphic design, entrepreneurship basics, and more. The computer focused learning seemed to have a natural engagement for many of the students. The students would often be engaged on the computers for hours on end, busy with assignments and exploring their newly found skillsets. The facilitator-led these sessions by guiding them as each of them sat at their own laptop while also sitting in small groups for assisting each other and holding various discussions. Reviewing the ESM data from the surveys completed in terms of who they were with while doing the activities provided one interesting insight. The students were never recorded as being 'alone' while at the learning institution. Whereas at home and other places outside of the learning institution, they were alone from time to time. Through the researchers' observations, all the notable spaces at the learning institution are communal spaces and the students are rarely alone. This is an interesting contrast in lived experience to a home life where the survey data reported the students as often being alone.

The key to understanding high student engagement is connected to the level of concentration, interest, and enjoyment experienced by students when analysed with the activities, thoughts, and emotions they engaged in. Concentration, interest, and enjoyment are rated to check if and to what

degree the students are highly engaged. These are based on the Flow antecedents of the challenge and skill rating, and the autonomy of task selection assumed as being high.

The activities that the students reported while concentration, interest, and enjoyment were recorded as being low are displayed in Figure 4.16 below. It shows that the notable category activity was a “Personal” which mostly comprised of “doing nothing” and “watching TV.” The participants often report boredom once they were at home or done with responsibilities at Sozo or RLabs. This is also recorded as part of the interview conducted above. Students seem to have two different worlds inside and outside of their learning environments. At their learning institutions, they are very busy, learning and performing various tasks. At home or with the community, time generally empty with the participants reporting few meaningful activities.

A few of the surveys noted students socialising outside of their learning institutes. They were engaged in a few anti-social activities such as hanging out in the streets listening to loud music or drinking alcohol and the like. The main reason stated for doing it was because they felt there was nothing else to do. They also noted not being particularly happy while partaking in these activities. It should be noted that both Sozo and RLabs typically starts at 9:00 and end their sessions between 12:00 and 13:00 and so the participants are not in any programme for the rest of the day.



Figure 4-16: Activities while concentration, interest and enjoyment are low

The activities that were reported while concentration, interest, and enjoyment were recorded as high are displayed in Figure 4.17 below. Interestingly, the participants record food as one of the highest single activities (mainly the activity of preparing food). Often, the students assisted with the food making at Sozo or RLabs for lunch at 12:00. The surveys also included the preparing of meals at home, though. The category “task-related” comprising of barista tasks, graphic design sessions, music recording, and IT skills development sessions. The “personal” category was mostly “watching TV.”

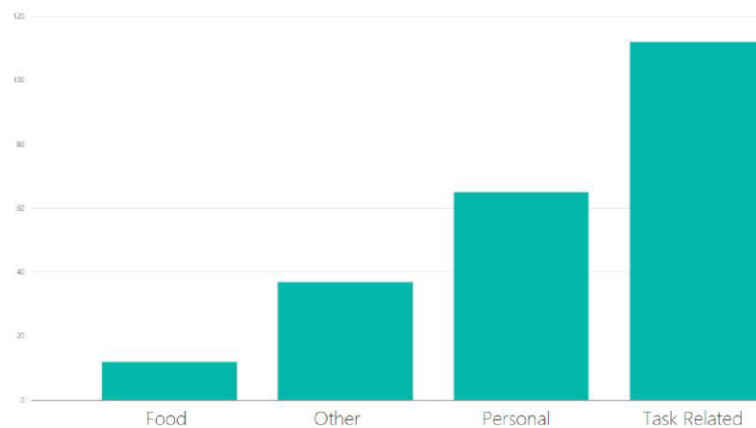


Figure 4-17: Activities while concentration, interest and enjoyment are high

The thoughts categories that were reported while concentration, interest, and enjoyment were low are displayed in Figure 4.18 below. This shows a dominant thought focus on the self. This category shows their concern about their life trajectory and worry about decisions they needed to make at the time and then also general reports of thinking about themselves. The other notable category is thoughts about others. These were mostly about family and loved ones, as well as fellow students to a lesser degree.

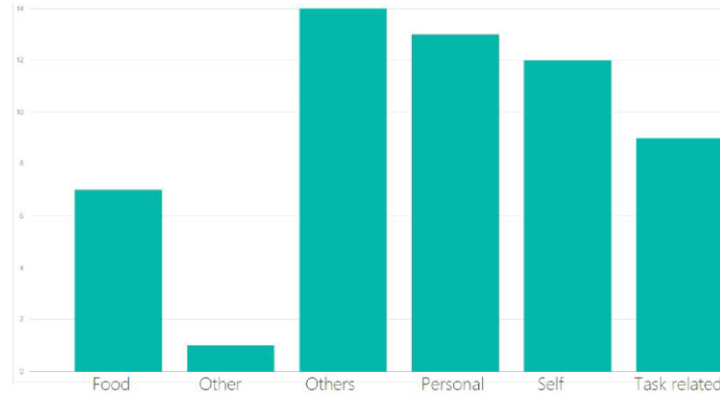


Figure 4-18: Thinking while concentration, interest and enjoyment is low

The thoughts that were reported while concentration, interest, and enjoyment were high are displayed in Figure 4.19 below. The thoughts towards others are higher here than thoughts about self which comes in only fourth highest now. Under difficult circumstances, with a great need to earn income to support the family, when Flow consequences are high, it seems that the regard for self becomes significantly less. The category that comes out highest is “task-related,” which includes music development activities, long-term planning, employment, coffee & barista practicals, and plans for the day. The music is quite interesting as this was mostly attributed to a musician who filled out these forms for rehearsals. These were conducted outside of Sozo’s premises and at his own will. These thoughts all show a more task-focused process which are tasks that the students have control over. This is also the benefit of having the students fill out the forms outside of the learning institutions as we can compare it with their experience inside the learning institution. Primarily to check for participant bias.

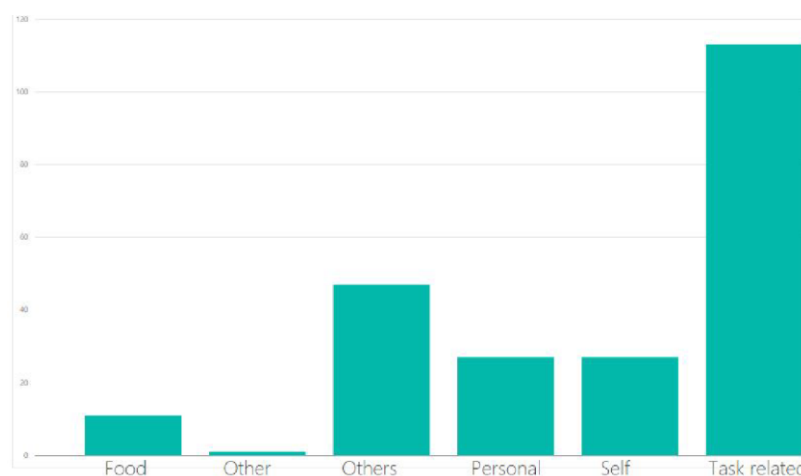


Figure 4-19: Thinking while concentration, interest and enjoyment are high

Answers to open-ended questions about emotions in the survey were coded into either positive, negative or other. When concentration, interest and enjoyment were low, most of the recorded responses of emotions were overwhelmingly negative. When concentration, interest and enjoyment

were high, the emotions recorded were mostly positive. Positive responses were coded from brilliant, calm, educated, enjoyment, excitement, exquisite, fun, getting acknowledgement, good, great, happy, innovative, interested, intrigued, learning, love, natural, relief, positive, togetherness, empathy, busy. Negative responses were coded from angry, bored, distracted, failure, lost, no choice, no job, no good, nothing to do, overwhelmed, stuck in mind. These two scenarios of when concentration, interest and enjoyment are high and then low are in Figure’s 4.20 and 4.21 below. The students showed a continuous concern for the future from an employment point of view.



Figure 4-20: Emotions when concentration, interest and enjoyment are high

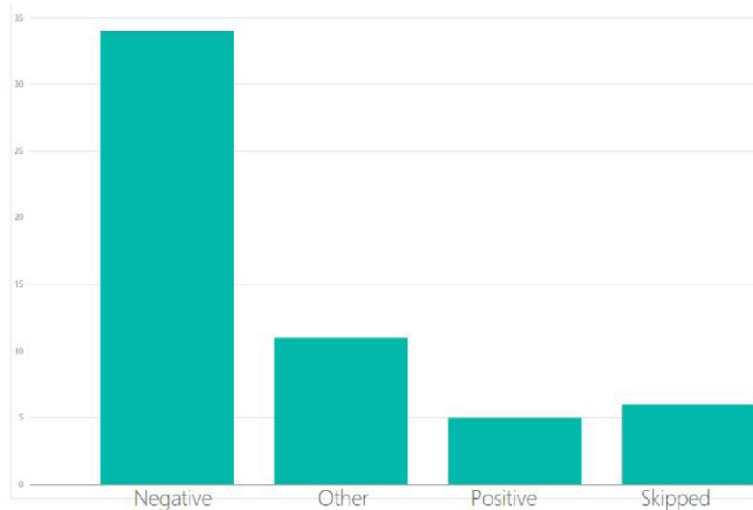


Figure 4-21: Emotions when concentration, interest and enjoyment are low

Relationship between concentration, interest and enjoyment with the level of challenge, skill and autonomy:

Multiple regression analysis is needed in order to describe the relationship between one or more predictor variables and the response variable. The null hypothesis is the general statement that no significant relationship is present between the variables being analysed. The focus in the data is around the p-value of the regression to reject the null hypothesis or not. A low p-value (typically less than 0.1 acceptable) means that a meaningful relationship is present and that the null-hypothesis can be rejected. The coefficient is an indicator of the relationship between the independent variable and the dependent variable. In this research, the focus on the coefficient is whether it is positive (proportional relationship) or negative (inversely proportional relationship).

Concentration:

The researcher did a regression with field effects analysing concentration, interest, and enjoyment separately as consequences of a Flow experience. The survey data of the above-mentioned experiences were analysed as dependent variables in turn. These were viewed in relation to the level of the challenge, the skill level, and the level of autonomy of the task as independent variables. The level of concentration as the dependent variable, in relation to the level of challenge, skill and autonomy as independent variables are shown in Figure 4.22 below.

Concentration vs challenge:

Challenge is shown to have a negative coefficient of -0.012 and a P-value of 0.856. The coefficient shows a negative relationship but also a high P-value (greater than 0.1), the probability that the coefficient is not reliable either (it is a negative number). So, there is no notable relationship between the level of concentration and the level of challenge.

Concentration vs skill:

The skill level has a coefficient of 0.13 and a P-value of 0.0879. There is a notable positive relationship, therefore, between the level of skill and its impact on concentration with strong reliability.

Concentration vs autonomy:

The level of autonomy in the activity has a coefficient of 0.197 and a P-value of 0.0004. There is a strong positive relationship between the level of autonomy and concentration and the coefficient is a reliable measure.

The data indicates that the perceived level of skill and level of autonomy of activity are determining factors, the level of challenge is not. The correlation of concentration with skill level and autonomy are in-line with our overall predictions and in line with Flow Theory. The weak relationship between concentration and challenge was not expected and also not in line with Flow Theory.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	2.299571	0.397317	5.787747	0.000000	1.517994	3.081147
Challenge	-0.019566	0.064433	-0.303658	0.761579	-0.146314	0.107183
Skill	0.140906	0.071551	1.969311	0.049749	0.000156	0.281656
Autonomy	0.175640	0.052992	3.314467	0.001020	0.071398	0.279883
Dummy Variable 1	0.019259	0.013140	1.465628	0.143696	-0.006590	0.045107
Dummy Variable 2	-0.356573	0.327069	-1.090206	0.276413	-0.999963	0.286817

Figure 4-22: Level of concentration vs challenge, skill and autonomy regression

Interest:

The level of interest as the dependent variable in relation to the level of challenge, perceived skill and autonomy as independent variables are shown in Figure 4.23 below.

Interest vs challenge:

Challenge is shown to have a positive coefficient of 0.0686 and a P-value of 0.227. This shows a positive relationship and a borderline probability that the coefficient is reliable. Quite a weak relationship.

Interest vs skill:

The skill level has a coefficient of 0.3597 and a P-value of 0.0000. There is a notable positive relationship therefore between the level of skill and its impact on interest with strong reliability.

Interest vs autonomy:

The level of autonomy in the activity has a coefficient of 0.1379 and a P-value of 0.0037. There is a strong positive relationship between the level of autonomy and interest and the coefficient is a reliable measure.

The data indicates that the perceived level of skill and level of autonomy are all determining factors on impacting the level of interest. The level of challenge has a weak, albeit positive relationship with the level of interest. All was expected except such a weak relationship between interest and challenge.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1.863566	0.334600	5.569534	0.000000	1.205363	2.521770
Challenge	0.072342	0.054262	1.333186	0.183385	-0.034400	0.179083
Skill	0.341641	0.060256	5.669789	0.000000	0.223108	0.460173
Autonomy	0.139405	0.044627	3.123777	0.001943	0.051618	0.227193
Dummy Variable 1	0.003052	0.011066	0.275799	0.782874	-0.018716	0.024820
Dummy Variable 2	-0.123180	0.275441	-0.447210	0.655015	-0.665010	0.418650

Figure 4-23: Level of interest vs challenge, skill and autonomy regression

Enjoyment:

The level of enjoyment as the dependent variable in relation to the level of challenge, perceived skill and autonomy as independent variables are shown in Figure 4.24 below.

Enjoyment vs challenge:

Challenge is shown to have a negative coefficient of -0.0312 and a P-value of 0.581. This shows a negative relationship with enjoyment and a high probability that the coefficient is unreliable.

Enjoyment vs skill:

The skill level has a coefficient of 0.25097 and a P-value of 0.00014. There is a notable positive relationship therefore between the level of skill and its impact on enjoyment with a strong probability that the coefficient is reliable.

Enjoyment vs autonomy:

The level of autonomy in the activity has a coefficient of 0.17197 and a P-value of 0.000297. There is a positive relationship between the level of autonomy and enjoyment and a high probability that the coefficient is reliable. The data indicated that the level of challenge is not a determining factor and that the perceived level of skill and level of autonomy are both determining factors on impacting the level of enjoyment.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	2.049141	0.338464	6.054241	0.000000	1.383337	2.714945
Challenge	-0.011091	0.054889	-0.202057	0.839996	-0.119064	0.096883
Skill	0.252990	0.060952	4.150635	0.000042	0.133089	0.372891
Autonomy	0.160371	0.045142	3.552551	0.000437	0.071570	0.249172
Dummy Variable 1	0.021052	0.011194	1.880688	0.060889	-0.000968	0.043072
Dummy Variable 2	-0.427658	0.278622	-1.534906	0.125759	-0.975745	0.120428

Figure 4-24: Level of enjoyment vs challenge, skill and autonomy regression

Summary of survey data:

As the researcher, I anticipated a strong relationship between the level of the challenge and the Flow experiences of concentration, interest, and enjoyment. However, the data shows that only for the level of interest, does challenge show any sign of relationship and a weak relationship at that. The level of skill and autonomy both show a definitive positive relationship between the dependent variables of concentration, interest, and enjoyment.

4.4.6 Emotions in relation to getting in Flow

Interviews:

As part of the post-ESM student interviews at RLabs, one of the students (male, coloured, mid-twenties) interviewed described their thought process,

"While I'm doing the surveys, I'm thinking about every step since I came into class. I thought about what I thought about, who I was thinking about, maybe who I was messaging on my phone. Every step, everything I was doing and thinking about, before answering the survey questions." (male, coloured, mid-twenties)

He also emphasised one experience where he thought about personal matters during a session and noted it down in the surveys. He said he recognised that he was distracted during those sessions.

One occurring theme he found was thinking about eating during a session. The interest in the session itself was irrelevant if he felt he was hungry.

A few of the students interviewed indicated that they enjoyed the concise nature of the surveys compared to pen and paper surveys where writing takes longer than the software applications. The participants indicated they enjoyed that the rating questions on the cell phones just had a sliding bar they had to slide to give a 1-5 rating. They felt that made the survey relatively quick to fill out.

The students noted the focus on emotions during the activity as an interesting and often difficult exercise. They mentioned that taking cognisance of their emotions is not a regular occurrence. One student (male, coloured, early twenties) interviewed gave a background of his experience of high school,

"I had little interest in school even though I did quite well and helped my friends in class." (male, coloured, early twenties)

He reflected that because of the programme he is in at RLabs, he views education differently now, it is something that interests him significantly more now.

Having an ambition of becoming a software developer, one student (male, coloured, early twenties) interviewed indicated he was interested in the technical considerations and the application itself which sparked ideas for him as to how he might improve the software if he was to create it. They said this created a sense of excitement for him as he engaged with the surveys, and hence, the survey software more.

Another RLabs student (male, coloured, mid-twenties) interviewed shared that before doing the surveys, he was intrigued to find out if there is a correlation between his emotions and his concentration. This intrigue was based on my initial presentation done explaining the research. During the first two weeks, this student was aware of this correlation which he found very interesting. He said,

"I think the best experience that I had was during the first two weeks of doing the surveys, where I could actually see the relationships. Where perhaps I had a really bad morning. I woke up really early, didn't eat or anything like that and I was just like all over the place. I noticed that that affected my concentration during class, so I didn't take in much information and ended in me having to speak to one of my classmates, to actually revise on what happened. Whereas in that same week, I had a really good morning, and everything went well in my opinion and I took a lot more note in class, I absorbed a lot more information and I understood everything better as well. So that was my best

experience. Seeing the relationship of it. Especially when it came to the recording, that also made a big difference." (RLabs student)

This student noted the realization that changing certain things in their routine before class, he could directly influence his mood and overall experience, which included time and concentration in class.

During the post-ESM survey interviews with the Sozo students, a student (coloured, female, early twenties) mentioned that she had noticed many of the other students struggled to complete the surveys quickly. Knowing a few of the other students personally, she attributed this in part due to many of the other students' low literacy ability. This not only has an impact on the surveys but also on their general experience of the Sozo programme. Sozo splits the barista training into a theory training and practical training. The theory section, which is mostly reading and quiz-based, is done on computers whereas the practical section is mostly the practising of making different coffees done at actual coffee machines. The trainer mentioned that they struggled to have certain individuals complete their online theory training. The above insight from the interviewee of the students' low literacy levels potentially explains why. This interviewee filled out the most surveys.

When the above-interviewed student first started doing the surveys, they noticed that they were quite distracted when doing the surveys. The student went on to say that the impact of filling out the surveys daily is that it made them more aware of what they are spending their time on and what their level of engagement was during these times. They felt it created a self-awareness of the impact and relationship that various daily activities have on one another.

A few of the students from both organisations pointed this out and were appreciative of the impact it had on them. One interviewee (male, coloured, early twenties) mentions that he enjoyed the surveys because it made him pay attention to his feelings during the experiences he was writing about. He mentioned that this was not normal for him and it opened his mind to a new understanding of his experiences. The surveys also encouraged this student to read, and he viewed this as a constructive thing.

Many of the students indicated that, in terms of the experience, there was very little difference between doing the surveys at the Sozo Foundation do doing it at home or elsewhere. One student interviewed (coloured, male, early twenties), said he was quite apprehensive about the experience of the survey, that reflecting on his feelings and thoughts was not something he was comfortable in doing ordinarily.

Observations:

Regarding the research and specifically the surveys, a few of the students mentioned it was a struggle to maintain the rhythm of completing the surveys. In the busyness of life, they would have some days where they would go through the day and then realise they did not complete the surveys. The prompting by facilitators for students to do the surveys is what many students said helped them remember. Another form of prompting happened via their internal RLabs Whatsapp group, where one of the facilitators regularly reminded them to complete the surveys.

A few students at Sozo had come up to the researcher unsolicited and mentioned how much they enjoyed the surveys and that it was helping them pay closer attention to the experience of their activities. They mentioned that it was helping them while doing sessions at Sozo Foundation as well as at home. The students expressed a theme at both RLabs and Sozo Foundation regarding the realisation that they were thinking about their thought patterns and emotions. This element of increased self-awareness was a major stand-out factor for them. They also found appreciation in the listening posture which the surveys held. One student said that they "*felt that someone cared enough*" to gather their experiences of their learning experience with the potential to improve it.

These factors had an important influence on the level of engagement for them during their sessions as some of them reported making changes in their lives to be more present and attentive at the sessions.

4.4.7 Psycho-social focus through listening and being heard

Interviews:

One of the students interviewed (coloured, male, early twenties) said,

"After doing a few of the visioning sessions (part of the Rlabs programme), I finally understood my purpose in life. Before, I didn't know what to do with myself."

Another student (coloured, male, early twenties) mentioned in reference to one of the personal development sessions,

"If I had done these types of sessions (referring to one of the personal development sessions) in school, I think I would not have made many of the bad decisions I ended up making. I didn't know any better then."

An Rlabs facilitator (female, coloured, early-thirties) indicated that when engaging with students in this way through vision casting and purpose exploration, the other learning sessions all feel like it is part of a bigger drive. This focus by R Labs, a deep psychological and social development, helps the students better relate their personal relation to the world as well as to their peers much better.

According to one of the project managers (early-thirties, black, female) at Sozo, many of the youths attending the Sozo Youth Café had dropped out of high school previously. The leadership at Sozo have found this to have a major impact on the self-confidence of these youths. This project manager said,

"Many of the youth in the community who have dropped out of school have very low self-worth because of it. We don't have an employment crisis, we have an employability crisis. We've noticed that many of the youth who we work with lack the confidence in their own skills and ability to develop in them."

The Sozo leader, when interviewed, also reported the first-hand experience of the strong negative biases of racism and gender discrimination as examples of the difficulties these youths need to navigate in the job market. They mentioned that there are other more nuanced barriers such as economic barriers which mean that even if they are capable to meet the requirements of an available job, wearing the right quality clothes or having transport money to make it to the interview, become obstacles that without someone guiding or mentoring them, are obstacles many do not overcome.

A senior leader at Sozo (male, white, mid-thirties) said Sozo leadership made a principled decision not to pay participants during the training period, which they are aware is done by some other skills developer organisations in Cape Town. They are hesitant for students to be part of Sozo mainly for the stipend received. They have said that the decision is something they are always reviewing and thus far it has served them well. Their alternative approach is the development of a month-long life-skills development training. They have found this ensures that whoever remains is usually the most committed in the skills development in the weeks that follow. Challenges they face regularly are the high accounts of recreational use of drugs and alcohol. Also, pregnancy and childcare challenges are keeping women away from development.

The above are examples of when organisations tap into the deeper purpose-driven and intrinsic drive of individuals, it is possible to develop a trajectory for development that transcends beyond the immediate need for material rewards.

The Sozo Youth Café manager (male, black, early thirties) indicated that the dilemma of the home situation does not fall away during the time the student is at the organisation, though. The quicker that transition in and out of the organisation, and the quicker they can start earning money to put food on the table, the better. He said that many of the students place pressure on themselves which inhibits their learning.

Many of the factors which contribute to attrition at the organisations are employment offerings to the students. However, it saddened them as these offerings are often unsustainable in the form of "zero-hour contracts," also known as "casual work" in South Africa. In these, the individual has no guarantee of a job tomorrow and once the demand for their work decreases below a certain threshold, they are no longer utilised. Season contracts, for example, a seasonal harvester, are also a major reason for attrition. The Sozo staff showed a high consciousness towards these factors in the interviews, and although they did not necessarily have answers, this acknowledgement showed in the advisory services that came as part of the student's experience. These include career guidance, social services, and other value adds. This was apparent at both organisations, but especially in my discussions at Sozo Foundation.

Observations:

A substantial component of the RLabs GLA programme, which was mentioned by the students interviewed and surveyed, was the focus on personal development. In a few of the sessions that I observed the facilitator took them through the process of learning, reflecting, and announcing what their visions were for the future. These sessions were not once-off but happened throughout the programme and were done by an external facilitator who has worked with RLabs for many years. The students were visibly animated during these sessions.

A few social constraints were apparent at both organisations. According to many of the staff and students, the students were often expected to be the breadwinners of their families. According to the students, being at the Sozo Foundation and RLabs was, therefore, a door into a potential job opportunity. At RLabs, some of the students shared having tried the conventional tertiary or work route but have failed for various reasons. One student (coloured, male, early twenties) said that he, "was not really interested in education before coming to the GLA course... but as I came on GLA, it opened my mindset more to teaching." When the researcher was interviewing the facilitators based on their own experience and their knowledge of the situations of the current and past students, they offered that the previous efforts often lacked purpose and direction. When they come to RLabs, they get that purpose and direction coupled with a bonus of various digital skills.

This purpose and direction is an essential enabling factor to Flow experiences. According to the literature, Csikszentmihalyi notes that if one has an unhealthy self-reflection, then continued self-reflection can do more harm than good. The literature concluded that if students are working through activities that are developing a positive self-image, then the student would be more able to experience autotelic experiences. That is, they would be more able to engage in activities for the pure benefit of the activity itself rather than any other reward (Csikszentmihályi, 1997). The data mentioned previously in the student engagement session regarding the emotions of the students and its cause and effect considerations on student engagement also relates to the psycho-social theme. When students are more likely to engage in autotelic type activities influenced by the skills development organisation, the level of engagement, is more likely to increase.

4.4.8 Values-Driven

Challenges

Continued struggles for RLabs are not having their programmes accredited. The perceptions of the RLabs programme of potential students or those at other similar institutions are often negative due

to this. This impacts both those who sign up for the course and the graduates' employment prospects. According to one leader at Rlabs, the journey of accreditation is often lengthy and arduous. Their current strategies to tackle this issue continues to be through marketing and communication to change the narrative and perception of their programmes. The success in small business creation has influenced the perceived calibre of the Rlabs programmes. When interviewing one of the leaders (coloured, male, mid-twenties), they said the issue of accreditation was a pained topic but one that they are hopeful to change in the future. Discussions with Sozo Foundation have resulted in similar conclusions where youth indicated that employers are looking for accredited programmes on their CVs.

Values-Driven amidst challenges:

Given these constraints, many of the staff and students interviews indicated that they are undeterred in their purpose. They have expressed that the urgency of giving hope to communities cannot wait till obstacles such as accreditation are overcome, especially since their track record has shown to speak for itself on a global front. Rlabs see themselves as hope givers of their communities, there is a strong sense of purpose in their group, from the CEO to the facilitators working at GLA. When interviewing the facilitators at one of the Rlabs Youth Café's, this drive and alignment in values of being hope givers for a broken community comes through clearly once again. The flat organisational structure of Rlabs enables them to form working "teams of excellence" (as they call it), where everyone has a clear sense of the direction of the organisation as well as the actual on the ground experience. With their partnership with the Department of Social Development and national and international partnerships, they are well set-up for long-term success.

According to one of the senior leaders (white, male, early forties), for the Sozo Foundation, there was no clear, set vision and it evolved over time. The scope of work was not detailed initially. They mentioned that the initial driver was just an overwhelming heart and passion to do something in the community. For them, over time, the focus has developed through the learnings. Sozo said there are two streams that have emerged. One is the educational development of children in school, and the other is the Youth Café which caters for youth over 18 years of age who are unemployed and require skills and personal development. After initially having a very broad focus, in 2017, the Sozo Foundation has two focus areas, education and skills development. Within those two focus areas, they also value the holistic well-being of the individual. The Youth Café focuses on four main areas of skills development. These are barista (coffee makers), graphic design, mechanical skills, and hair-dressing training. Within these programmes, the facilitators strive to convey the value of each individual.

The Sozo leader (white, male, early forties) interviewed indicated that the highest organisational value is, "breeding a culture of unconditional love." He indicated that Sozo sees everything through this lens. Even the way the leadership handles staff disciplinary procedures and policies are viewed through this lens according to him. The question they would ask themselves is, *"is this course of action showing our staff and students that we unconditionally love them" (when referring to disciplinary actions that have been carried out in the past).*

This has resulted in fulltime social workers being employed to assist in the management of major issues that staff experience through working and living in the Cape Flats. They acknowledged that maintaining this core value is no easy task when transitioning from a handful of volunteers to 36 staff members in the space of a few years. This has also resulted in their willingness to refuse funders who did not align with their values. All of these aspects are intertwined. They have also created an employee handbook where they try and communicate the evolution and growth of the organisation as well as how the value of unconditional love is played out at an operational level.

4.5 Summary

The two primary participants, RLabs and Sozo Foundation, are in low-income, high crime communities. Their strategies are very different from the usual youth development organisations situated in the suburbs, an affluent community, or the central business district. A combination of interviews with students, facilitators and leaders, observational exercises as well as the Experience Sampling Method was conducted. As the researcher, I have gained insights into the experiences of the students and the staff at their organisations and in their personal lives in relation to the level of the student engagement. The themes outlined in this section all feed into the aspect of maximising student engagement. These themes show the different angles from which RLabs and Sozo Foundation approach engaging students throughout their time at the institutions. These themes also consider socio-economic realities.

Eight data themes emerged from all the data collection performed in the interviews, observations and the Experience Sampling Method. These are:

1. Change from the inside out: Home-grown personnel.
2. Learning environment look-and-feel, combined with facilitator energy.
3. Relationship between theory and practice.
4. Maintaining Flow experiences.
5. Survey data: Concentration, interest, and enjoyment experiences.
6. Emotions in relation to getting in Flow.
7. Psycho-social focus through listening and being heard.
8. Values-driven.

These data themes essentially highlight the overarching focus areas that these youth development organisations have found to most engage youths in their communities. As some of the top-performing youth development hubs in the country, these are important insights into how they view running a centre well looks like. As the Sozo leader said, not fulfilling the above themes means ending up like so many other organisations in the sector, non-relevant, unsustainable, and out-of-business.

5 Discussion

5.1 Data relevancy and educational reach

As mentioned in the introduction, the Flow Theory discourse was criticised for not having many applied examples to gain credibility as it was being positioned as something that should be very practical (Carl, 1994). In recent years, however, the body of knowledge around applied Flow Theory has been steadily growing in various areas such as sports (Jackson, 2007), work-place performance (A. B. Bakker, 2008) and education (David J. Shernoff & Schmidt, 2008). There have not been any academic publications around Flow-related research in Africa and particularly not in South Africa.

In the literature review, the gap between academic research and practitioner application within the education field has been noted because of political agenda more often than not (Fataar, 2006). This was noted as resulting in non-collaborative environments between organisations across public, private and non-government organisation spaces.

Based on the engagement with the Sozo Foundation and RLabs, they appear to have a few common threads as organisations. They are both registered, non-government organisations. Their aims are both to pass on critical skills to youth from high school to 35 years of age to increase the beneficiary's employability. They have a strong entrepreneurial instruction focus. The unique link is that they are both in-part funded by the Department of Social Development, that is, a government department. Both also have substantial private funding. This is then a powerful application of public-private-NGO partnerships. The structure and culture of these organisations, allows them to adapt a lot quicker to new learnings of achieving their vision and facing the challenges that arise. As noted in the literature review, this is very different from the bureaucratic processes that slow down government entities.

5.2 Research Process Experience and Discussion on Data

Outside of the actual data, the data collection process was interesting. Compared to a more affluent setting, the resource constraints of the institutions, and for the students themselves, created quite a few challenges. As mentioned in the literature review, inequality in South Africa and globally is getting worse (Dabla-Norris et al., 2015). Operating under adverse conditions or resource constraints, also known as 'bricolage,' requires a very different mindset for organisations such as Sozo Foundation and RLabs. In a study by Baker and Powell, aiming to tell the story of entrepreneurs operating under these dire conditions, found that the identity of the founders or leader(s) have a profound impact on the success of the organisation. Furthermore, these identities are divided into one of personal identity, defined as the identity the leaders hold, and social identity, the identity that the community holds of the leaders and their organisation, What is found is that these two identities are often not aligned and so the leader goes on a journey from "who I am" to "who I want to be" (Powell & Baker, 2014).

South Africa has jumped on the "War on Drugs" campaign, a movement that has already been shown to cause more crime and trauma in communities in other countries (Enamorado et al., 2014; Reiersgord, 2017). The students coming to these institutions are caught in the middle of these systemic barriers to meaningful education and economic comfort. This could play a major role in their relationship development with the institutions they were journeying with. These barriers could negatively impact their frame of mind and prevent them from high student engagement. According to the researcher, this was experienced during the data collection process.

The nuances experienced while interacting with the students seemed to be evidence of these challenges. Many of the students struggled with maintaining the routine of filling out the surveys by themselves. Many of them expressed worries about their future, especially in terms of providing for themselves and their families. The research process also presented many challenges for the researcher in terms of the physical location of where the research was taking place, that is, in low-income and high-crime areas. Numerous times, the facilitators had concerns for the researchers personal safety and that of the participants because of physically violent conflict in the communities where they live in and where the learning institutions are located. One time at Sozo Foundation, we were all requested to leave the premises due to the level of the conflict in the community and fears that it might overflow onto their premises. This and other experiences made the overall process of data collection difficult for me, despite my similarity in upbringing.

One important consideration is that maximising student engagement would be a lot more challenging if the students are concerned about their safety and well-being due to a volatile environment they are situated in. As mentioned in the literature review, Csikszentmihalyi stated that when participants reflect on their Flow experiences, they state that they lost track of time while being completely immersed in the task at hand. The participants would forget to eat or drink as a showing of how engaged they are. In this study, this becomes very difficult as the overriding cognitive and somatic experience is one of fear and concern for one's well-being.

If there was an alternative development system to encourage students to get in Flow more readily, this would most likely increase student's enjoyment of learning and self-development. It might also shift their attitude towards learning to be significantly more positive.

5.3 Discussion on Themes

The overwhelming theme throughout has been the actual focus and optimisation of student engagement in learning environments. From different perspectives and strategies employed, increasing the relevancy, intrigue, and impact of the experience for the students and staff have been an overlapping theme throughout my interactions with both RLabs and Sozo Foundation.

This focus and drive on engagement is a crucial element for these organisations that is most likely the reason that they are succeeding in the struggling sector of 'Youth and Skills Development.'

5.3.1 Relational focus

The first two themes discussed in the findings were found to be from a place of Sozo and RLabs wanting their organisations to be organic in its systemic structural design. Throughout the interviews, Sozo and RLabs said they sought to have the people employed, and the content taught to be as relatable as possible to the youths they are aiming to develop. This phrasing and intentionality appear to be empathy in the design of the organisation itself.

The literature review discusses the history of the schooling system over the past 30 years or so. There was a disconnect between the curriculum and pedagogy design and what was needed on the ground, in the classrooms. It was also noted that the communication structure was autocratic, which filtered down from the top leadership of the education system to the schools and classrooms. It was a system of not trusting one another, resulting in endless paperwork necessary to make up for that lack of trust. The stratified levels of education between white, coloured, and black populations further marred relations within the country between racial lines. Lastly, the Labour Unions leading the education system meant that in an attempt to distance themselves from the autocratic nature of the previous system, they overextended and provided too little structure for the learner in the classroom (Fataar, 2006).

This disconnected curriculum and pedagogy are the very focus areas Sozo and RLabs are focused on addressing. Both RLabs and Sozo Foundation indicated they are intentional about who they select to be part of their staff in terms of demographics. There is a presiding belief from both organisations that the most suited individuals to solve the problems of their communities are the people of that very same community. One of the leaders at Sozo (male, white, early forties) said,

"I come from a middle-class background in the UK, what do I know about surviving and thriving in this (Vrygrond) community? The best people to solve the issues are the people who experience it every day. What most people don't understand is that all they need is the right environment and resources to find the solutions."

It is to this regard that they hire people from their surrounding communities. In the previous section, a Sozo Foundation leader reported finding that programmes that were not contextualised and delivering these programmes by people who are only from affluent communities, were not effective in engaging students. There was a major disconnect between content, the teacher/facilitator and the beneficiary.

For traditional organisations who often do not reside and have meaningful relationships with the community they are seeking to impact, recruitment channels are often the impersonal channels of recruitment agencies, newspapers, websites and the like. With RLabs and Sozo's deep relationships in their surrounding community, they have recruited talent from within the community and then develop them further.

In the literature review, the disconnected communities along racial lines within the Cape Town area were explored. Over the past few decades since political freedom, these racial groupings are still very much the same. Economic activity, access to quality amenities in the form of education, jobs, restaurants, and other resources, are still very much located in white communities. For the Sozo and RLabs teams, they need to help the staff and youths they work with re-envision what a quality education institution can look like from within an area often known for its high crime rates. When part of the leadership is from the surrounding community as well, and they go through a process of deep personal healing and development, they can lead from a place of empathy for the youths they are working with. This leadership style connects with the students more than most expert trainers from outside the community. Based on both organisations continued success, when questioned as to why they are so different in their approach and why others are doing differently, they offered that many organisational leaders, "do not recognise their privilege." Whether it be economic, social or other aspects, leaders of organisations have often experienced a level of privilege that has, in part, enabled them to be in the position they are in. Without recognising this, one essentially makes a few incorrect assumptions about why poverty exists and what the systemic levers for change are. Adopting less of a "cause and effect" view and more a "systems-thinking" view can assist greatly in shifting the narrative.

Change from inside-out.

What was evident during my time at both RLabs and Sozo is that the staff viewed their roles as an opportunity to positively impact and change their communities. In the interviews, the staff would mention being "hope givers" or developing the "values of RLabs" for the community. In the literature review, I noted that when individuals see their role as something that is beyond just a day job, the level of engagement will characteristically be high. The research of Mitra showed how children inherently want to learn. The researchers' view is that this is something that children already have before they start schooling and they do not need to develop through schooling. Having the view that children inherently want to learn can change the trajectory of the type of interventions done in a learning environment (Mitra & Rana, 2001b).

The project manager at Sozo (female, early thirties), shared the joys and challenges of working in the same community where he lives in trying to effect social transformation in Vrygrond. she says,

"The joys are sometimes limitless when someone comes to Sozo as a very broken person and after spending time, healing and going through a process of self-development and transformation, they are whole and active in the community."

She shared that it was humbling to her to watch the process. The challenges are that the limitless joys can sometimes be exactly that, as well as exhausting. Withdrawing oneself from the activities and needs of the community becomes paramount to self-sustain one's energy. She shares how this continues to be a challenge but one that she is handling well,

"I need to make time for myself and fight the urge to get involved too much after hours. It is a working progress."

The leaders at Sozo have shared that one of the key differences to them and other similarly-missioned organisations is that they have decided to have a full-time social worker for the staff and students on-site.

5.3.2 Psychological and social considerations

An interesting take out of the surveys is that the participants never reported being alone while at the learning institutions compared to on the outside where they were alone from time to time. From the researcher's observations, there are no physically areas conducive for 'alone time' at either organisation. This could be interpreted as an extroverted design of the learning environment. This is in line with current trends at public/private schools and open space designs of offices in the workplace too. Introverts would typically be more appreciative of spaces designed to be alone to recharge their energy and for reflection. Extroverts would also gain much from these times of solitude and reflection, even if in much less frequency and duration in comparison to introverts. In observing the students, when meeting the students in the morning, they often arrived looking tired already. Some of them would arrive at the organisation and plop their head on a desk to get some rest before the sessions would begin. When asked in conversation, many of them mentioned that have so many chores and duties they need to perform at home that they rarely have time to be alone (Cain, 2013).

These factors all take the students away from achieving Flow like experiences. In Susan Cain's book, *Quiet*, she promotes the cause of introverts and their needs. She delves into various examples where certain exemplary individuals thrived and produced ground-breaking inventions which they attributed to their substantial time spent in solitude. One such example she cites is Steve Wozniak, who co-founded Apple Incorporated with Steve Jobs. Wozniak directly relates his working by himself for long hours before and after work. He attributes this as one of the main reasons for coming up with the Macintosh (Mac) computer (Cain, 2013). The Handbook of Expertise and Expert Performance analyses what differentiates expert musicians, average professional musicians, and those who are not skilled enough to play professionally but who are music teachers. Even when the training, resources, and facilities are the same and controlled for each of these three categories, the expert musicians spend significantly more time in deliberate training each day in solitude. It became exponentially less when compared with the other two categories. The book says,

"The perspective of deliberate practice attributes the rarity of excellence to the scarcity of optimal training environments and to the years required to develop the complex mediating mechanisms that support expertise." (Ericsson, Charness, Feltovich, & Hoffman, 2014).

For both RLabs and Sozo, there is an opportunity to expose students to excel in their learning journey and developing skills through deliberate practise in solitude. This then becomes the essence of experiencing Flow experiences.

5.3.3 Emotions in relation to inequality

The review of the literature of the economic status of the country showed that a disparity exists between racial lines. South Africa is one of the most unequal countries in the world if measured by the Gini-coefficient. Unemployment levels were shown to be over 50% for youth. These factors

create a sense of urgency and desperation amongst communities living in poverty in trying to find employment. The World Bank literature showed the growing dissatisfaction of the public through the protest actions in two countries with high inequality, South Africa and Colombia.

While reviewing the thoughts recorded by the students through the surveys, the researcher found insights about student engagement. When the engagement levels were low, students generally thought about themselves and the adverse circumstances they recorded. When the engagement was high, they thought less about themselves and more about other people (recorded as "Others" in the data analysis). In addition, high engagement levels brought thoughts of long-term plans and future employment and the activities they needed to complete at the learning institution. This data is in line with Csikszentmihalyi's own ESM findings which showed, *"that when people think about themselves, their moods are usually negative. When a person starts to reflect without being skilled at it, the first thoughts that pop into the mind tend to be depressing. Whereas in Flow we forget ourselves, in apathy, worry and boredom the self is usually at the centre stage. So, unless one has mastered the skill of reflection, the practice of 'thinking about problems' usually aggravates whatever is wrong instead of alleviating it."* (Csikszentmihályi, 1997).

One of the findings in the surveys and through the interviews was that the students generally had very little activities to do outside of the respective learning institutions and were generally idle at home or in other spaces. This then amplifies the negative thinking of one's circumstances and feeling of helplessness while at home and in their communities.

There was a marked difference in the emotions of the students during high and low engagement levels. When concentration, interest, and enjoyment (Flow consequences) were low, they had mostly negative emotions, as was shown in the data analysis. However, when the Flow consequences of concentration, interest, and enjoyment were high, their emotions were mostly positive. These emotions are the emotional state during the activity. This state could be emotions brought in from before the activity started, or caused by the activity itself, or by any environmental learning factors. These emotional patterns do tie into the thought patterns where thoughts were a lot more on self when the engagement was low. That thoughts about one's self while feeling negative were apparent when the engagement was low. When the engagement was high, thoughts were more on others and task-driven and emotions were mostly positive.

Emotional Intelligence Development

When reviewing the literature on the relationship between emotions and engagement, the Wicklund and Duval study shows how introducing an element of objectivity can greatly influence the perception of self. Also, the (Baumeister et al., 2007) study on the feedback loop between emotions and behaviour is useful as it shows that we are not prisoners to our emotions and that we do have a cognitive role to play in influencing how we behave and our emotions to various experiences.

During the observation periods, students sometimes came into class quite dejected. At Sozo one morning a student announced to the class that they didn't get the job that they had previously gone to an interview for, or some mentioned that the interview itself they went to did not go very well. These types of experiences often resulted in these students staying dejected for one or more sessions. While feeling disappointed in a lost opportunity for income generation is normal, the repeat experiences often result in apathy on the side of the student. These difficult feelings were shared by the leadership of Sozo where they expressed fatigue in keeping the students motivated and focused. The Sozo leader (white, male, early forties) at Sozo said, *"the amount of negative bias these students receive from potential employers because of where they come from is astounding."*

They also realise that these negative experiences are not in isolation but are in addition to previous, negative, personal, and work-related experiences. These types of experiences cannot be avoided, but if handled correctly, the student can bounce back cognitively and be more likely to experience being 'in the zone' sooner. With regard to the ESM data themes found in this research at Sozo and RLabs, the level of enjoyment and overall engagement showed a direct correlation with emotions. While the cause and effect nature is debatable, the data showed that students were emotionally more positive when they were engaged overall (that is, high concentration, interest, and enjoyment as well as autonomy) in their activities.

The challenge for any learning institution is dealing with negative emotions brought into the space before they have even started. Sozo and RLabs often employ "check-ins," where students briefly share their emotions and feelings before starting any session. According to Kabat-Zinn, this acknowledgement of stress can have a great impact on releasing tension to better focus on the session or day ahead. This forms part mindfulness-based practices which have been clinically found to have emotional and psychological benefits in the workplace (Kabat-Zinn, 2003). These types of interventions need to be intentionally designed into programmes for any institution.

A key learning gained through interviewing the students is that the ESM surveys helped them be more mindful of their internal state. They found themselves reflecting on their activities completed throughout the day significantly more. This creates a greater sense of self-awareness in relation to emotions or feelings in relation to the state of their mind and body. They shared in the interviews that the reflection of the emotional and cognitive state were not considerations they have had in the past. The students also shared a greater sense of connectedness with the programme when it seeks their opinions which they felt was an example of what the ESM surveys did. The feeling of being heard and listened to had a marked positive impact on them. By pre-empting these reflective practices as well as more somatic practices, the students develop a greater openness for the types of psycho-social offerings organisations like Sozo Foundation and RLabs are increasingly realising the need for and therefore employing. They have a crucial role to play in creating the setting for an optimal experience for the students.

Csikszentmihalyi mentions that he found only 15% of the world's population never experience Flow (Csikszentmihályi, 1997). As experiencing Flow is not binary, and some experience Flow more than others, there are always ways to increase the opportunity for Flow experiences. What Csikszentmihalyi also found with those who experience being in the zone is that it can happen despite the exterior environment and not necessarily because of it (Csikszentmihályi, 1997). This consideration helps in realising there is a complex interplay between creating the environment and the environment having little impact on the experience once students are in Flow.

In the research findings, there were themes which contributed to each student maintaining and self-managing their Flow experiences. For students to optimise their time in Flow they would need to increasingly self-manage and not depend on someone else to facilitate it. The research findings are in tune with Csikszentmihalyi's findings of autotelic activities. Activities which individuals do for the sake of doing it, with no other motive behind it. They find tremendous enjoyment from doing the activity in and of itself. Finding ways to increase the activities done to be more autotelic would, therefore, be desirable for Sozo and RLabs and similar-minded organisations.

5.3.4 Creating and maintaining highly engaged in learning environments

In the literature review, a comparison between Montessorri and traditional schools was done in relation to student engagement. The schedule of the Montessorri school was strongly focused on intrinsic motivating factors rather than extrinsic directive factors, like the traditional schools. The findings with Sozo and RLabs was that the themes of Maintaining Flow as well as the Theory and

Practice balance, aligned strongly with the Montessorri school focus. The designers of schools on the Cape Flats, like traditional-school learning environment designers in the study, would benefit from understanding the implications of this research. Embarking on a process of creating learning locations where more Flow experiences can happen will benefit the child and most likely create above all an intrinsic motivation for life-long learning. This ties in with research that shows that as children approach high school graduation, they become increasingly less motivated at school, as shown in studies mentioned in the introduction (Calderon, 2017; Savahl et al., 2014).

The Key Learning Community School discussed in the literature review is an example of Flow Theory firmly entrenched in the ethos of an organisation, in this case, a school (Schmidt, 2010). At the time, they were able to freely live out their values, which were in part to keep the child as the focus of all education initiatives. Schmidt conducted the research while the school was flourishing and doing very well in 2010. The school closed in 2016. The two key reasons why it closed were due to constant changes in the curriculum standards and outcomes set for the children. There were also cost issues drift away from the initial focus and a dilution of the overall ethos for the sake of cost savings. This then had a compounding effect on the demise of the school. There is no apparent research for these conclusions, only articles in the local Indianapolis newspaper (Cavazos, 2014) Understanding how a school can go from being studied and revered worldwide as a school for others to follow, to closing down a few years later is very concerning. The organisational model plays a big role in the realm of Flow. This mostly relates to the autonomy of the organisation which plays out, for one, in the organisational structure and economic model as we have seen to Key Learning Community School's detriment.

During the Sozo leadership interviews, one of the senior leaders (white, male, early forties) mentioned that a key aspect to Sozo's sustainability is their selection of funders who are aligned to their vision, values, and purpose. This enables them to design the operations of Sozo as they deem effective and as emergent information guides them. Ultimately, this allows them to stay true to and actively live out their number one value, to "love others unconditionally." It needs to be noted that in the experience of Sozo's leadership, this is very different from the norm and is a reason for their success and impact in the community of Vrygrond. Their ideal to love unconditionally has meant that during the taxi protests that occurred during my research interviews and ESM, Sozo opened up their building to be used for negotiations and bought food for the participants of these meetings too. This went a very long way in building community trust by showing that they truly care and are not merely looking to coexist.

RLabs displays this even more powerfully with the former gang members who started off the journey with RLabs 10 years ago, some of which are now part of the senior leadership of RLabs. Sozo has shared they are seeking to attain this goal where the senior leadership is from the community. When students feel that those around them are trustworthy, there is a significantly higher likelihood that students will engage and get in the zone.

5.4 Concentration, Interest and Enjoyment experiences

Overall, the activities that resulted in students having Flow experiences were high concentration, interest, and enjoyment. When the Flow experience was high, the main activities were barista/coffee-making tasks, computer graphic design, music production, food-related, doing various lessons such as blogging and how to do online research through Google, and lastly, watching TV. Watching TV has been noted by Csikszentmihalyi as rarely inducing Flow experiences. He writes, *"Although average Americans have plenty of free time, and ample access to leisure activities, they do not, as a result, experience Flow often. Potentiality does not imply actuality, and quantity does not translate into quality. For example, TV watching, the single most often pursued leisure activity in the*

United States today, leads to the Flow condition very rarely. In fact, working people achieve the Flow experience—deep concentration, high and balanced challenges and skills, a sense of control and satisfaction—about four times as often on their jobs, proportionately, as they do when they are watching television." (M. Csikszentmihalyi & Csikszentmihalyi, 1988).

Csikszentmihalyi says this because TV watching is a passive task, so the challenge of the task is inherently low. The reason TV watching might have been recorded as high Flow Experiences are that the students were often recorded as being with others during these TV watching activities. Instead of being a solo activity, TV watching, in this case, was part of a social experience with others. Many surveys also marked TV watching as a very low challenge and sometimes low enjoyment as well if they were watching TV purely due to boredom rather than out of interest in a TV programme. There is an amazing opportunity here as the anecdote mentioned in the Research Findings regarding the group of barista students huddled around a single computer screen watching YouTube videos of experts making coffee, shows there is an engaging alternative to the current online learning methods currently employed at Sozo. The rest of the activities were mainly related to the learning institution. For the barista students at the Sozo Foundation, there was a marked difference between the online assessment tasks they needed to do versus the practical tasks. The latter garnered higher scores of engagements compared to the former. Observations and student interviews indicated it was clear that there was little enthusiasm for the online theory coffee assessments.

The practical coffee-making activities, however, were met with anticipation, excitement, and a strong element of competition amongst the Sozo students. In terms of the level of concentration the students' experienced, the level of the challenge was not a major determining factor according to the ESM data. The level of the perceived skill and the level of autonomy the students had were positively determining factors as to their concentration level. The level of challenge in relation to student engagement was surprising and will be discussed later. The skill and autonomy level are in coherence with Csikszentmihalyi's Flow Theory. The level of the challenge was found to have a weak, but positive, impact on the level of interest. Interest was more positively impacted by the level of skill and autonomy perceived. Having interested students will be a crucial factor for the facilitators of learning institutions to engage students and drive longer-term learning journeys. While this sounds self-intuitive, building in measurements and allowing these considerations to drive the content and the content-delivery styles, is not as clear-cut. Lastly, the level of enjoyment was not shown to be dependent on the challenge. Enjoyment was positively dependent on the level of skill and autonomy. These were interesting findings. Csikszentmihalyi states that the level of the challenge and skill are the primary influencers with autonomy playing a secondary, but crucial part as well (M. Csikszentmihalyi, 2004). What the data collected stated is that the students do not regard the level of challenge as a key factor in engagement overall across concentration, interest, and enjoyment.

There are a few reasons why the level of the challenge was not statistically a factor (besides the level of interest, albeit weak) in the concentration, interest, and enjoyment of the experiences of the students. One could be how they interpreted the word challenge. Even though the researcher explained the position from which they should view the term "the level of the challenge" it could be that they drew their own conclusions either way. In one interview (male, coloured, mid-twenties), he mentioned that the experience of school was largely negative and that the challenge of the content was not very high. Either way, they did not engage in the classroom as they viewed the experience as "boring." A negative view of the word "challenge" was thus seemingly formed. For others, they might have developed their own perspectives of the word challenge. This was not analysed any further though. In the autocratic, report-card driven school they would have most likely come from (as explained in the literature review according to the structure of the education system in South Africa), the process of learning is seen as a means to an end and not a journey to be enjoyed.

This also correlates to studies done where student's enjoyment of school diminishes as they enter high school and approach the latter years of high school (Savahl et al., 2014). The very high drop-out rates reported, shows that something goes very wrong as they approach the latter years of high school education (Equal Education, 2017). From the perspective of Flow Theory, this relates to a mismatch between the level of the challenge and the level of perceived skill. Students at the institutions in this research show a profound self-confidence while performing tasks that engaged them fully. This self-confidence for one can be related to their high scores for perceived skill level. In addressing the research questions, there are clear stand-out points to note.

Students experience high levels of engagement (that is, concentration, interest, and enjoyment) while their perceived skill and autonomy levels are high. This was while they were engaged in tasks that are a lot more practical (that is, barista/coffee-making activities, graphic design, music production) and to a lesser extent, academic (assessments). As mentioned in the literature review, Howard Gardner's *Multiple Intelligences* research aims to refocus our attention to additional areas of intelligences compared to traditional learning environments which focus on the more "academic intelligences". These include art, nature, interpersonal, and other "intelligences" to make up the current list of nine "intelligences." With the current learning styles of the students erring on the side of practical engagement with high repetition, it would be beneficial for these institutions to create more interactive and practical ways for the students to engage in the theoretical knowledge attainment (Gardner, 1999).

Both Sozo and RLabs had standard post-course feedback forms that students needed to fill in. These are a lot less frequent than that of the Experience Sampling Method (ESM) data collection process, often at a rate of once a week. There is an opportunity to include an ESM type feedback mechanism from the students as part of the daily sessions. Doing this in a fun and participatory way would assist their experience. RLabs has already mentioned plans for the future to interview students after certain sessions via a video recording on a social media platform. This method could create a fun atmosphere while still gaining valuable insight that could be captured to tell a story over time.

Students, when asked about post-course feedback, shared that it is being done, but that they did not pay much attention to it, and they did not really know what happened to their feedback. In the interviews, the interviewer noted that a positive impact of the survey completion process is that felt they were being heard, that someone cared about their thoughts and feelings. The opportunity cost of doing the ESM surveys is the perceived time wasted on these interventions versus covering teaching content. On average, students took between 2 - 3 minutes to complete the surveys on Metric Wire, so if completed four times a day, that would add up to about twelve minutes a day. There is scope to include such a mechanism into the learning path of the institution. If this type of data collection process could be done as part of the normal programming in these institutions, this would build up an interesting narrative of how students experience their environments. The collective feedback would be informative feedback for students and staff alike.

In the experience of the data collection process, however, this would be quite a difficult take to incorporate such a practice into the daily habit of the students (and staff ideally). For one, a few surveys would need to be done at home as well. This provides a few ethical challenges in terms of how the data is protected and what will be done with the raw data. With this research, the data was protected in a software package and then detailed by user ID so that without the database key, one could not link the data to a particular person. Nonetheless, from the experience of this research, there would need to be some additional intrinsic and extrinsic rewards to be considered in order to get everyone's participation.

Part of the synthesis in the literature review was that the reason the South African Education Department struggles, is its perceived need for complete control which results in micromanaging. In addition to being a slow, bureaucratic institution, the latest advances in education become overwhelming for it to keep up with. This filters down from national level to regional and district level and finally to the local school and classroom. These issues range from Basic Education to Higher Education. In Higher Education, the balance between autonomy of academic institutions to develop effective graduates and being held accountable by State authorities has been noted as an area where the State often overreaches and causes more harm than good (Hall & Symes, 2005). These realities also include publicly-run and/or funded youth skills development institutions. There needs to be a level of trust between the student and teacher/facilitator as they co-create the experience. These factors are crucial in creating more frequent Flow experiences for the students. For Sozo and RLabs this would be an on-going focus area. Seeking to better understand the experiences of students, outside of a research study and more ingrained in their way of doing business, is needed in order to keep developing and attracting youths to join. This to say, beyond feedback forms at the end of week-long facilitated journeys (often more sparsely apart). Given the organisational structure of Sozo and RLabs, they are much more suited to achieve these endeavours by experimenting with a few strategies especially compared to many other highly autocratic-run youth skills development institutions.

Creating Learning Environments which are conducive for students getting in Flow

Relating the Key Learning Community School example to Flow Theory, below are the key antecedents of a Flow experience according to Csikszentmihalyi,

"Perceived challenges, or opportunities for action, that stretch (neither overmatching nor underutilizing) existing skills; a sense that one is engaging challenges at a level appropriate to one's capacities; clear proximal goals and immediate feedback about the progress that is being made." (Csikszentmihályi, 1997).

The consequences of a Flow experience have been found to be:

- Intense and focused concentration on what one is doing in the present moment
- Merging of action and awareness
- Loss of reflective self-consciousness (i.e., loss of awareness of oneself as a social actor)
- A sense that one can control one's actions; that is, a sense that one can in principle deal with the situation because one knows how to respond to whatever happens next.
- Distortion of temporal experience (typically, a sense that time has passed faster than normal)
- Experience of the activity as intrinsically rewarding, such that often the end goal is just an excuse for the process (Csikszentmihályi, 1997).

The reason for wanting to create Flow experiences is that Csikszentmihalyi found that people interviewed found what it is like "to live fully, to be completely involved in the moment." It is this eudemonic experience that facilitators are wanting to replicate in learning environments. This is the "why" in terms of increasing the amount of time students spend in Flow (Csikszentmihályi, 1997). As seen with the Key Learning Community School, it is a struggle to employ this sort of empathetic learning experience in the current understanding of youth skills development institutions. There are, however, many efforts to turn this around. As mentioned above regarding Sozo and RLabs's selection of funders, they are well set-up to not be overly concerned about the controlling mechanisms of the organisation and focus on what matters most, creating an engaging and impactful environment for its students.

5.5 Learning methodologies which assist with creating a Flow ready environment in low-income and high-stress communities

From the experience of the ESM data collection, one deterring factor for the design of a learning environment that has the optimal level of Flow experiences for each student is that it would take a significant amount of effort to maintain. While this is a valid point, this effort could be mitigated. We previously explored the impact of objective self-awareness through two studies which conducted three experiments each (Baumeister et al., 2007; Wicklund & Duval, 1971). The overall conclusion from these studies is that the objective, strategic observation of self, can result in the learner embracing and taking ownership of self-awareness and self-development. This was prevalent in the example of the barista students as they had to present the latte art to the other students. The coffee presentation itself was open to scrutiny from themselves and their peers. Having students develop a third-person view of their own experiences could assist learning environment designers in sharing the accountability of whether the learning journeys are successful or not. Students could take the learnings of objective self-awareness and view their learning journeys from the perspective of Flow Theory. Being in Flow would feel like doing an activity for the sake of the activity itself. However, Csikszentmihalyi states that activities can never be completely autotelic. There will be an element of conditions as to why we are doing something. Whether for income or for family or friends expectations, everyday life will have all of us doing many activities for something other than the pure enjoyment of the activity itself (Csikszentmihályi, 1997).

Student Engagement Methodologies

In the literature review, we unpacked different learning methodological frameworks in LXD and the Flow Canvas. This was primarily showing that the iterative nature of ensuring the learning environment is highly engaged. These strategies are readily available to be integrated with Sozo and RLabs existing strategies. Both organisations have made significant strides in providing high-quality youth development experiences in challenging social and economic circumstances. One of the data themes that emerged is the strategy to positively influence their communities from the inside out. They have intentional activities that ensure that they are developing personnel from the communities they are trying to serve. The content and facilitators are all relatable to their beneficiaries, the students. This experience greater enables students to engage as they are more likely to feel a deeper sense of belonging and connection to the learning environment and the institution.

The shift in innovative training institutions to firstly acknowledge that each person learns differently is taking hold. From the Montessori and Waldorf schools to various other learning methodologies, many institutions are recognising the fallacies in the strategies of traditional education. Going forward, learning institutions need to adapt to developing other intelligences outside of classical academic style (IQ based) intelligence as discussed previously in line with Howard Gardner's Multiple Intelligences Theory (Gardner, 1999). This adaptation was evident during observations at Sozo and RLabs where different students were impacted and engaged by different sessions. Strategies and learning methodologies need to be employed to develop different types of students according to the needs and preferences of the students. The various skills development organisations in South Africa tend to be more of an extension of the State education system. Institutions using the more Victorian methodologies essentially decrease in Flow experience opportunities for students compared to more contemporary approaches by others.

Learning environment designers should not view non-Flow experiences negatively. A misconception that could quickly develop is that Flow is the only meaningful state to be achieved for learning experiences. Previously reviewed research advocated that low challenge and low skill could also be

seen as an anxiety state (Fullagar et al., 2013) and not only as an apathy state (Csíkszentmihályi, 1997). The quadrants could be framed more positively too. For example, low challenge and low skill levels required can be described as rest or relaxation, which is imperative for the effective long-term functioning for any person. Each of the states could serve a specific function in a learning environment. One example would be easy routine tasks within the learning environment. These are a mostly low challenge and high perceived skill level, especially after a few iterations of performing the task. For teachers and students, it might be various administration tasks.

What is important is that learning environment designers take the quadrants into account. This should lead to an analysis of tasks to ensure that it is in the area of the Challenge/Skill map by design, and because this is an empathetic design exercise, the primary input/feedback for this would come from those the environment is intended for (e.g., students and teachers). However, non-Flow experiences might also be a hindrance. It all depends on the intentionality of the design of the content and learning methodology of the environment. As noted in the literature review, the role of social media can be one of high distraction. Attaining Flow like experiences takes time.

Leveraging sports in education

The Cape Flats has produced a high number of sports professionals. There is the blend of the immediacy of feedback and the visual and physical nature of sports, as it was unpacked in the literature review, that creates Flow experiences much easier in sports than in academics, even in high-stress environments (Young & Pain, 1999). The view that sports attain Flow easier than academics is due to the nature of sports, but also due to the design of the Victorian learning environment. Our previous legacy of 19th and 20th-century influence of learning environments still persists today especially in many public schools across the country, despite the last twenty years of neuroscience have also taught us significantly more of how our brains work, what motivates and engages the mind.

The learning here is that it is different for each person. These differences can, in certain applications, be categorised as with Gardner's *Multiple Intelligences*. This moves the focus away from being solely on academic intelligence, but also on others such as interpersonal and art-related intelligence, among others (Gardner, 1999). This ties in with the adaptive-based approach to education as interpersonal related skills were shown to be substantially more prevalent in children from high-stress communities (Ellis et al., 2017). With the experience at RLabs and Sozo Foundation, it appears feasible that employing new ways of learning content could provide an opportunity in engaging learners, especially through more practical ways. This circles us back to examples of the Montessori vs traditional schools study. The difficulty with this model is that Montessori schools have shown to be significantly more expensive to run and finding quality human resources to operate in low-income, high-crime communities will always be a challenge.

Meta-Flow Design

Meta-Flow design comes from noticing the high energy and effort required by facilitators at Sozo and RLabs to maintain Flow for the students. It is the concept of creating a system where Flow is maintained by all participants in the learning environment. If the students, alongside the facilitators, were accountable for their high engagement, this would result in autonomous Flow management.

According to criminologist Don Pinnock's synopsis of the problem with gangsterism is that within low-income communities in Cape Town and across the world, positive role models, especially in the immediate family nucleus, are hard to come by (Pinnock, 2016). He concluded that without the role models in that family nucleus, boys naturally seek that father-figure connection elsewhere, often in gangs. The negative environments these youths find themselves in would most likely be a direct barrier to Flow learning experiences and self-confidence as well.

Within the pressures of seeking income through employment, there are other factors that count against them as well. The Sozo's leaders told of the experiences the students had of the extreme negative bias and that they were a sign of the challenges they face in finding employment. The effects of negative bias on various demographic attributes could be far-reaching. That is because they were from Vrygrond, a person of colour, and, hypothetically, not that well-dressed, potential employers would be less willing to give them a job. This was the realisation of one of the Sozo leaders when engaging with potential employers and funders. For the facilitators of Sozo and RLabs, their preparing of the youth for the outside world is laden in purpose-driven statements. For RLabs, their "givers of hope" slogan that they keep emphasising is better understood. For Sozo Foundation, "loving unconditionally" is also an overarching theme for these interactions with the youths that is countercultural, given the context they are in.

As noted in the literature review, demographic similarities can play a powerful role in the performance of students. Also, nature and usage of language also have a major influence in directing the performance of the students. In light of this, the benefits of many of the facilitators at Sozo and RLabs being of similar demographic and from the same area makes sense. This can positively influence them to perform better in their sessions. The narrative of identity and belonging seems to be continually intertwined in the findings and through the interactions at both organisations. For Sozo and RLabs, the students attending would previously have been subject to similar negative stereotyping in terms of cultural, racial, and gender classifications. This was not explicitly mentioned by any one of them, but the Sozo leader (white, male, early forties) indicated that this was his experience when interacting with other people at charity events or others similar space. They indicated that the youth of Vrygrond were looked down on and mocked at these gatherings by certain individuals. The respective organisations seem to do well in taking this into account especially when mixing the different genders and races. From the researchers' observations at both Sozo and RLabs, this mixing does happen especially when international students serving a short-term volunteer role are present. This ties into Flow Theory in that if the students feel uneasy or threatened in any way, this holds them back from being in Flow.

The nature of autotelic experiences is the interest in advancing others' goals above the individual experience. This requires a level of self-confidence and confidence in those around you. Sozo and RLabs become agents affirming the students in various ways as per the learnings of the above study. Many educational institutions also limit the focus of education and fail to take into consideration the sharply contrasted everyday experiences between different communities in such an unequal society. As reviewed in the literature section, research is done by Ellis, Griskevicius, and Frankenhuis looking at how we could reframe our thinking of what development looks like for children living in low-income and high-stress. The key here is that we need to acknowledge that these children/youths develop very differently as opposed to the view that they develop to be worse off in these environments. The research concludes that if viewed as a different type of development, then different strategies for learning can then be employed to better harness learning opportunities with these youths' environments (Ellis et al., 2017).

By understanding the area of strengths of youths in high-stress communities, one stands a much better opportunity to create environments that allow them to have Flow experiences. A crucial point results by connecting these methods with skills that potential employers need. It is feasible to envision a learning environment, where skills developers are designing learning environments for students based on their strengths, for the student to experience above-average engagement, and where the skill developed is also sought after by potential employers.

The literature review explored the developments in mental exercises and how it has already shown tangible benefits in the physical exercise sector and the possibilities for it in the academic sector too.

For youth in the Cape Flats and other similar areas across the world, there is frequent narrative voiced to them of "you are not good enough" and negative social activities being prevalent. A positive and grounded mental exercise routine could have a profound impact on these youths, especially within environments such as Sozo and RLabs. An example could be them mentally practising doing certain tasks at the institution before actually doing it each day. This closely relates to the self-talk that needs to be generated inside themselves which affirms their identity.

Flow can be more attainable by harnessing mental exercises and moving the motivation of the student from extrinsic factors to more intrinsic factors. From the researcher's observations, both institutions also engage with their students on a personal development level. One benefit of this is that the students are able to derive these experiences by themselves as the main thing they need is themselves. This could translate to less of a dependency on the institution they attend.

5.6 Creating autonomous Flow experience environments

This study showed the careful attention needed to the feedback (qualitative and quantitative) of the students' experiences. As per Jonathan Jansen's quote in the literature review,

"My thesis is that OBE will fail... because this policy is being driven in the first instance by political imperatives which have little to do with the realities of classroom life." (Jansen, 1998).

Better understanding the realities of a youth skills development learning environment is needed, especially from the point of view of the facilitators and students. There is no academic literature available for the ESM collected data in South Africa. The ESM provides an excellent way to measure the current experience of students and staff at learning environments. It has been a pioneering task with many challenges along the way in applying this methodology to the Cape Flats area. The amount of time and effort needed in some respects out-weighed the capacity of the researcher. The researcher undertook an important process of attentiveness that was needed to ensure that the students and staff understood what was required from them. In a society that does not discuss their emotions and feelings very often, this process is possibly quite difficult for them. Even though the work ahead is considerable and there is a mindset change needed, this does not make this research in vain. The learnings in this research open the way for plenty of follow-up work to further understand the experiences in other learning environments across South Africa.

5.6.1 Recommendations to Sozo and RLabs (and others like them) for further engaging their youth

In line with Flow theory, below is a suggested plan for Sozo and RLabs to implement if they want to further garner high engagement with the students. Understanding the data will provide quick prompts to adjust the learning environment, content, or pedagogy accordingly. A framework would be to spend a certain amount of time in each "Flow Quadrant" by design. An example of one is in Figure 5.1 below.

The process of placing various activities in Flow-Quadrants would be a useful exercise in order to see the intended impact on the students. Meditation or relaxation, for example, would be in a low skill and low challenge quadrant. High repetition activities such as memorisation tasks would be an example in the low challenge and high skill quadrant. For resilience, perseverance and/or grit development activities this would be in the high challenge and 'lower' skill quadrant. An example is learning to make a cappuccino with an art design never done before in a near-impossible time. Lastly, Flow conducive activities would be in the high challenge and high perceived skill quadrant. This could include creating a piece of computer code in record time based on previous performances.

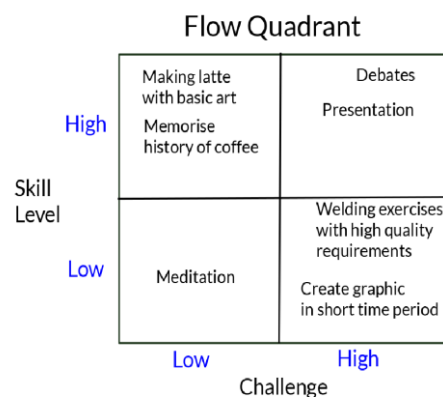


Figure 5-1: Four Quadrants in relation to Flow

Monitoring would be focused first on checking if the design of the activities in these quadrants is the experience of the students. Secondly, whether the right balance of each quadrant is designed for would be checked. This examines the question: is the environment trying to exhaust the students by trying to achieve Flow for too long or too many times? Or are there not enough Flow conducive activities? This could be perceived as being an exhausting task for those responsible for creating this environment, whether teacher, facilitator or learning environment designer. Part of the overall design would be for the responsible person (for example the teacher) to also have designed into their responsibilities, activities situated in each of these four Flow Quadrant states. Therefore, the aim is for the teacher to also achieve Flow state for a certain amount of time as well.

All the above leads to a "meta-Flow" dynamic, which is a topic that has emerged in addition to answering the original research questions. This is to do with the dynamic of autonomously creating and maintaining the optimal amount of Flow experiences for students. The maintenance of Flow experiences for students is currently the responsibility of the staff and they feel the impact of this. I personally witnessed those facilitators going through some exhausting days, continuing the motivating roles they play for the students, as well as all their other duties.

There is an opportunity for the students themselves to play a leading role in measuring, observing, and influencing their own Flow states. This would ensure that the students develop a self-management component which would be crucial in promoting the sustainability of this framework. From the data collected in this research, students are generally more positive and experience higher Flow states when they are busy with a task than when they are thinking about themselves. Csikszentmihalyi's research also shows that the exercise of self-reflection can either be helpful or harmful depending on the current healthy or unhealthy view the individual has of themselves (Csikszentmihalyi, 1997). He also proposes that personal development is a key factor in ensuring that an individual develops an increasingly healthier view of themselves through various available interventions (Csikszentmihályi, 1997).

In the process of ongoing improvement as well as reviewing their Flow experiences, the students would aim to objectively self-manage and review their progress. These reviews would happen in solitude as well as collectively in class. This would be to ensure that students of different learning styles would have a space to experience their ideal environment. As a group, there is power in holding each other accountable. There is also a danger of 'group-think' where other's comments influence thinking (Cain, 2013). To avoid this, time alone to further develop one's thinking needs to be incorporated into the student experience. Currently, through the observations, interviews and ESM data, the students at both Sozo and RLabs spend very little if any time by themselves for thinking, working, or reflecting at the organisation's premises. This progress includes their learning journey and to what extent they are getting in Flow during this journey. They could individually and with their peers, decide on how to achieve the Flow levels they are seeking. One of the students (male, coloured, early twenties) who was mentioned in the research findings started applying the methodology of the ESM in his home life and with certain activities specifically aiming to capture his emotions during certain tasks. He said,

"I really enjoyed the whole process, because I made notes for myself on what I did and how I rated everything and what happened also during that day when capturing the information. That helped a lot because I started to see that maybe there are certain things I can change in my routine in the morning that can affect the rest of my day, like when it comes to my mood or what I'm doing and when it comes to things that I must do then it becomes interesting." (RLabs student).

The ESM brings together various studies, discussed above, in deliberate practice, mindfulness practises, objective self-awareness practices, and emotions as a feedback loop. Incorporating these into the frameworks of Learning Experience Design which is monitored and improved upon by the

students themselves as a measurable outcome, can create this meta-Flow environment. This approach also promotes ownership and accountability of the learning journey and how it is achieved and to what quality (Flow being the main measure). There is an evolution as the main role of the institution becomes ensuring the environment is conducive for the needs of the students, often through a deliberate visioning of the process of the learning journey, that is, co-creating the vision of the near-future with the students. Other key roles would be providing the necessary resources (people and material) and holding the students highly accountable for the outcomes the students created for themselves.

6 Conclusions

6.1 Student motivation to be engaged in learning environments

“Education is the most powerful weapon which you can use to change the world.” – Nelson Mandela.

This widely used quote gives us some insight into why education is such a hotly debated topic globally. In this research’s case, this includes youth skills development. Many governments across the globe, without a real solution to effective development, still fight for complete control of the education system in their respective countries. In South Africa, private education, and home-schooling, in particular, have come under keen scrutiny by various regional Education Departments which has prompted responses from several advocacy groups (Eems, 2017). Based on the literature review on government education in South Africa, the process of educating youth for employment has seemingly broken down and does not appear to be on the mend. Youth skills development organisations need to often start almost from scratch in terms of educating the youth participants. This research paper aimed to better understand what are the factors that motivate youth to become highly engaged in learning environments in the poorly performing industry of youth skills development. The other aim was to deepen the understanding of what learning environment designers could apply from those organisations who are doing youth skills development better than most, and what they might further improve on to increase impact.

From workplace corporate Human Resource departments to extra-curricular institutions, such as community sports clubs, many struggles to understand what motivates humans and how to tap into that to create an effective community. Flow Theory is increasingly being applied and evaluated in different contexts. The accompanying research method of ESM aims to empathically understand the experience of the person engaged in any activity. Most of the work done in Flow Theory has been in education, workplaces, sports and the arts. Within South Africa, it seems Csikszentmihalyi’s Experience Sampling Method has not been used to date in an academic paper. Therefore, this research aims to not only provide key learnings for Flow Theory’s applicability in an African context but also to call for researchers and learning environment designers to use ESM to examine and improve the learning environment landscape.

There has also been a strong impetus in viewing the education environment from the lens of Flow Theory in other areas such as sports and the arts. Achieving Flow in academics has been observed as being substantially more difficult than in sports especially with the current design of learning environments in public schools and tertiary institutions (Rathunde & Csikszentmihalyi, 2005). The key research participants in this study were between the ages of 18 to 30 at youth skills development institutions situated in low-income, high-crime communities on the Cape Flats region, Cape Town, South Africa. These communities are among the most difficult socio-economic circumstances to grow up in, in the country (Crime Stats SA, 2016). This research paper aimed to answer two prevailing questions:

1. What were the key conditions needed that resulted in the highest student engagement experiences?
2. What was the relationship between the high student engagement antecedents and the level of engagement reported by the student?

The data collection process was a major learning. It is in these environments the people are more concerned with survival and safety than learning and development. The "intelligence" being developed are often how to safely navigate dangerous community circumstances. These relate strongly to more interpersonal skill sets being developed if viewed in line with Howard Gardner’s Multiple Intelligences school of thought (Gardner, 1999). The economic difficulties of access to

smart-phones and even when smart-phones were available, the cost of data to use the data collection app was a challenge in our context. This was not mentioned as a challenge in any previous research performed using the ESM in North America and Europe. Plans would need to be put in place in order to ensure that these challenges are overcome by supplying devices to the students and/or data costs covered. Lastly, operating in a low-income, high-stress setting is unsettling at times, especially during unrest within the community.

6.2 Flow-ready environment creation

With regards to the research questions, the activities the students were involved in when their engagement was high were highly task-focused as opposed to relationship-focused. The tasks themselves were typically practical and less academic. For example, the barista/coffee practicals scored high whereas the online theoretical coffee assessments scored low for Flow experiences. IT skills development activities also scored high. When they were in Flow they thought less about themselves and others and more about the tasks they were involved in. Their emotions were overwhelmingly positive when the engagement was high and mostly negative when the engagement was low. This seems obvious but what Sozo Foundation and RLabs do extremely well is pro-actively influencing the feelings of the students with daily "check-ins" which appears to help tremendously in creating positive energy in the group.

A consideration for many an education organisation from a programmatic perspective is if the experience is not meant to be a Flow experience, which Flow quadrant is it intended to be in? Planning sessions for specific Flow quadrants as per the diagram in the discussion section can ensure the energy is managed better during sessions. In the research findings, two students interviewed mentioned that, through filling out the surveys, they had a realisation that their emotions had an impact on their thoughts. Their thoughts then, in turn, had an impact on their level of concentration, interest and enjoyment. This realisation had some of them being more intentional in designing their personal lives with deliberate thought and planning. This meant that when they got to class, they were fully present and not distracted due to being "in disarray" before getting to class as mentioned by one student. That metaphysical aspect of thinking about thinking was what stood out for them. Regarding the second research question, according to the data, the level of the students' perceived skill had a defined relationship with their concentration, interest, and the enjoyment level. The level of the challenge was found to not have a relationship with either the students' concentration, interest or enjoyment experiences. This was the only finding not in-line with traditional Flow Theory. There is no clear reason as to why this is. The researcher's hypothesis, which has not been tested, is that the students' reluctance to seem incompetent is because they fear that the consequence might be exclusion from the programmes at the institution where they are at. There appeared to be an appearance of performance by the students to be eligible for employment opportunities.

Central to Flow theory is the need for autonomy to be present for high engagement experiences to happen. The research findings in the ESM surveys in this research also revealed that the level of autonomy a student was given for a task was found to have a strong positive and proportional relationship with concentration, interest and enjoyment. Therefore, youth skills development organisations should note that giving students options, even if it is a very limited set of options, positively influences the level of engagement in the learning environment of a student. This is due to a student feeling a sense of choice and agency. As noted by Csikszentmihalyi, this bodes well in the enjoyment of activities for the activity's sake, that is autotelic activities (Csikszentmihályi, 1997).

From an observational point of view, when the broader Flow Theory antecedents were in place (clear goal, immediate feedback, high challenge, and high skill), the students visibly appeared to be engaged quicker. This was evident in the barista practicals of making café lattes. It was also evident during certain time-pressured graphic design activities on the PC and other online tasks. These

would differ from one institution to the next in terms of the high engagement activities. Interestingly, food played an important role in how the students experienced their environment. This was recorded in the surveys, by observation and in the interviews. In the interviews, one student (male, early twenties) reported that they could not concentrate on a few sessions due to being hungry. They recorded in the surveys as having high enjoyment while either involved in making food or eating with peers. During the observations, there was lots of conversation and laughter around eating and sharing food. It seemed to create a bond between the students and the facilitators who often served the students food and ate with them.

The data collected relating to the research questions revealed eight themes:

1. Change from the inside out: Home-grown personnel:

Many organisations usually source their staff from outside the low-income, high-stress communities they are impacting. RLabs and Sozo Foundation have placed a high emphasis on developing their talent from the surrounding communities in which they operate. The research revealed that this had a profound impact on student engagement in terms of how relational the interactions were reported to be by the students.

2. Learning environment look and feel, combined with facilitator energy:

Both organisations indicated that they placed a premium on how their spaces look and maintain high energy with interpersonal relationships. It is difficult to maintain a neutral ontological position as the researcher experienced the atmosphere to be energetic and lively.

3. Relationship between theory and practice :

Both institutions place an ever-growing emphasis on practicality as a means of teaching. They both are offering skills development opportunities that are inherently highly practical with a bit of theory. With the struggling education system and its lack of resources overall, this creates a great entry point for the students to begin a more meaningful and engaging learning journey. For the institutions, this creates a challenge with the accreditation of their programmes which both organisations are currently grappling with. They are both not formally accredited in their programmes.

4. Maintaining Flow Experiences

During the observations, keeping the enthusiasm going was noted as a big effort by the staff/facilitators. The researcher also noticed an element of what seemed like exhaustion of the staff. If the students were given some of the responsibility to maintain their own high levels of engagement, it could potentially reduce the load on the staff. In the literature review, a study shows self-management strategies where students were found to be more effective when conducting objective self-monitoring via audio or video devices. RLabs and Sozo could benefit from these studies in maintaining high student engagement levels.

5. Survey data: Concentration, interest, and enjoyment experiences:

These experiences were discussed above in this section as part of the first research question.

6. Emotions in relation to getting in Flow:

These relationships were also discussed above in this section as part of the second research question.

7. Psycho-social focus through listening and being heard:

Sozo Foundation indicated being one of the few organisations of its kind having dedicated social workers as part of their staff. Both organisations had a high focus on the psychological and social development aspects of the students. While at Sozo Foundation, their leaders were in the process of being trained in Neurolinguistic Programming (NLP). As discussed in the literature review, Flow Theory states that only a healthy view of one's self can result in a healthy personal development pathway. Flow refers to the level of engagement, and not the perceived morality of the activity being engaged in. It is, therefore, possible for one to achieve in Flow experiences while doing major harm to others (Csíkszentmihályi, 1997). Both RLabs and Sozo employ strategies to ensure the students focus on developing a healthy view of the self as well as on the technical aspects of skills

development to ensure a high probability of high engagement. The students interviewed said that the experience of being heard, albeit through the surveys, was greatly appreciated.

8. Values-Driven:

Sozo and RLabs both have highly stated aspiring values which they are reminding the students about. The staff and students talk about this frequently and there is a great perceived understanding of it. For Sozo, it means to show unconditional love. For RLabs, it is in being hope-givers to the communities they serve in. Both institutions value their activities as advocating for having aims above any one individual. These are autotelic aligned activities and an essential component to Flow experiences according to Csikszentmihalyi. Flow Theory states and individual is significantly more likely to be in Flow when the activity is done for a greater purpose than only personal gratification.

6.3 Social factors in influencing student engagement

An overlapping element of the two institutions is that the context of where the students reside is part of the design considerations for their learning environments. Because many of the staff members are from the surrounding communities, this makes it a lot easier to carry out the design. Stereotype bias was discussed in the literature review as a factor to be considered. Just being female or non-white can have a negative impact on any test scores of the students, unless certain steps are taken to combat these (Spencer et al., 1998). What emerged as a good mechanism to level the playing field was framing the specific task in a positive light for those who might be affected by the stereotype. For example, in the case of a mechanical task or assessment, it would involve reassuring the women, who would be stereotyped as not capable of completing the task, that they are as capable as men in fulfilling the requirement. Also, the re-framing of the learning content itself should be changed to an adaptation-based approach discussed in the research reviewed of Ellis et al for students from high-stress environments. These students, according to the research, have developed their own set of strengths which are different from those of youth from safer, low-stress environments. They have adapted to their environments and the skills they have developed due to the high-stress environment should be developed further or at least taken into cognisance when developing the instructional component of lessons (Ellis et al., 2017).

The messaging from RLabs and Sozo foundation during their sessions came across as deliberate. Throughout the research findings, they spoke of being givers of hope and wanting everyone to experience unconditional love or some variant of this as noted in the discussion. With the Sozo facilitators having gone on Neurolinguistic Programming (NLP) training, this bodes well for their intentionality of how they use their words in communication with others and self. Comparing the approach of the two institutions with the reviewed literature on contextualised positive framing and its impacts in a controlled environment, they are definitely on the right pathway. The adaptation based approach to resiliency from Ellis et al. is understandably more challenging to pursue, which means organisations would be less willing to try it. Economic opportunities often favour those who can sit behind a computer and have a strong academic disposition. The emphasis on Science, Technology, Engineering and Math (STEM), often firmly rooted in academia as a starting point, also does not favour the adaptation-based approach to resiliency.

6.4 Self-Managed Flow

The emergent topic is the exploration of a high engagement environment which is largely self-managed by the students themselves. The researcher unpacked the Flow Quadrant as a framework in the discussion section, where each quadrant has a specific function in one's daily lived experience. The Flow Quadrant ranges from a low level to a high level of the challenge and the skill level required. Through a process of self-management, students would need to plan and schedule which tasks and experiences they want to complete and in which Flow Quadrant each activity would be in.

They would then compare their intended level of engagement with what they experienced. The role of the staff then becomes walking alongside the students to co-create the learning journey. The journey has an intended destination or purpose.

In the example of the barista students at Sozo, obtaining employment and working at a high ability level might be the intended purpose in a given time frame. The staff and students then reverse engineer what the journey would look like, as a first draft. The staff serves as knowledge experts on the personal development and technical aspects needed for the intended purpose. They would expose the students to content and experiences they feel are relevant to the journey and outcome. The students, however, exercise the given autonomy to also have a role in the design of their learning journey. As they proceed, they would review the level and frequency of their Flow experiences. These reviews would happen collectively and individually, to inform strategies with which to move forward. By including objective self-monitoring and using emotions as part of the decision-making process, students can develop an operating structure for maximising Flow experiences (Wicklund & Duval, 1971). The objective then becomes how to maximise their in Flow experiences to meet their intended purpose. In theory, the emotions derived from Flow experiences and autotelic activities drive the desire for more of the same.

The Experience Sampling Method would be used to capture the everyday experiences of the students for themselves and staff to review. The personal protection of private information guidelines would need to be adhered to. This data also becomes crucial in informing staff which of their current content and pedagogy is working and what needs to be removed or changed. To achieve these Flow experiences regularly takes tremendous effort and discipline. Ownership and accountability would be key drivers to ensure this pursuit continues. This then becomes a methodology across disciplines for organisations to empathetically understand students, which in turn drives high student engagement.

6.5 Future Research

The ESM data collection process is quite cumbersome and demanding. One of the significant recommendations for future research, especially in South Africa, or more broadly Africa, would be to have a team of researchers do it. Suggestions for future research are to focus on younger students and to conduct this type of research within public schools as well as comparing it to independent/private schools with more participatory learning methodologies such as Waldorf or Montessori schools.

The ESM methodology could be used to conduct a similar level of research on the teachers' overall engagement levels in their learning environment. All parties engaged (that is, the teacher/facilitator and students) should all be spending a sufficient amount of time inflow. Furthermore, this would not only relate to classroom instruction but all aspects of their work. Whether students wanted to self-manage their time in Flow is a question this research did not directly explore with the research participants. This is a potential avenue to explore further as it would generate methods for how the students might self-organise.

Also, to further explore the success and failures of other institutions who might have tried this autonomous approach would provide a useful platform from which to deepen the understanding of students driving their own learning journey. We looked at the type of activities that helped Flow experiences to occur in the context of RLabs and the Sozo Foundation in the youth skills development sector. One further research opportunity would be to compare these activities between youth skills institutions and an alternative type of institution, one of a more academic nature. As the skills development institutions focused strongly on practical activities, it would be

interesting to understand how academic institutions that perform well-currently leverage high engagement of students.

A comparison and exploration would be helpful in the economic and safety considerations of different environments. That is, what are the differences in skill sets of students and Flow inducing activities in affluent and safe geographical environments compared to low-income and high-crime environments. For learning environment designers moving between these spaces, what would the design considerations need to be? They could, thereafter, develop an action plan for how these factors could be carried across in a respectful and engaging way.

It is interesting that Abraham Maslow and Mihaly Csikszentmihalyi developed their theories around the same time. A further focus of research could be around the intersection of Maslow's hierarchy of needs and Flow Theory for students in organisations such as RLabs and Sozo Foundation. As we unpacked in the literature review, the students from high-stress communities develop very differently from safer communities. Using a strengths-based approach, understanding the missing link of development for these students and youth in the community would be an important component for various stakeholders to grasp.

During the Literature Review, we saw that the trajectories for education options as well as access to employment for youth is on the decline in South Africa. The combination of deteriorating educational systems and high levels of inequality are an explosive mix and a recipe for high crime levels as found in other countries around the globe. The evidence of this dangerous mix is in the frequent and often violent protest action that happens throughout the country as the frustrations of these youth grow and spread. As dire as matters currently look, there are opportunities for further research which leads to more hopeful outcomes on the back of this research.

Through the lens of Flow Theory, the work of Sozo Foundation and RLabs has made tremendous strides in positive education and skills development reform. They have found a formula that works well and with a few changes could be even more useful.

A final area of suggested research in the future is in what would "the new approach" to formal education and skills development look like? Both Sozo Foundation and RLabs stated a concern that most of their courses do not have formal accreditation. Both organisations are working on this with the relevant accreditation bodies. What both organisations have is a fast-growing number of businesses which use them as a preferred employee selection pool owing to the quality of their training and the excellence of the students exiting their programmes. Both are also working in partnership with the Department of Social Development in government. The eight emergent themes previously discussed reveal an ideal way of operation for youth skills development organisations.

A new area of exploration exists, to detail the steps required to start up a new youth skills development organisation based on these themes.

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8 Low-income communities in Cape Town

Mitchell's Plain: http://www.capetown.gov.za/en/stats/2011CensusSuburbs/2011_Census_CT_-Suburb_Mitchells_Plain_Profile.pdf

Manenberg: http://www.capetown.gov.za/en/stats/2011CensusSuburbs/2011_Census_CT_-Suburb_Manenberg_Profile.pdf

Langa: http://www.capetown.gov.za/en/stats/2011CensusSuburbs/2011_Census_CT_Suburb_-Langa_Profile.pdf

9 Research participant consent form

CONSENT TO PARTICIPATE IN RESEARCH



Student engagement in learning environments

You are asked to participate in a research study conducted by the Graduate Business School at the University of Cape Town. This is a Masters by dissertation in Philosophy in Inclusive Innovation. Your participation in this study is entirely voluntary. Please read the information below and ask questions about anything you do not understand, before deciding whether or not to participate.

You have been asked to participate in this study because you are involved in a vibrant technology-driven organisation and you are involved in a learning environment either through facilitation or engaged in the learning process.

• **PURPOSE OF THE STUDY**

From the study participants' point of view, what are the experiences that enable them to develop the most. In essence, under what practical conditions do they experience flow?.

• **PROCEDURES**

If you volunteer to participate in this study, you will be asked to do the following things:

Fill out a questionnaire once a day for 8 weeks which takes about 10 minutes to complete. This questionnaire will be about your experience at the time just before writing the questionnaire. The questionnaire is to be filled out as frankly as possible. What we are aiming to get is an idea of your experience relative to the task at hand.

The amount of time per questionnaire will be 10 minutes at about 3 times per week. This is an important investment in understanding and improving the organisations learning environment style. It will be one of the first body of knowledge of its kind in South Africa.

• **POTENTIAL RISKS AND DISCOMFORTS**

Getting into the mode of filling out the questionnaire might take some getting used to. Also expressing your individual experience onto a questionnaire might feel uncomfortable.

Your name will not appear on any of the questionnaires. Rather, you will be assigned a secure study code which only the primary researcher will be able to relate to your personal details.

The study will be terminated if the researcher views any parties looking to affect or influence the study in an unhelpful manner. The researcher is looking to obtain data on the current method of operation of the environment. All data collected by researcher is not accessible by anyone else. The organisation being studied will have the collective results of the study. This will not be able to be traced back to any individual participant.

In the event of physical and/or mental injury resulting from participation in this research project, the University of Cape Town does not provide any medical, hospitalization or other insurance for participants in this research study, nor will the University of Cape Town provide any medical treatment or compensation for any injury sustained as a result of participation in this research study, except as required by law.

• **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

Mindfulness is an important element to development whether an educator or learner. Participation in this study will create greater mindfulness of the participants' daily activities and their subjective experience thereof.

The data submitted by the study participant will also relate to a better understanding of the operation of the learning environment in which they are in. This increased understanding can relate to a process of improvement of the environment. This improvement in the environment means a better experience for you, the participant.

The increased understanding of learning environments mentioned above, could relate to a creation of a framework in which other organisations in similar fields could benefit from as well. The research will also contribute to much needed data about learning environments within an African context.

• **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

Confidentiality will be maintained by means of assigning each participant with a 'study code'. This study code and personal details are stored in a secure database that only the primary researcher has access to. In all correspondence between the researcher and the study participants, the study code will be used and not the participant's name. Any data viewed by the organisation and others will be using the study code. All correspondence will also be stored in a secure facility with a two step verification required.

Any video and audio recordings will be solely for use by the primary researcher. These would be via interviews and observations. All participants will be informed before each recording takes place. These recordings will be stored in a safe and secure location.

• **PARTICIPATION AND WITHDRAWAL**

You can choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind or loss of benefits to which you are otherwise

entitled. You may also refuse to answer any questions you do not want to answer. There is no penalty if you withdraw from the study and you will not lose any benefits to which you are otherwise entitled.

The investigator may withdraw you from this research if circumstances arise which warrant doing so. Reasons for this are varied and include but not limited to:

- If the study participant is unable to complete the required submissions at the required frequency.
- The participant leaves the particular learning environment during the course of the study.
- The participant is absent from the learning environment for a period deemed to negatively affect the research.

• IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about this research, please contact:

Brad Sitzer: *Principal Investigator, UCT Graduate School of Business.*

Phone number: 082 774 3339

Email: stzbra001@gsb.uct.ac.za.

• RIGHTS OF RESEARCH SUBJECTS

The University of Cape Town's Review Board has reviewed my request to conduct this project. If you have any concerns about your rights in this study, please contact Ms Samantha Alexander of the Faculty EIR committee at email samantha.alexander@uct.ac.za.

I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this consent form. I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study.

Printed Name of Subject

Signature of Subject

Date

Signature of Witness

Date

10 Metric Wire

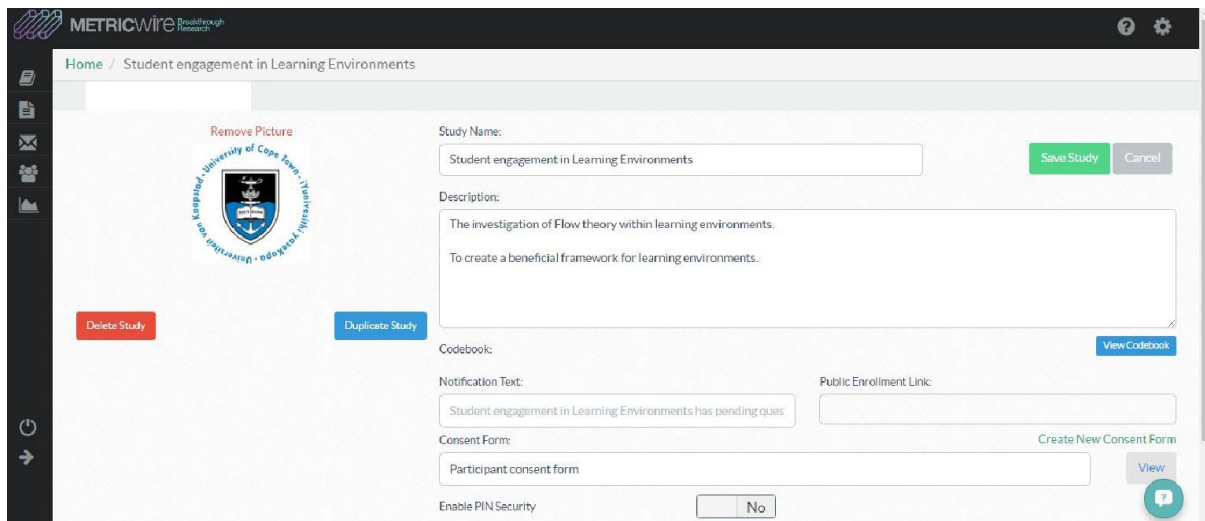


FIGURE 9.1

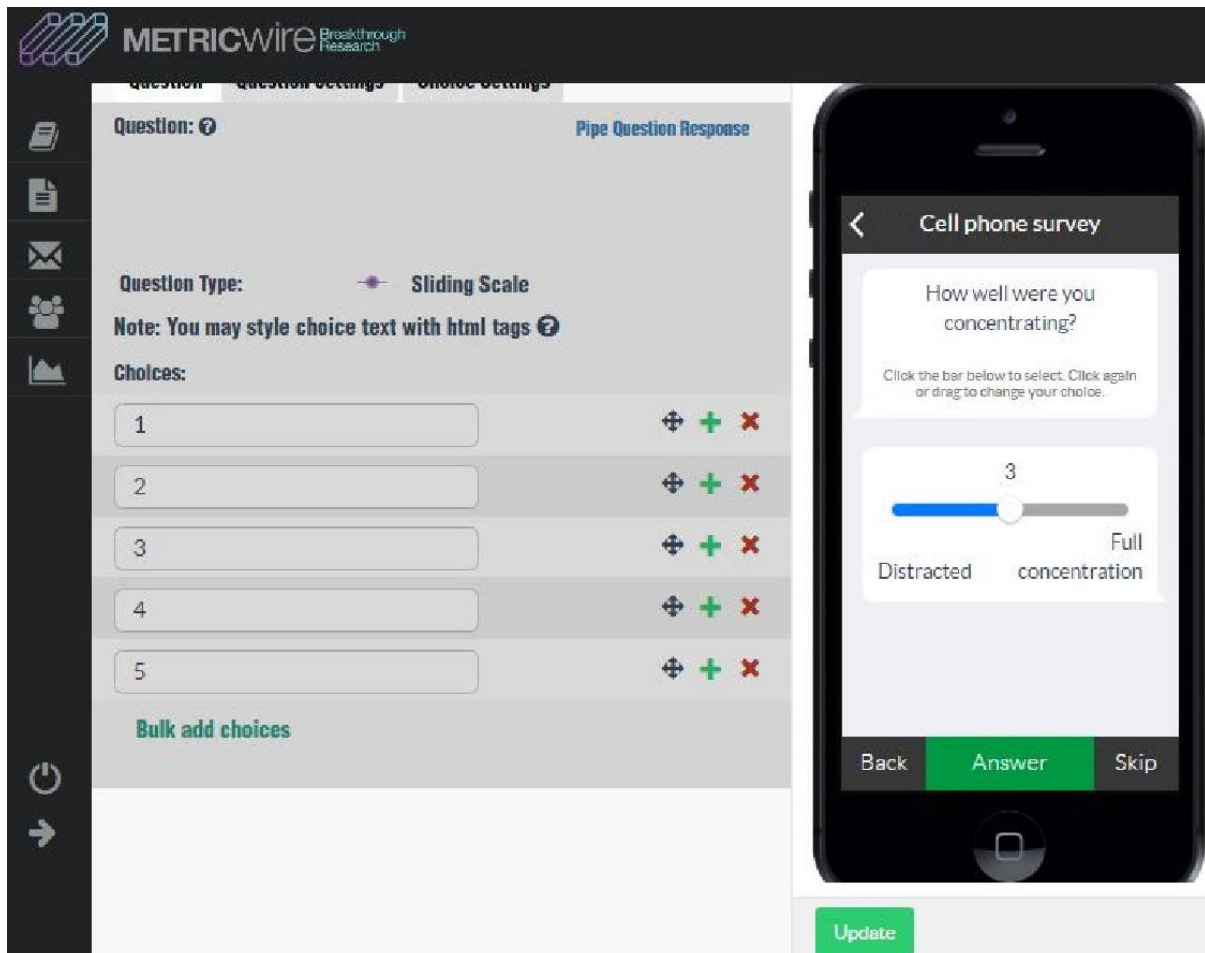


FIGURE 9.2

11 Survey

All the questions on the next screen are based on the activity done just before you started this survey.

Only 17 questions! Press OK to begin:

1. Where were you? (Name of the room or building)
2. What were you thinking about?
3. What was the main thing you were doing?
5. Did you enjoy what you were doing?
6. How well were you concentrating?
7. Did you have some choice in picking this activity?

On the next screens, describe your mood during the previous activity. 7 questions done, 10 questions to go! Press OK to begin:

8. Happy or Sad?
9. Worried or Relaxed?
10. Excited or Bored?
11. Angry or Friendly?
12. Who were you with?
- 12 (b). How many friends?
- 12 (b). Other(s) (Who?)
13. How challenging was it?
14. How skilled are you at it?
15. Did you wish you had been doing something else?
16. Was this activity interesting?
17. While doing the activity discussed in this survey, describe the emotion you had in one or two words.

Thank you for your commitment to take the experience of education in Cape Town to new heights! :)
Hope you are ready for the next survey already!

12 Business Model

Executive Summary

Overview

Digication will be a network of schools situated in low-income communities, which leverage's technology to achieve next generation learning methods. The students, firmly placed at the centre of attention, develops to become high performance and entrepreneurial-minded thought leaders. The students experience a high level of in Flow experiences based on the research of this dissertation.

The Company

Digication will be pioneering its first school in a low-income community. Thereafter it will focus on franchising the school model to interested owners. The Digication owned schools would be pioneering new material and be the flagship schools for franchises to follow. Digication would have a separate head office which would serve the schools for technology consulting, high-level administration, marketing, advertising, and pedagogy development. The head office itself would be entrepreneurial itself and sustain itself with minimal assistance from the schools.

Vision

Revolutionise our perceptions of education to enable communities to thrive.

Objectives

- Digication's objective is to leverage tried-and-tested engagement frameworks to enable communities to thrive through the operation of schools.
- To utilise the advancement of technology to create 21st century best practice learning environments where Flow experiences happen.
- These learning environments would be at a much lower cost than traditional ones.
- The value that it will give learners and parents alike will be high.
- The end product will be student graduates who are pioneers in their chosen industry.
- Graduates would have developed a strong value-based, entrepreneurial and technology focused mind set.

Keys to success

- A communication methodology that keeps all parties accountable and in high Flow states through self-management techniques.
- Leveraging of technology, to reduce the amount of teachers, will be a key to economic success.
- Creating a learning methodology that will fully engage the learner and teacher to achieve new heights of academic, sports and arts. performance.

Product and service: A learner in a Digication school will experience 20% time with experienced teachers in individual or small group capacity, 20% of the time in discussion with classmates and 60% of the time in interaction with a PC facilitated by a responsible community person. The PC contact time allows access to online reading content, assessments and quizzes, videos of online teaching and live streaming with online tutors. Any content that requires audio interaction will be carried out with earphones/headphones for minimal distraction of other learners. Some of the streaming interaction would also be in groups. Flow experiences will be a key focus of achievement.

The Market

There has been a boom of middle-class families in South Africa. Within most low-income communities there are very little high-quality learning institutions from which parents can choose from. They are forced to choose public schools which are overcrowded and unable to adapt to modern ways of teaching that are needed.

Often, parents send their children to schools in affluent communities in pursuit of high quality education. Therefore, the target market would be middle-class families within low-income communities.

Competition

Public schools have the highest Matric pass rate in low-income communities and are generally considered the best in these areas. Public and/or private schools in affluent communities have a high reputation in low-income communities and are therefore competitors.

Financial considerations There will be three key revenue driver categories. 1. Tuition fees. 2. Fund raising sales. 3. Entrepreneurial sales. An important start-up consideration is the premises from which the school will operate. This could have significant cost implications depending on the decision taken. Another key consideration for Digication in terms of financials is how it uses technology to reduce the number of teachers needed at school. The school values the need for direct social interaction and rather employs a big proportion of facilitators (non-teachers) to ensure the learning environment is created in conjunction with technology. These facilitators come at a reduced salary rate.

Company Description

Company summary

The legal entity of the school will be a company. It is not registered as yet. It will thus declare dividends on a quarterly basis. The intention would be to reinvest these funds back into the business during the first 2 years.

Company ownership

The school will be registered during 2017 by Mr. Bradwin Sitzer.

Name: Brad Sitzer

Age: 34

Gender: Male

% ownership: 100

Financial contribution: R100,000.00

ID number: 8410255117080

Company History (Past Performance) / Start-up Summary (company strengths and core competencies)

Owner details: Having grown up in Mitchell's Plain, owner Brad Sitzer has developed a lot of grit through difficult life experiences. He carried this into his studies at the University of Cape Town to graduate as an Electrical Engineer. He then went on to work at global giant SABMiller and then with various global leaders within the oil and gas industry. One important attribute he has developed is how to handle immense pressure in demanding situations. With the latest developments of understanding the human brain, emotional intelligence and self-awareness has become buzz words all over social scientists' circles. It is to this end, that Brad went on to obtain a higher certificate as a Life Coach during the 2015 calendar year at the Strong Foundation of Coaching in Cape Town. He has developed key entrepreneurial experience in the field of education and technology. Working with and for an organisation called the Social Project, who are creating after-school learning environments. Here, learners come for an hour Monday to Friday to learn key subjects such as English and Maths and Science on electronic tablets in a fun and innovative way. More details can be found at www.socialproject.co.za.

Vision, mission statements and value proposition

Vision:

Revolutionise education to enable communities to thrive.

Mission:

Digication is a network of affordable schools situated in low-income communities, that uses technology and learner-centric approaches to create radical learning environments.

Value Proposition:

Digication will be a network of schools situated in low-income communities, which uses technology

to achieve next-generation learning methods. The learners - firmly placed at the centre of attention - develops to become high performance and entrepreneurial-minded thought leaders.

Company Locations, Facilities and Assets

The company does not have premises yet and will not need one until the school development and planning for the learning environment starts. Assets needed would be basic equipment to do testing on the curriculum package. The utilisation of existing buildings will be sought for the school application. This would typically reduce start-up costs significantly.

The opportunity, industry and market

Opportunity analysis

The state of education in South Africa is deteriorating. At a school level, the inequalities between public schools in low-income communities and private or top public schools are massive. This can be equated to South Africa’s economic situation - South Africa has a Gini-coefficient which is the highest in the world according to the World Bank.

Matric pass rates:

A pinnacle focus of success for government and the public-school sector has been matric pass rates. Even though the standard of the matric assessment has been declining over the years and Equal Education has published articles against this measurement of success, matric pass rates is the main criteria that is currently being used in the country.

Below is a snap shot of schools in the Western Cape and their Matric pass rates. The schools have been categorised into public and private schools in low and affluent communities:

2014	Low income community	Low income community	Affluent community	Affluent community
	Public school	Private	Public school	Private
Matric pass rate	76.8	55.45	96.4	98

FIGURE 12.1: Matric Pass Rates

As stated above, public schools in low-income communities perform 20% lower than public schools in affluent communities. Also, the private schools in low-income communities are struggling to perform as many of them are relatively new in operation. This is for matriculants who achieved between 40-59.9% and 80-100% in their overall marks.

As can be seen above, the performance of quintile 5 schools is exceptionally higher than quintile 4. Nationally, of all the matriculants who wrote, only 35% achieved above 40% overall for the 2014 examinations. The percentage of learners who obtained Bachelor passes was 30.6% for 2013 and 28.3% for 2014. In Maths and Physical Science, 3.3% of all learners who wrote those subjects achieved distinctions in 2014. All of these statistics paint a shocking picture of the state of education in South Africa and how the economic differences between schools play a big role in that.

Private vs public institutions:

A report published by Statistics South Africa (Stats SA) shows a growing popularity amongst private school enrolment. It highlights the public’s growing dissatisfaction with basic education.

In the past 5 years, private school enrolment has doubled.

The conclusion of the Stats SA report is that even considering the ever-increasing tuition fees of private institutions, people are still increasingly enrolling at private institutions. This can be noted by how the percentage of people attending tertiary institutions is double for children from private institutions compared to public institutions.

Education costs:

The 300-year-old learning methodologies of an era gone-by has left most of the country having to catch up with learning post-school.

On the opposite end of the scale we have private/independent schools, implementing effective learning methodologies but operate outside of most of the population's affordability range. This higher quality education is therefore inaccessible to most of the population. According to the Stats SA Earnings and Spending report, South Africans on average spend about 10% of its household budget on health, education and recreation. With an average urban annual income in South Africa of just over R150,000, this relates to about a monthly cost of R1,250 as an average budget for health, education and recreation.

The income levels of households have been on the rise. Approximately four out of ten (42,4%) of households in South Africa reported to be in the low-income category (Low income category defined in the report as household earnings between R1 and R20,000) in 2001, but this percentage decreased to 29% in 2011. Improvements in income levels of South African households were further evident in the increase in the percentage of households in the middle and upper income categories. In 2011, close to half (48,3%) of all households were in the middle income category, a major improvement from almost a third (32,3%) in 2001. Households in the upper income category also grew from just 2,1% in 2001 to 7,1% in 2011. The link to the full report:

<http://www.statssa.gov.za/publications/Report-03-10-10/Report-03-10-102014.pdf>

Therein lies an opportunity for an education institution to position itself between the high costs of conventional private institutions and the general low quality of public schools (medium cost). The institution would be in low-income communities serving students where they come from. It would use different ways of creating learning environments which innovate traditional education methodology and creates high performing individuals thus combining the strengths of both systems (public and private).

The opportunity is for a schooling system to focus on high quality education without the bureaucracy of the state, while still maintaining school fees at a rate that is comparable to high-functioning public schools. Importantly the actual location of this school would be in low-income communities. This key factor enables inclusivity to quality education for low-class communities without the need to travel far to obtain it. Currently a vast amount of middle-class families sends their children to schools outside their immediate vicinity within low-income communities.

There is a major pain being experienced by parents. The pain is the lengths that they currently need to go to for their children to experience good quality education while living in a low-income community. A large basis of my research has been based in Mitchell's Plain, Cape Town. Over 80 interviews were conducted, and it showed clearly that over 80% of the parents interviewed were willing to pay R1,500 and more per month for the children to attend a quality education school – these interviews are in Appendix A.

The Industry

The current education system continues to struggle to create a meaningful platform from which learners can thrive in society. In November 2015, the Western Cape Education Department indicated their intention to pilot five private schools in the Western Cape (goo.gl/49kYEK). The state has acknowledged that the traditional state schooling model needs innovation.

What are the barriers to entry in this sector?

Registration with the education department: One barrier to entry would be registration with the education department. In interviews with other independent schools, compliance with the education department's rubric is burdensome but necessary to be registered with them. Often, they try and impose the same red tape "enjoyed" by public schools on these independent schools. This does not have to be the reality, but it is a barrier to be considered. We would both work closely with and ensure independence from the education in a very diplomatic way. There is a formal registration

process where before approval the education department seeks to understand the applicant's details - educational institution leaders, the programme, learning resources, the proposed curriculum and details of the learning environment that is conducive for a child to learn in.

Costs:

One reason why there are so few high-quality independent schools in low-income communities is due to the perceived difficulty in making it economically viable. This will be a key challenge to be addressed by Digication. A "brick and mortar" business model immediately incurs a cost for rental or building ownership. This challenges the business to be innovative in being profitable. Furthermore, the perception that families in low-income communities would not be able to afford a high-quality school generally seems unfounded based on potential customer interviews conducted. In the interviews conducted, it was clear that parents don't mind paying for quality education some parents were already sending their children to schools that charge over R2000 per month outside of Mitchell's Plain.

Safety and security:

Another difficulty would be in attracting key, high-performance teachers and administration to enable the school to operate effectively and efficiently. The fear of working in these areas is a very real factor. Many schools in low-income community's experience break-ins, and this would be an added risk to this school. The school intends to utilise web-based open-source software to ensure the premises are monitored always. The normal costs of surveillance cameras is an expensive component for most schools, this will be replaced with a network of sensors utilising Arduino electronics which greatly reduces the costs.

Community integration:

The attitude of the surrounding community towards the school could make or break the success of the school. A further impact to this would be the selection criteria that will be used to admit new learners. On research with principals in the Mitchell's Plain area, there is no single set of selection criteria employed by the schools. They each generate their own depending on their context. This will require plenty of deliberation.

Trust building:

Being a new kid on the block will require substantial development of trust with the community. Community engagement and transparency will be an important activity on the school day-to-day.

Customer and Supplier Power

Customer Power – Low

In the school's ecosystem, the parents would be the customers and the learners (their children) would be the end users. It needs to be acknowledged that the learner does have an influence over the parent's enrolling decision. The strength of this influence varies and is dependent on the relationship between parent and child. The customer power is low because there are many parents enrolling their children.

Influential parents would need to be noted and attention paid to them as they might have influence over other parent's decisions. They would have a low to medium customer power. Overall, the parents demand for the school would be higher than the school's demand for parents.

Parents will be paying the fees each month. There is a risk that parents do not pay fees for various reasons. A strategy would be developed with legal experts to determine the best route of action depending on the frequency and length of non-payments. This is also a risk that would need to be catered for in our financial predictions as it is a reality in most schools which is difficult to influence at times.

Suppliers Power – Medium

Curriculum supplier

The curriculum provider would be a key supplier. Changing from one curriculum to another would not be done unless under extreme cases or issues with the provider. The greater the amount of schools using the curriculum, the greater the impact a supplier has on changing the content and price and other key aspects of its offering. A large and diverse client base would mean a reduced likelihood that the curriculum supplier would change key aspects of its offering without meaningful client engagement. Therefore, choosing the right curriculum supplier would be key in managing the power they have.

Technology supplier:

In general, there are many different technology suppliers and many customers as well. Therefore supplier power in this case will be low. There is choice albeit for some pain. Some aspect of technology such as keyboards and cables are commodities and the supplier have little power.

Who are the competitors?

Independent schools:

The competitors would firstly be independent schools already operating in low-income communities. Many of these schools are 'no fee' schools and rely on donors and teachers who are willing to work for a fraction of their normal salary they would receive at a government or independent schools in affluent areas.

LEAP:

One such school is LEAP who operates in Pinelands and Philippi. They are a no fee school who relies fully on donors. They currently only have two classes and the premises are not in a good state. From observation, the learning methodology is very similar to public schools. Their great success is the school that they have operating in Pinelands, which is not a low-income community. In terms of their learning environment, it is very different from the environment that our school will have, especially in that the technology usage will be fully integrated in the life of Digication. Their community engagement at the Philippi school is not that apparent whereas the Pinelands schools is quite active in the communities. The Pinelands campus has a Matric pass rate of 92% for 2014 and the Philippi campus does not have Grade 12 yet.

Eastridge Academy: Another competitor is Eastridge Academy in Eastridge, Mitchell's Plain. They have a learner-centric approach. They do not integrate with their community, other than the families coming from these communities. A key difference is that there is no use of technology at the schools from the learner's point of view. In an interview with them, it was noted that this is a big pain for them. Their fees are currently R1100 per month. Even though they are situated in a relatively poor area of Mitchell's Plain, they generally have an excellent demand for the school. They are hoping to move to bigger premises in the next two years.

Spine Road High:

Spine Road High, is a public school that recently achieved a 100% pass rate for their matriculants, the first school in Mitchell's Plain to ever achieve a 100% pass rate. Their focus on each learner spending as much time as possible learning, has been a key factor. Also, their recruitment process is rigid, thereby selecting the cream of the crop in terms of learner ability. They have a moderate use of digital systems and technology in general. It is still mostly used as a subject offering. Integrating technology with the way of operation is not apparent. They have also developed a strong culture of being results driven. Their fees are R300 per month.

High functioning public schools outside of low-income communities: Many children travel from low-income communities to attend public schools in more affluent communities. A few examples in Cape Town are Pinelands High School and Groote Schuur High School that are public fee-paying

schools. These are high functioning schools that are more expensive than public schools in low-income communities. These schools have a strong brand presence in Cape Town. These schools' selection criteria are crucial as they select the cream of the crop, like Spine Road High, and continue the learners on the road to success. Pinelands High's school fees is R2300 per month and Groote Schuur High is R1600 per month. The additional time and cost of travel from low-income communities are a major factor to be considered for both the learner and parent. When travelling from Mitchell's Plain to a school like Pinelands High, the monthly travelling cost is about R160 per month.

Also, the time commitment needs to be factored in. The child would spend about 2 hours a day (round trip) travelling to and from school. This is a distinct advantage that Digication has, in that time and cost of travelling is significantly reduced.

What are the major changes in industry? Trends in consumer preference, demographic shift and product development?

The demand for quality education is increasing as the demand for jobs is increasing. The currency of a matric certificate is becoming less relevant by the day. Hence, the consumer preference is to pay money to give their children the opportunity to realise their dreams through quality education.

Market analysis

What is the size of the market?

The total area market would be global schooling communities. The serviceable market would be South Africa's schooling communities. The target market would be the low-income communities within South Africa.

How fast is the market growing?

What percentage share of the market will you have?

Currently, most of the schools in low-income communities are public schools. Utilising the last census data, currently there are about 14 million children in South Africa between the ages of 5 and 14. I have capped the target age at 14 due to aiming to enrol learners as early as possible. Of these 14 million children, most attend state schools in South Africa. Many parents send their children to travel outside of their communities to attend private and public schools in more affluent areas in search of a better schooling system.

The increased child mortality rates between 1996 and 2006, resulted in the primary school going age market size to be significantly lower compared to previous years. With the increased government effort in reducing child mortality with success in the past 10 years, the number of children at primary school going age is set to increase dramatically in the coming years.

To have a major impact, Digication will need to be distributed across South Africa.

There is a drive from parents to give their children the best opportunity to succeed in life. On interviews done with many parents, there is a feeling of being forced to send their children to public schools. There seems to be no alternative from their point of view.

India and Brazil have proven to be forerunners in the fight for inclusive education with a viable economic model. Various initiatives have been leveraged to utilise the global network of experienced and retired teachers, to access low-income communities utilising a simple but reliable internet connection and cheap computer equipment. The learnings from these studies are being adapted and reused constantly.

According to the 2011 census, 48.3% of all households fall within the low and middle-class income category. Therefore, of the 14 million children between the ages of 5 and 14 in South Africa, the available market would be the 6.7 million who can be assumed to fall within the low and middle-class category. Those whose parents would be able to afford Digication would be the upper 20% of the above category. This 20% margin is using Mitchell's Plain as an example where the upper 20% earns R15,000 per household per month. Therefore, the target market is 1.3 million children in South Africa.

Assuming 50 Digication schools (Grade R – 12) gets rolled out in South Africa at an average of 1000

learners per school. This would serve 50,000 of the available target market population. This would happen over the course of 20 years.

The vision of Digication is to primarily grow through a franchise model. We would like to roll one school per low-income community in South Africa.

Digication will roll out its first school in Mitchell's Plain. This would initially be a high school during the first 5 years. For the initial area of Mitchell's Plain, there are 35,000 children between the ages of 5 and 14. The upper 20% (7,000 children) of this number constitutes of children whose parents would be able to afford the school. Creating only a high school in Mitchell's Plain would thus be able to cater for 500 of these 7,000 children. Over 5 years it would expand to a full grade R – 12 school and serve 1,000 of the 7,000 children in the spectrum.

Market Segmentation

Who are your potential customers?

Our target market is parents in low-income communities that have a tertiary qualification, are employed full time and/or have their own business. According to Stats SA, the average income for those employed who have a tertiary education qualification is R342,443 per annum which is R28,500 per month.

Parents: What are we looking for in a parent?

Payment on time would be a key input. The participation of the parents in the life of the school would be an advantage, we will contract the parents to avail themselves to attend mandatory meetings and other after-school activities with the school and their children. Another advantage would be if they are digitally proficient and know how to reply to emails and other communications in good time as per our stipulations on sign up.

Learners: What would we be looking for in a learner? Digication is looking for learners who have capacity to grow. While it is difficult to know the type of learner that is applying, through questionnaires, it is possible to get a good indicator as to someone's personality, strengths and leadership traits. Digication would be looking for a learner with a positive and optimistic mind set. The learner would be willing to put in the effort to engage in this new learning environment. They would be willing to learn, be coached and developed. Development not just at an intellectual level but the entire being. All the above would be gauged via a holistic diagnostic test that the child would do either verbally or written depending on their age. These criteria would not be determining factors but would influence the decision when evaluating which learners are accepted and which ones are not. Their previous school grades would also be a strong determining factor.

Target Market Segment Strategy

How will the gap be filled?

Digication is a private school that teaches and develops children. It uses both digital and book-based learning methods, i.e. a blended learning environment.

Each learner enjoys individual attention from the teacher. The school develops children to be academically, emotionally-intelligent and entrepreneurial.

One of the key components of this environment are the teachers. Recruiting emotionally intelligent, highly-skilled staff would need to be done at a visionary level. For them to buy into what the school stands for.

The technology utilised would be low-cost electronics. Some of these microprocessors can emulate PC's at a cost of R100 excluding peripherals. Wireless antenna internet substantially lowers the cost of internet compared to traditional ADSL or fibre optic lines. The other electronics to be utilised would be part of a DIY-range where with minimal training you can start to build projects with.

The software to be used, will be open source, i.e. free quality software. There are quite a number of quality learning management systems out there that are open source, e.g. Moodle which is currently used in schools in South Africa.

Parents are paying for learners to be engaged in an exciting learning environment where they get to

learn about the usual subjects in innovative ways using a digital-integrated platform. Teachers and digital space complements each other to benefit learners. This partnership provides ongoing feedback using software assessments and teachers' individual attention. This is further reinforced by the learner-centric curriculum that will be used. There are many options to choose from in South Africa that are already in operation in independent schools. The focus on emotional intelligence and entrepreneurship means that learners will contribute to society while still in school and not only once they leave (facilitated through school projects).

Maintenance and administration of this environment will be key, so skilled personnel will need to manage and train others on this. Strong financial administration will insure that schools are economically viable initiatives. Innovative ways will be sought out to ensure that the schools are always trying new ways to thrive economically.

Parents, learners and the school community will share responsibilities to raise capital for the school.

Strategy

Strategy and Implementation Summary

The schools would specifically target low-income communities in South Africa. The parents and learners who would be part of these schools would aspire to obtain the best education at their disposal. The schools would therefore be in between broad mass market and specific niche.

Phased approach

The vision is to create a network of schools across South Africa. These schools will be from grade R till grade 12. The roll out of the schools would be a blend of owned schools and franchises depending on the location and opportunity of the intended school to be created.

The school intends to roll out in a phase-approach described below:

Phase 1 – Start-up:

During this phase, extended research will continue to finalise school methodology and curriculum. We will aim to register the school and have all legalities in order. Digication brand identity will also be developed. School venue will be identified, and the school structure will be built/renewed/adapted. Teachers and learners will be recruited. Ongoing community meetings will be organised to insure community buy-in.

Phase 2 – 1 to 5 years:

The second phase will form part of an incubator phase. Even though the vision is to be a Grade R- 12 school, Digication will start off with Grade 8's. Based on customer research (including psychologist tests), the opinion is that Grade 8's will be the best age to influence and show improvement and performance quickly.

Initially the school will be a High School opening four Grade 8 classes with 20 children per class in the first year and expanding over five years to Grade 12. The key subject focus will be Science, Technology, Engineering and Maths (STEM) subjects and two languages (English as mandatory and a choice between Afrikaans, Zulu and Xhosa) as well as the arts (painting, music, dancing and poetry). Key aspects during the initial roll out of school would be renting a building (not owned). The "head office" team would be located at the pilot school. They would essentially be the core school team with the view to develop and extract them to a head office once the school starts franchising. The teaching staff would be largely contractual, and the equipment utilised would be the skeleton requirement to prove the concept. After concept is proved, the school will move to an owned location as opposed to the initial rental. This would be a piece of land that would be developed from scratch. The school would initiate the primary school stage by enrolling the first class of Grade R's at year 3 with different campuses to separate age groups appropriately.

Phase 3 – 5 - 7 years:

Many of the staff would be employed as full-time and permanent staff. The number of learners per grade would be optimised to ensure maximum learning experience for the learner and economic benefit for the school. Entrepreneurial revenue drivers would be activated more aggressively to further drive economic sustainability. The school would break-even after year 5.

Phase 4 – 7 - 10 years:

The school would be replicated in at least two other areas in South Africa by year seven via franchises. A second Digication owned school (i.e. non-franchise) would be rolled out during year 7. A Head Office would be established to manage the franchise. This is to ensure personnel costs are kept to a minimum and effective governance is maintained for each of the schools including the franchises. It would also manage the development of the teachers and staff members.

Competitive Edge (value proposition)

A network of affordable schools situated in low-income communities, that uses technology and learner-centric approaches to cater for future generation's needs. Digication develops high performance and entrepreneurial-minded leaders that impact communities.

Positioning:

Digication firmly positions itself as a top-end offering within low-income communities. It also has a unique offering in terms of the type of curriculum used. The school's key advantage is its integration of digital platforms to leverage the global teaching community we currently have at our disposal. Digication therefore positions itself at a premium compared to public schools but at a discount compared to other conventional independent schools. Most other conventional independent schools find themselves in more affluent communities. A key intention of Digication is to be firmly planted in low-income communities.

Learning methodology and outcomes:

The uniqueness of the school is not necessarily in one or two distinct features. To be clear, many of the techniques and activities being done by Digication can be found in other schools in South Africa and globally. Its uniqueness is in the rich blended learning environment it offers. The culmination of various activities ensure that this learning methodology as a whole is unique. Because of the integration of technology, the assessment system is much more responsive compared to hard copy based assessment techniques where teacher or learner needs to manually mark the assessments. This digital enablement places a strong emphasis on results where the learner quickly gets feedback on their work and exactly where they are in error via detailed reporting of their online submittal. Also, the learners are equipped for leadership and are given opportunities and mentorship to lead within the community surrounding the school. This forms part of the school's curriculum which is very much entrepreneurship-driven. This also forms part of the school's strategic initiatives that includes income generation for the school. This will not be a stand-alone event, but rather forms part of the daily operation of the school.

Cost:

By using techniques such as Self Orientated Learning Environments (SOLE), the schools have access to a global network of experienced volunteers and/or retired teachers. This decreases the costs for the number of teachers we need physically at the school and demonstrates how technology can result in a major reduction in school costs. The unconventional approach to technology hardware and software is also a feature of the school. Open source software and quality low cost electronics will enable the digital platform to be created at a minimal cost.

Inclusive education:

The main feature of inclusivity is the use of technology. The learner is included into the global digital network and actively interacts with it. Another inclusive feature is the reduction in cost for school fees compared to other schools that operate at a similar level. Lastly, the school's aim is to be actively involved in its surrounding community. It therefore includes the community in the life of the school.

Marketing Strategy

Individual factors:

Parents want to give their children the best opportunity to succeed in life.

Their occupation will play a role in what the parents are interested in and how we can relate with them for example in hosting a unique parent meeting or information session. If someone is in a very technical role they would be inclined to be part of the technical discussions and info sessions that the school might have, and the school could look to utilise their services.

The age of the parents would also play a role in the way we market the product. Considering this in marketing and customer relationship management would be key.

The attitude of the parents and learners will influence the reputation of the school. This will play a big role in attracting new customers to the school. The lifestyle of the school also needs to play heavily into the favour of the families attending. Whether it be spiritual, sports or arts.

Group factors:

Community involvement is inevitable.

The culture of the importance of education will be a big advantage for us. A big challenge is the strong belief in open education for all. My prices will play a big role in affecting the inclusivity perception negatively. However, if I show the long-term view of an inclusive school system and the necessity of start-up costs, I anticipate there will be a lot more buy in especially from low-income families.

Opinion leaders:

Before the school opens there will be prospective parents who will be very vocal in their opinion of this school. It will be important for me to identify them early and engage with them one-on-one to get an understanding of their intentions and for them to understand ours. During school operation as well, this engagement of key persons will be critical.

Brand awareness:

Online presence would be fundamental. A website would be created where the parent and learner can get an experience of what the school entails. Before operation, we would create a mock class environment to show parents and learner what they might expect when enrolling the learner at our school.

With marketing analysis done, within the first two years we would target two main social networks to be very active in and the others would feature the school's profile. Learners would be coached to be online community collaborators. They would manage the social networks and provide vital statistics to Digication's admin team on our online penetration.

We would also have a traditional community collaborator who would manage our presence in newspapers and community radio stations. Initially this would be done by a Digication staff member, but then learners would have a group who would be trained to take it over.

Team – Management & Organisation

Management Summary

The board would consist of five personnel. These personnel still need to be confirmed. In addition to a five-person board of directors there will also be an advisory board. This board would consist of 5 people including and would not have any binding decisions to be made. Their input is purely advisory and the board would be able to use the advice given or not. The advisory board will be put in place first and then with the advisory board, a board of directors would be set up.

From a management point of view, the main shareholder would be overseeing all activities. The main shareholder, is Brad Sitzer. Brad is an Electrical Engineer with 9 years' experience, who has spent 6 years at SABMiller, and 2 years in the oil and gas industry with global giants such as BP and Chevron.

His specialisation is automation which is a key advantage in what is envisioned to be achieved in this education setting. Brad is also a qualified Life Coach which shows his understanding of how the mind works and how to bring out the best of people, in this case, staff and learners.

A head of staff would be appointed to lead all staff members. This person would have administrative staff as well as teaching staff reporting to them. The teachers would have facilitators working alongside them. These facilitators might not be qualified teachers but would have the capacity and capability to hold a learning space effectively. The administrative staff would consist of a Book Keeper to manage accounts, an Admin Clerk, IT technician and maintenance personnel. This would be for Phase 1. As we move to later phases the head office would firstly stand alone, and the head count would increase.

Personnel Plan

The personnel plan starts with its four classes of Grade 8’s of 20 children per class which is 80 learners in total. Using technology, the facilitators will be needed a lot more than the teachers. The facilitators will be guiding the children through using the internet and accessing the curriculum resources and other resources needed. As we reach year 2, the next set of Grade 8 learners enter, and it continues to grow organically in this way.

In year 3, the high school expands to Grade 8 – 10, and a Grade R and Grade 1 class is added. These classes would happen separately from the high school so there would be no overlap of children interaction. This would make the school have its first Matriculants by year 5. It will have its first Grade 7 graduates by year 9. The Grade R – 12 school would have a capacity of 1520 learners. This is the plan for the pilot school. The franchise model would start from Grade R - 3, once the economic model has been further developed after the first 3 years of operation.

The teachers would have facilitators working alongside them. These facilitators might not be qualified teachers but have the capability to hold a learning space effectively.

Board of directors:

These are people I would need to seek out to be part of my board.

Expertise	Summarize Job Description
Marketing and sales	Branding
Automation Engineer	Technology
Legal and Admin	Compliance and KPI's
Education field	Relationship Management

FIGURE 12.2: Board of Directors

Advisory Board

The advisory board consists of current mentors and colleagues. We have access to a wide array of computer engineering expertise with 10 years’ experience and more. Two engineers have already expressed interest in writing that they would like to be a part of my advisory board. The other positions mentioned below are all people I already have a relationship with and have had discussions about my business idea.

Expertise	Summarize Job Description
Senior Practitioner Life coach	Human Resources consultant
Software Engineer	IT infrastructure
City Council spatial planning/construction	Construction/location consultant
Education board	Curriculum advisor
Electrical Engineer	Business director

FIGURE 12.3: Advisory Board

Marketing plan

The product (or service)

A school that develops learners to be purpose-driven, high-performance and entrepreneurial individuals.

There is value derived from:

- Plenty of individual attention for the learner. Utilising sole orientated learning environments, as well as learner-centric environments the teacher is freed up to spend more time with each learner individually. Also, the practice of utilising broadband internet enables access to a global network of teachers via live-streaming. This further frees up teachers and facilitators who are on-site (non-qualified teachers), to focus on the learners needs.
- Learners becomes proficient in the digital world. The school uses computers as a basic tool of operation. This quickly acclimatizes the learner to online usage and basic computer skills within the first few months. Thereafter the learner enjoys learning in depth about computers where Lego blocks and robots are incorporated into making the learning process fun. Initiatives such as www.youngengineers.co.za in Cape Town do just that.
- Learners positively influence the school's surrounding community. The entrepreneurial drive of the school comes forth in the class room, the tasks and activities and events it hosts. This entrepreneurial teaching and way of operation will ensure the learners truly are entrepreneurial in their way of thinking. The strategy would be for this way of thinking to be placed especially on the immediate community the school finds itself in but not limiting to only that community. Learner growth would mean they would tap into larger markets.
- Learners form part of the income generation team while actively learning in the process. Financial education is something that is sadly missing in most schools in South Africa. It is however critical for the healthy functioning of the country. Through the learner's entrepreneurial way of operation at the school and in life, they will quickly become savvy with how money works and how to have a healthy relationship with it. There will also be an opportunity for them to educate their parents in being savvy with their money.
- Learners develop a high sense of emotional intelligence. Parents will notice learners developing who will be able to handle setbacks healthier, are able to handle conflict better and their and other's emotions better. The typical day for a learner would start at 8am and end at 4pm. This would include a lunch break at 12:00 for 30 mins and two tea breaks in the morning at 10am and afternoon at 3pm for 15 mins each. The learner will have an initial instruction period by a teacher first thing in the morning. This would typically last 45 minutes. The teacher then leaves for another class. Thereafter they will interact with the online curriculum material individually for the next hour. During this time a facilitator or two would be attending to learners who have questions. A facilitator would record any questions that are not being answered and take it to the teacher who would be moving between classes for instruction and assistance purposes.

The various classes would be staggered to ensure this happens seamlessly. Once a learner completes the online assessment for a given subject module they can move on to the next module. They do not need to wait for their class mates. Online teachers and tutors will also be at hand for the learners to stream with. This would be teachers from around the globe. These teaching strategies have already been found to be amazingly successful in India, Brazil, Kenya and South Africa. These live steaming sessions would either be one on one with a learner or in a group or class setting. This is a key aspect of reducing the costs of the operation of the school via reduced need for qualified and highly-skilled teachers. Arts and sports sessions are planned for the last 1-2 hours of the day. These would be a blend of online teachings (e.g. learning music theory online or basic soccer kicking techniques on YouTube) and physical implementation. The facilitators would monitor learners to check for progression from online learnings to practical implementation. They would encourage and motivate learners to progress to higher levels of attainment.

Entrepreneurship classes will form an integral part of the life of the staff and learners at the school. In addition to theory, the learners will be expected to implement business ideas with the intention of earning money. The earnings will form part of Digication's revenue model. All learnings of the experience feed back into the theory section of the entrepreneurial classes that the learners are a part of.

Parents would collect their children between 4 pm and 5 pm. If arranged, the learner could also be

taken home using the transportation taxi system that drops them at their home. This system would be an independent contractor and not part of Digication.

The positioning of the product or service

The school would be a private school, which would operate very different from the state schools in its immediate vicinity. The school offers plenty of individual attention and going at the pace of each learner as opposed to moving together as a class only. It is different from private schools in that it utilises technology to minimise the cost of teacher salaries. It will utilise other innovative ways to reduce costs such as utility bills through having synthetic grass and having building designs that maximises natural light therefore reducing the need to electricity. It also employs teachers who are willing to work less for a much better work environment and for being removed from the bureaucratic nature of public schools. The teachers have the feeling that they are not drowning in admin work and marking but using technology many of these functions are automated.

The school is for families in low-income areas who have a desire to succeed to the highest levels in life and are willing to sow into that dream. Parents are willing to pay extra to make this happen. The school is also addressing the perception that low income communities don't have money for quality education for their children.

The pricing strategy

The school fees would initially be the primary method of raising funds for the running of the school. Fund raising through events would be the secondary form of revenue generation. These events would be conventional school events such as civvies days, big walks, cake sales and the like.

The school fees pricing strategy would be initially based in the highest amount the community would be able to afford and aiming at reducing fees in subsequent years. The school fees will be R1,500 per month per child.

In terms of recruitment, the upper 20% of parents who have children at Grades 6 and 7 would specifically, be targeted for enrolment.

In the subsequent years, the revenue-generation strategy would include the entrepreneurial efforts of the learners (as well as teachers and facilitators). This would aim to be 20% of the total revenue generation. This proportion shows the intentionality of the mind-set we are looking to inculcate in learners as well as teachers. This means that the school fees would be more inclusive, aiming to attract the top 20% earners of low income communities who are parents of children at our target age group. In time, through external funding, we would aim to make the pricing even more inclusive for lower end earners in low income communities.

Distribution channels

Essentially the school grounds itself is the location where the parents and learners interact with the school. Distribution would include transporting of learners (and parents) to and from the school grounds. This would entail the hiring of external contractors to execute this network of transportation options. There is also entrepreneurial opportunity for a very simple app to be developed by learners to manage this system. If successful, this app can be subscribed to by parents and learners as well as neighbouring schools on a small scale.

Sales Strategy

One key relationship and support would be from the education department or other key government officials. In the time leading up to the enrolment and opening of the school having a key member of the community publicly supporting the school and urging members to sign up. This support would be via localised efforts and would happen at information sessions where parents are invited to find out more about the school. Due to the relative high cost of the school, it would be promoted as a private type institution. We will use adverts in newspapers and radio station adverts. It would be clearly communicated as a premium offering school. A massive billboard would be set up in a prime traffic location for car users to see the opening date of the school and the value proposition and some attractive designs of what the school would look like.

The drive would be to create a sense of urgency for the parents to sign their children up as quickly as

possible before they lose out on this opportunity to give their children this amazing advantage. The communication to the parents will paint a picture of what the school would look like in terms of operation. They would get a distinct sense of how it would operate. A demo class environment would be set up as part of the information session so that the parents can see what their children will be getting in to.

A promotional and sales timeline would be set up to maintain momentum and achieve objectives timeously. The activation of promotions would kick off at least 12 months before open day. Enrolment would happen from 12 months to 1 month before school opens until the maximum number of learners are reached.

A key public relation issue that might arise is the high cost of the school fees. This is especially considering the "feesMustFall" campaign that has just run and is a marked shift in the public's expectations in paying of school fees. An expert would need to be sourced to deal with how to effectively market the whole campaign and handle any kick back or negative perceptions.

Sales Forecast

The initial intake would be four Grade 8 classes of 20 children per class. Thereafter, the additional learner intake would be for Grades 8 and 9 in the second year. That would mean that the school has 160 learners. Below is a graph of the first three years then an outlook to year 9 (when all grades are filled up for the first time):

	Start-up	Year 1	Year 2	Year 3	Year 9
Number of students	20	80	160	400	1,040
Number of classes	1	4	8	20	52
REVENUES					
Tuition fees	120,000	1,440,000	2,880,000	7,200,000	18,720,000
Fund raising events	11,500	43,000	430,000	2,150,000	5,590,000
Entrepreneurial sales	11,500	43,000	430,000	2,150,000	5,590,000
Grants and donor raising	700,000	1,000,000	1,000,000	0	0
Total Revenues	843,000	2,526,000	4,740,000	11,500,000	29,900,000

FIGURE 12.4: Sales Forecast

Year 3 is an important year as this is when Grade R and Grade 1 get introduced. Thus from year 4 onwards the intake that is added is for primary and high school which changes from 80 learners to 160 learners per year.

Year 4 is also a big year as it is the year we intend to offer the franchise package. We are looking to expand slowly initially at one franchise per year to gain learnings from it and then expand more rapidly once the learnings have been taken from the first franchise.

The main reason why Digication has started phase 1 with a high school is to leverage the entrepreneurial impact high schoolers can have over primary schoolers. From year 5, once the first high school has learners in all grades and the primary school has learners in Grade R to 2, it is anticipated that the school will break-even. The next high school will open in a pre-determined location as per the first high school.

Financial plan

Start-up Funding & Working Capital

The start-up costs form part of the incubator period. This would be important for developing the curriculum and technology solution as well as how the teachers, facilitators and learners interact with the solution in its entirety. This is more than just the online platform but the entire pedagogy. Finding premises to operate from would be a small place but perhaps a strategic place. We would like to create an after-school programme to test the solution at.

Branding and advertising would be more to understand the market even better and generate interest on various social media platforms.

Important Assumptions

Start up costs – capital overview	
Item Description	Incubator
Research and Development of technology solution	R 20,000.00
Research and Development of Curriculum solution	R 20,000.00
IT infrastructure	R 47,700.00
General equipment	R 28,000.00
Building rental	R 60,000.00
Branding and advertising	R 4,800.00
Total	R 180,500.00

FIGURE 12.5: Start-up Costs

The building rental and the research and development for both curriculum and technology would happen first. Once a working prototype/model has been formed then the rest of the equipment will need to be purchased to test an end-to-end solution.

Break-even Analysis

Figure A.6 is analysing the break-even volume and revenue values for the start-up period.

Projected Profit and Loss

Break even Analysis	Start-up
Fixed cost	669,867
Sales price per learner	7,150
Variable cost per learner	8,425
Break even Sales Volume	-525
Break even Revenue Price (Annual)	41,918
Break even Revenue Price (Monthly)	3,493

FIGURE 12.6: Break-even analysis

Start-up and Years 1 to 3, the Projected Cash Flow, Projected Balance Sheet And the Asset Register are at the end of this Appendix.

C.8 Funding requirements

Funding is needed to do the research and development on the best curriculum (and creating it if need be) as well as the best technological solution. The equipment to make all of this happen is also needed.

Funding requirements per year:

For the first four years, a total investment of R3,785,700 is needed as per the above table.

The first 5 years are expected to be mostly cash flow negative due to the equipment purchases that need to be made. The cash flow statement reflects that loan payments will need to be made once the equipment is procured.

	Start-up
Line Item	Rand Amount/ Number
Major Assumptions:	
Number of students	20
Number of classes	1
Number of teachers	1
Number of facilitators	1
Facility square meter	120
Average teacher salary	120,000
Average facilitator salary (per hour contract)	36,000
School fees per learner	6,000
REVENUES	
Tuition fees	120,000
Fund raising events	11,000
Entrepreneurial sales	11,000
Franchise royalties	0
Total Revenues	142,000
EXPENDITURES	
Salaries (Fixed costs)	
Directors	150,000
Head of Staff	200,000
Teachers	120,000
Facilitators	36,000
Other administration and staff	32,000
Benefits (Fixed)	
Retirement, health and other	54,420
Books and Supplies (Variable costs)	
Curriculum material including text books	10,000
Technology – hardware	10,000
Software	2,000
Training material and cleaning supplies	2,400
Fund raising costs	2,200
Entrepreneurial costs	2,200

FIGURE 12.7: Start-up profit and loss

	Year 1	Year 2	Year 3	Year 9
Line Item	Rand Amount/ Number	Rand Amount/ Number	Rand Amount/ Number	Rand Amount/ Number
Services and Contracts (Fixed costs)				
Audit	20,000	40,000	40,000	40,000
Insurance	14,400	72,000	144,000	144,000
Utilities	28,800	57,600	144,000	374,400
PC's, office machine	7,200	14,400	36,000	93,600
Furniture	7,200	14,400	36,000	93,600
Transportation	6,000	12,000	30,000	78,000
Staff development	30,000	60,000	150,000	390,000
Postage and copier lease	48,000	96,000	240,000	624,000
Marketing and advertising	19,200	38,400	96,000	249,600
Food Services outsourcing	28,800	57,600	144,000	374,400
Membership Fees	24,000	24,000	24,000	24,000
Stationery (Staff)	2,160	4,320	10,800	28,080
General operations	61,940	125,737	302,394	701,585
Facilities and Capital (fixed costs)				
Rent/mortgage	69,120	138,240	345,600	898,560
Maintenance	28,800	57,600	144,000	374,400
Phone & Internet	24,000	24,000	36,000	48,000
Security alarm	6,600	12,000	12,000	12,000
Depreciation	10,000	27,203	42,000	94,000
Total Expenditures	2,267,300	4,580,320	10,972,594	25,542,805
Profit before interest and taxes	-683,300	-7,443,200	927,406	7,541,195
EBITDA	-683,300	-7,17,117	969,406	7,635,195
Interest Expense	2,000	2,500	3,000	3,500
Taxes incurred	-136,660	-143,423	193,881	1,527,039
Net Profit	-588,640	-603,396	730,525	6,010,656

FIGURE 12.8: Year 1 - 3 Profit and Loss

Digication Annual Cash Flow Forecast	
	Start up year
Line Item	Rand Amount/ Number
Major Assumptions:	
Number of students	20
Number of classes	1
Number of teachers	1
Number of facilitators	2
Facility square meter	120
Average teacher salary	120,000
Average facilitator salary (per hour contract)	36,000
School fees per learner	6,000
REVENUES	
Tuition fees	120,000
Fund raising events	11,500
Entrepreneurial sales	11,500
Franchise royalties	0
Grants and donor raising	700,000
Total Revenues	843,000
EXPENDITURES	
Salaries	
Directors	150,000
Head of staff	200,000
Teachers	120,000
Facilitators	72,000
Other administration and staff	32,000
Benefits	
Retirement, health and other	60,600
Books and Supplies	
Curriculum material including text books	10,000
Technology – hardware	10,000
software	2,000
Office and cleaning supplies	2,400
Fund raising costs	2,300
Entrepreneurial costs	2,300

FIGURE 12.9-1: Projected Cash Flow

<i>Services and Contracts</i>	
Audit	20,000
Insurance	8,400
Utilities	4,800
Transportation	1,500
Staff development	6,000
Postage and copier lease	12,000
Marketing and advertising	24,000
Food Services	4,800
Membership Fees	8,400
General operations	22,600
<i>Facilities and Capital</i>	
Rent lease/mortgage	14,400
Maintenance	7,200
Phone & Internet	24,000
Security alarm	6,600
<i>Additional Cash spent</i>	
Sales Tax, VAT	
Long term liabilities principal payment	15,457
Principal payment of current borrowing	
Other liabilities principal payment	
Purchase of current assets	
Purchase of long term assets	
Dividends	n/a
<i>Total Expenditures</i>	843,824
<i>Net Cash Flow</i>	-824

FIGURE 12.9-2: Projected Cash Flow (continued)

	Year 1	Year 2	Year 3	Year 9
<i>Line Item</i>	<i>Rand Amount/ Number</i>	<i>Rand Amount/ Number</i>	<i>Rand Amount/ Number</i>	<i>Rand Amount/ Number</i>
REVENUES				
Tuition fees	1,440,000	2,880,000	7,200,000	18,720,000
Fund raising events	43,000	43,000	2,150,000	5,890,000
Entrepreneurial sales	43,000	43,000	2,150,000	5,890,000
Food Services	48,000	86,000	240,000	624,000
Franchise royalties	0	0	320,000	2,860,000
Grants and donor raising	1,000,000	1,000,000	0	0
Total Revenues	2,574,000	4,836,000	12,060,000	33,084,000
EXPENDITURES				
Salaries				
Directors	150,000	300,000	750,000	750,000
Head of Staff	350,000	350,000	750,000	900,000
Teachers	480,000	960,000	2,400,000	6,240,000
Facilitators	384,000	768,000	1,920,000	4,992,000
Other administration and staff	128,000	320,000	800,000	2,080,000
Benefits				
Retirement, health and other	152,280	296,820	685,800	1,880,580
Books and Supplies				
Curriculum material including text books	112,000	224,000	560,000	1,456,000
Technology – hardware	40,000	80,000	200,000	520,000
Software	8,000	16,000	40,000	104,000
Office and cleaning supplies	96,000	18,000	30,000	42,000
Fund raising costs	86,000	86,000	430,000	1,118,000
Entrepreneurial costs	86,000	86,000	430,000	1,118,000

FIGURE 12.10: Project Cash Flow year 1 - 3

Line item	Rand Amount/ Number	Rand Amount/ Number	Rand Amount/ Number	Rand Amount/ Number
Services and Contract s				
Audit	20,000	40,000	40,000	40,000
Insurance	14,400	72,000	144,000	144,000
Utilities	28,800	57,600	144,000	374,400
PC's, office machine	7,200	14,400	36,000	93,600
Furniture	7,200	14,400	36,000	93,600
Transportation	6,000	12,000	30,000	78,000
Staff development	30,000	60,000	150,000	390,000
Postage and copier lease	48,000	96,000	240,000	624,000
Marketing and advertising	19,200	38,400	96,000	249,600
Food Services	48,000	96,000	240,000	624,000
Membership Fees	24,000	24,000	24,000	24,000
Stationery (Staff)	2,160	4,320	10,800	28,080
General operations	62,516	126,889	305,274	709,073
Factories and Capital				
Rent lease/mortgage	69,120	138,240	345,600	898,560
Maintenance	28,800	57,600	144,000	374,400
Phone & Internet	24,000	24,000	36,000	48,000
Security alarm	6,600	12,000	12,000	12,000
Additional Cash spent				
Sales Tax, VAT				
Long term liabilities principal payment	112,708	259,638	525,108	750,760
Principal repayment of current borrowing				
Other liabilities principal payment				
Purchase of current assets				
Purchase of long term assets				
Dividends	na	na	365,262	3,005,328
Total Expenditures	2,389,780	4,852,307	11,919,845	29,461,982
Net Cash Flow	18,4220	-16,307	140,155	3,622,018

FIGURE 12.11: Projected Cash Flow Years 1 - 3

	Start-up
Assets:	
Current Assets	
Cash	R 700,000
Accounts receivable	R 0
Inventory	R 10,000
Prepaid expenses	R 14,400
Other current assets	R 0
Total Current Assets	R 724,400
Fixed Assets	
Land Buildings	R 0
Equipment	R 144,500
(less accumulated depreciation)	R 0
Other fixed assets	R 0
Total Fixed Assets	R 144,500
Total Assets	R 868,900
Liabilities:	
Current Liabilities (current year)	
Accounts payable	R 118,900
Taxes due	R 0
Current portion of Notes Payable	R 0
Total Current Liabilities	R 118,900
Long Term Liabilities (future years)	
Notes Payable	R 0
Business mortgages payable	R 0
Other Long Term Liabilities	R 0
Total Long Term Liabilities	R 0
Total Liabilities	R 118,900
Owner's Equity	
Cash or asset value invested	R 750,000
Retained earnings (or loss)	R 0
Total Owner's Equity	R 750,000
Total Liabilities and Owner's Equity	R 868,900

FIGURE 12.12: Balance Sheet

	Year 1 End	Year 2 End	Year 3 End	Year 9 End
Assets:				
Current Assets				
Cash	R 1,000,000	R 1,000,000	R 0	R 0
Accounts receivable	R 0	R 0	R 0	R 0
Inventory	R 112,000	R 224,000	R 560,000	R 1,456,000
Prepaid expenses	R 69,120	R 138,240	R 345,600	R 898,560
Other current assets	R 0	R 0	R 0	R 0
Total Currents Assets	R 1,181,120	R 1,362,240	R 905,600	R 2,354,560
Fixed Assets				
Land Buildings	R 0	R 0	R 1,000,000	R 2,000,000
Equipment	R 504,500	R 632,200	R 1,809,200	R 4,253,800
(less accumulated depreciation)	R 8,000	R 25,225	R 34,610	R 90,460
Other fixed assets	R 0	R 0	R 0	R 0
Total Fixed Assets	R 512,500	R 666,975	R 2,774,590	R 6,163,340
Total Assets	R 1,693,620	R 2,029,215	R 3,680,190	R 8,517,900
Liabilities:				
Current Liabilities (current year)				
Accounts payable	R 1,252,260	R 1,632,611	R 1,949,665	R 1,507,244
Taxes due	R 0	R 0	R 0	R 0
Current portion of Notes Payable	R 0	R 0	R 0	R 0
Total Current Liabilities	R 1,252,260	R 1,632,611	R 1,949,665	R 1,507,244
Long Term Liabilities (future years)				
Notes Payable	R 0	R 0	R 0	R 0
Business mortgages payable	R 0	R 0	R 1,000,000	R 1,000,000
Other Long Term Liabilities	R 0	R 0	R 0	R 0
Total Long Term Liabilities	R 0	R 0	R 1,000,000	R 1,000,000
Total Liabilities	R 1,252,260	R 1,632,611	R 2,949,665	R 2,507,244
Owner's Equity				
Cash or asset value invested	R 1,000,000	R 1,000,000	R 0	R 0
Retained earnings (or loss)	R 569,640	R 603,396	R 730,525	R 6,010,656
Total Owner's Equity	R 441,360	R 396,604	R 730,525	R 6,010,656
Total Liabilities and Owner's Equity	R 1,693,620	R 2,029,215	R 3,680,190	R 8,517,900

FIGURE 12.13: Balance Sheet

Item Description	Incubator	Year 1	Year 2	Year 3	Year 9
Raspberry PIs	10	40	80	200	520
Software licensing	10	40	80	200	520
Monitors	10	40	80	200	520
Keyboards and mice	10	40	80	200	520
Network cables	10	40	80	200	520
Projectors	1	4	8	20	52
Projector cable	1	4	8	20	52
Network switch (24 port)	1	4	8	20	52
Router	1	0	0	0	1
Wireless internet antenna	1	0	0	0	1
Secondary wireless internet antennae for redundancy	0	1	0	0	1
Teacher laptops	1	4	8	20	52
Tables	20	80	160	400	1040
Chairs	20	80	160	400	1040
Branding and advertising	20	80	160	400	1040

FIGURE 12.14: Asset Register

Item Description	Incubator	Year 1	Year 2	Year 3	Year 9
Total	R 180,500	R 538,800	R 895,900	R 2,170,500	R 5,342,000

FIGURE 12.15: Funding Requirements