

Investigating Policy Transfer from Both Sides:
Case Study of a Technical and Vocational Education and Training Model
in South Africa

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Dedication

To the staff and students of the Tool, Die, and Mold-making Programme in hopes that all your hard work pays off at the individual, industry, and national levels.

Abstract

A manufacturing TVET program, known as M-Powered, was developed in the United States and successfully transferred to twelve sites in South Africa. This process took several years to complete, and the new TDM-Powered Program, aimed at skill development in the tool, die, and mold-making industry has now been running for four years. The research question for this study was: “What features were important in the successful transfer of M-Powered to TDM-Powered?” Using a model from the education policy borrowing field, four specific sub-questions were utilized to break the transfer process into distinct phases. The objective of this investigation was to understand and describe the experiences of those on the US and South African sides who worked to make this happen. By incorporating the perspectives of both those from the borrowing and lending countries this case study provides an example of an industry led cross-national initiative to develop manufacturing competency via transfer of a TVET model.

This research was conducted as a qualitative case study using a constructionist lens. Methods for data collection have involved the triangulation of document analysis, in-depth semi-structured interviews, and focus groups. The same process of investigation was undertaken in both countries with fifteen participants in total. Findings from this case study paint a specific picture of what was involved in the TVET model’s transfer both in terms of a narrative story and from the collective themes of those on each side.

An analysis of these findings allowed for comparisons to be drawn between those themes from the data and in light of the literature. Though not meant to be an evaluation of the process or programs in either country, it is hoped that this record is instructive. The specific implications of this study are focused around these areas: (A) the ways in

which the fields of HRD, TVET, and education policy borrowing interact with and inform one another; (B) the impact of an industry led initiative to solve a national skills crisis by looking abroad; (C) incorporation of the perspectives of lenders and borrows leading to a more holistic view of educational program transfer.

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List of Acronyms

AACC	American Association of Community Colleges
ACE	American Council on Education
DCTC	Dakota County Technical College
DOL	Department of Labor (US)
DQP	Development Quality Partner
DTI	Department of Trade and Industry
FET	Further Education and Training (Colleges)
GTI	Gauteng Tooling Initiative
HPAE	High Performing Asian Economies
HRD	Human Resource Development
HSRC	Human Sciences Research Council
HTC	Hennepin Technical College
MnSCU	Minnesota Colleges and Universities System
M-Powered	Manufacturing Powered (Program)
NAM	National Association of Manufacturing
NGO	Non-Governmental Organization
NIMS	National Institute of Metalworking Skills
NTI	National Tooling Initiative (Program)
OJT	On-the-Job Training
PMA	Precision Manufacturing Association
PPP	Private-Public Partnerships
QCTO	Quality Council for Trades and Occupations
RSA	Republic of South Africa
SAQA	South African Qualifications Authority
SATIS	South African Tooling Industry Support
SETA	Sector Education and Training Authority
SPOC	Single Point of Contact
SWEP	South West European Partnership
TASA	Tooling Association of South Africa
TDM	Tool, Die, and Mold-making (Powerwed Programme)

TVET	Technical and Vocational Education and Training
USAID	United States Agency for International Development
VET	Vocational Education and Training

Chapter I: Introduction to the Study

In 1998, the South African government consolidated a network of higher education institutions to develop fifty stand-alone Further Education and Training (FET) college entities. These colleges are dispersed over diverse geographical regions of the country ranging from the urban centers of Cape Town and the Gauteng province (Johannesburg and Pretoria) to very rural locations in the Northern Cape and Limpopo provinces. Over the past fifteen years, these institutions' have struggled to overcome both historic and programmatic barriers to provide education and training for the workplace. One of their biggest hurdles has been linking curriculum outcomes with the needs of local businesses and industries to produce competent, employable students.

One method for addressing specific educational needs that a particular country has is to borrow systems or programs that have been successful in other countries. This borrowing process is often assisted through foreign governments, private voluntary organizations, non-governmental organizations, or international funding agencies such as the World Bank. The needs of South Africa's FET system have previously been addressed by way of this educational system borrowing process. For example, through a three year grant given through USAID/Southern African Mission, the American Council on Education (ACE) worked up until February, 2012 to assist FETs in meeting South Africa's education and employment needs. The aim was to take educational programs and systems from the United States and duplicate them for the specific purpose of increasing linkages from FETs to businesses, and to proliferate opportunities for entrepreneurship.

Purpose of the Study

The purpose of this study is to investigate the transfer of a specific training system, the Manufacturing (M) Powered program, from Minnesota in the United States to South Africa. Known in its new context as the Tool Die and Mold Making (TDM) Powered program, it is housed mostly within FET colleges across South Africa and has been running for over three years. It incorporates distinct features which distinguish it both from the original M-Powered program and from standard FET procedures and programs. A description of the program and investigation into the specific elements of how and why it was transferred is the focus of this study.

There are two primary conditions that create a need for this study. The first is related to the state of education and skill development in South Africa found within technical and vocational education and training (TVET), and the specific skills crisis issue in the manufacturing industry. The second is the difficulty associated with educational systems or policy borrowing, and the lack of a model to address the experiences of those on both sides of the educational system transition with consideration to those on both the lending and the borrowing borders. These elements intersect within three primary fields of literature: TVET, comparative and developmental education, and human resource development (HRD).

This literature will be explored more fully in the next chapter, but a brief overview will be given here to illuminate what is known related to these two conditions in South Africa that created a need for the manufacturing skills program to be transferred, and issues associated with borrowing educational systems from other countries. A snapshot of the original M-Powered program in Minnesota and a basic timeline of the

development of the TDM-Powered program in South Africa are also instructive in setting a foundational understanding for what will be explored. Briefly reviewing these three components, the South African context relative to TVET and skill development, the borrowing of education systems between countries, and the basic elements of the M-Powered and TDM-Powered programs, all provide a contextual framework for the research questions, and point to the significance of this investigation.

South African Context

South Africa has been recognized alongside the countries of Brazil, Russia, India, and China for its fast growing, emerging economy. However, as rated in the 2011-2012 World Competiveness Report (Schwab, 2011), South Africa ranks far below all but India when compared to others in the so called ‘BRICS’ association of nations in the category area of “higher education and training”. This has a direct impact on the country’s skill development, along with “health and primary education”, one of the other twelve factors used to rank countries around the world which South Africa scored lower than any of the other ‘BRICS’ (Schwab, 2011). Building from dimensions of human capital theory and writing from a South African perspective, Piazza-Georgi (2002) identified the two broader areas of education and health as the primary contributors to “human skills capital” (p. 464). She also noted that it was the quality as opposed to the quantity of educational investment which produces the most impact on economic growth (Piazza-Georgi, 2002).

The quality of South Africa’s TVET system embodied in the FET colleges is limited in several ways. This is due firstly to the history of the apartheid system and the specific inequalities it produced related to education which have continued acting against

the success of the FET colleges and particularly the students who attend them (Strydom, Kuh, & Mentz, 2010). Although it would be preferable if the opposite were true, there are an inverse proportion of students who matriculate through to university as compared to FETs (Akoojee, 2005). This is exacerbated by the fact that there are not transfer systems in place to allow FET graduates to get credit for their awards in four year South African universities. In addition, though Lewis (2009) advocates that students are best served when private and public entities join their collective efforts, the majority of FETs have not been able to make links to business and industry. This bears upon the contributions that local companies can make in terms of equipment, curriculum advising, and access to new technology, products, or processes. It further lessens the likelihood that graduates will be placed with those companies, and ultimately orients student perspectives of FET colleges as illegitimate training pathways to career placement.

Another detriment to the quality of South Africa's TVET system and definitive global competitiveness is that FET programs and course work are often not representative of the field they are preparing students for. Therefore businesses lack faith in the credentials students graduate with from these programs, as well as the specific competency levels they might be expected to obtain. This is compounded by what is seen as a disjointed system with vast differences related to access and quality from one part of the country to the other (McGrath, 2004). Additionally, FET instructors or "lecturers," are often under qualified related to their practical background or experience in the field preferring to teach theoretical concepts in the classroom as opposed to hands on skills in a lab setting (Papier, 2010). Finally, the negative historical inequity of placement testing as a barrier to enrollment has limited appropriate forms of career counseling and accurate

preparedness of students. For these reasons, and in spite of the fact that South Africa's economy continues to grow, the quality of TVET education is one which has been identified as needing to improve if both the country's human potential and long term stability is to be realized (RSA, 2012).

Borrowing Education Systems from Other Countries

Coming primarily from the comparative education literature, the idea of borrowing educational programs and systems from other countries is not a new concept though it continues to be seen as a multifaceted issue (Steiner-Khamsi, 2004). Even the term "borrowing", though strongly established and most widely used, does not adequately capture the complexity of what is often involved (Phillips, 2000). The unique conditions where the program is first started, the political factors that make it valuable to be copied on both sides of the transfer process and the context of where it is ultimately implemented make it unlikely that any program is simply transposed between countries (Phillips & Ochs, 2003). Although theoretical frameworks exist, there is no definitive model available to assist those from both sides in how to practically carry out educational system lending, borrowing, or transition (Perry & Tor, 2008).

Examples of what makes TVET educational systems enticing to borrow are varied. When a particular country is economically successful on a large scale, the pieces that are said to be important to that success, such as training for skill development, are understandably attractive to countries looking abroad for a blueprint to achieve similar results. Examples of this found in the literature include the use of national qualification standards (NQFs) begun in such places as the United Kingdom (Chakroun, 2010), the German 'Dual System' where the state and employers partner to provide practical

education and work experience (Phillips, 2000, Turbin, 2001), and educational systems employed by the high performing Asian economy (HPAE) nations (Bennell & Segerstrom, 1998; Lewis, 2009). However, it becomes evident that regardless of where a country looks, to Europe, Asia, or the United States, TVET programs and policies are not easily replicated due to the unique factors within the country where they are implemented.

Overview of the M-Powered to TDM Transfer Process

M-Powered is a manufacturing skills program that was begun in 2005 through a partnership between the Minnesota System of Colleges and Universities (MnSCU) and HIRED, a Twin Cities based employment training agency. The first distinct characteristic of the program is the strong connections it has to local manufacturing companies after being originally seeded through a \$100,000 grant from the National Association of Manufacturing (NAM). These connections allow it to be tailored to meet the needs of nontraditional students and place them into the industry. A second distinctive is that M-Powered is competency based meaning that student work is analyzed for and accredited through the National Institute of Metalworking Skills (NIMS) in addition to their certification at Hennepin Technical College (HTC) where the program is housed. According to Dooley, Lindner, Dooley, & Alagaraja, “the goal of any competency-based education is to ensure transfer of learning in the workplace” (2004, p. 316). Thus, in the M-Powered model, the aim is for students to be certified through a demonstrated outcome that is desired by employers. Students learn in the classroom, lab, and through on the job training (OJT) at local businesses with the intention to develop manufacturing skills that can be applied to the workplace.

A South Africa – Minnesota, USA connection was first established in 2007 when a coalition of manufacturers, looking to find an educational model that would supplement what was currently being used in the FET colleges, established a partnership and formal agreement with the South African Business Council and MnSCU. Called the Intsimbi (meaning “metal” in Zulu) Partnership, this association led them to identify the M-Powered program which would become the model to be replicated across South Africa. The entire transfer process involved many trips back and forth between the countries by the primary individuals involved from both countries. This was completed in late 2009 and the first year the TDM-Powered program accepted students and officially ran in South Africa was in 2010. It began with seven locations across the country including the cities of Johannesburg, Peitermaritzburg, Port Elizabeth, and Cape Town, as well as in the provinces of Limpopo and Mpumalanga. As of 2013, it continues to run with an additional five sites housed primarily within FET colleges, but designated as an industry driven program coordinated at the national level.

Research Question and Approach

There is one primary research question and then four sub-questions in carrying out this research. The primary question is: What features were important in the successful transfer of M-Powered to TDM-Powered? The consequent sub-questions will be used to address four general stages of educational policy borrowing between countries. I plan to use the model proposed by Phillips and Ochs (2003) as the conceptual framework for these sub-questions. The four stages they mention (attraction, decision, implementation, and internalization) can be seen as a sequential timeline for how a borrowing country meets an internal need by adopting an educational system. This

model is one that is widely referenced and applied in the literature (Green & Holloway, 2007), and although their framework doesn't address the role of the lending country, the stages are connected to my research sub-questions. Those four questions are:

1. What factors, both internal to the state within South Africa and external about the M-Powered program made it appealing or interesting to potentially borrow or lend? (Attraction)
2. Why were those from the South Africa side (NTI) and Minnesota side (MnSCU & HIRED) motivated to form the Intsimbi Partnership? (Decision)
3. What were the key elements involved in the process of transitioning and changing the M-Powered program into the TDM-Powered program? (Implementation)
4. What characteristics of the Minnesota to South Africa TVET transfer were most important for the ongoing success of the TDM program according to each participant in the process? (Internalization)

A case study is the most appropriate research methodology for several reasons. First, it shines at contributing understanding to multi-layered subjects like the one under investigation. Stake defined this method as “the study of the particularity and complexity of the single case, coming to understand its activity within important circumstances” (1995, p. xi). Specifically, it lends itself to the following factors in my particular research topic:

- a. I am looking to understand a contextual process with multiple influences.
- b. The topic involves an unfolding story that has been shaped by participants on two sides.

- c. As the researcher, I recognize the lens I bring to the investigation and wish to remain flexible and open to an array of perspectives as I progress in collecting data.

Stake (2005) identified an instrumental case study as a research type used to investigate something in order to understand a given topic or hone in on theory. Therefore, although the manufacturing programs (M-Powered & TDM) are part of what is studied in this case, they are being used to understand something else (the TVET model transfer process and experiences of those involved).

As a case study, I will utilize both quantitative and qualitative methods. Yin (1994) noted that this type of research design lends itself to questions of “how” or “why” which are asked relative to phenomena outside of the researcher’s control. These questions, then, the how and why of the process, are the main focus, as opposed to the “what” of the specific manufacturing training programs. Case study design can be viewed not as an event but as an emergent process that takes place throughout the inquiry (Gall, Gall, & Borg, 2007). Although the primary methods will be qualitative in nature, it is not unusual for case studies to incorporate quantitative descriptive statistics (Marsick & Watkins, 1997), and these will also be included as well.

Significance of the Study

What is missing both in the TVET and HRD literature is an in depth analysis of the specific participants involved in transferring an educational system. A similar investigation of conditions that created a need for a program to be borrowed, and the experience of those intricately involved on each side of the transfer process has not been found. This highlights the notion that the transferring of educational systems is not fully

understood and the experience of those involved at the grassroots level of lending and borrowing these education systems is seldom considered.

In the research of this topic very few studies were found resembling what will be carried out through this investigation. By looking at the experience from both sides of the process it is hoped that this proposed investigation will lead to a more complete understanding both for lending and borrowing country partnerships to follow. The findings from this study would be valuable for at least four reasons. First, reviewing the process undertaken by stakeholders in the United States and South Africa can provide specific insights into how TVET systems, as a unique educational subset are borrowed between countries. Also, identifying examples of how the program is employed in both places, where changes were made, and how the transition took place, may specify understandings that fill the current gap or lack of a model that considers the process from both the lending and borrowing sides. Significantly, the findings of this review would be helpful to others engaged in educational systems transfer where partnerships have been set up or those funding projects are not involved in stipulating what must take place. Lastly, it may be specifically useful to certain industry associations or FET programs within South Africa looking to borrow from other countries.

Summary and Overview of Chapters

This study is focused on the transfer process of a TVET system, the M-Powered model, developed in the United States into South Africa. Bringing together the fields of HRD, TVET, and comparative and developmental education, it is unique as a case study looking directly through the experience of those intimately involved in this process. As such, through the following chapters, it is hoped that this study contributes to a greater

understanding of how countries meet the need for skill development through the education borrowing process.

Chapter II reviews the literature in three distinct arenas to provide a conceptual framework for the case being investigated. Included here will be an overview on workplace skill and competency development for manufacturing, issues found within the TVET environment particularly pertinent to the South African context, and a commonly used transfer model as well as examples of education policy borrowing.

Chapter III provides a detailed overview of the theoretical perspective and case study structure that made up the research methodology. In addition to document review and archival research, data was collected through interviews with those on both sides of the transfer process and by way of country-specific focus groups.

Chapter IV presents the findings of the investigation in two primary ways. First, it gives a narrative scope to the TVET model transfer process. Second, it reviews the distinct themes that were found from data on both the US and South African sides.

Chapter V analyzes the findings in light of the research question and literature. It also provides a discussion on the ways in which the experiences and views of those on both sides of the process were similar and different, and summarizes several implications for research and practice.

Chapter II: Review of the Literature

The problem outlined above will be explored relative to the South African environment through a review of three inter-related areas:

- 1) Skill demand and competency development frameworks for the workplace.
- 2) Structural and historic issues associated with technical and vocational education and training (TVET).
- 3) Educational policy borrowing between countries.

First, skill demand and development will be investigated by looking at the theoretical conceptions of competence, national qualification frameworks, and the use of newer types of apprenticeship models. Special attention will also be given to the history and unique conditions found within South Africa's manufacturing sector. In the second section, an analysis of literature on the approaches and systems within TVET will cover issues on how hands-on education has historically been approached. This will also include a review of South Africa's Further Education and Training (FET) Colleges including the role of lecturers and linkages to industry, and an emphasis on how outcomes-based education became official government policy. The third section of this chapter will consider the factors influencing how and why countries often look elsewhere for education policy and programs, a model widely used in the literature for thinking about borrowing (Phillips & Ochs, 2003), and five specific case studies of TVET borrowing between countries. In addition to these three primary areas, I will also provide an overview relative to what is previously known about how the TDM-Powered program as it was borrowed and is now operating. Through a review of these topic areas it is hoped that a foundation will be laid to investigate those factors influencing the process of

adopting the M-Powered manufacturing skills program and applying it within the South Africa context.

Skill Demand and Development

The demand for skills and pathways that are used to develop them has been well documented in any number of ways including at the organizational, industry, and national levels. Kim (2002) acknowledged the increased demand for high skills in the aggregate world economy due in part to advances in technology, but also particular to specific sectors such as manufacturing. In another example, skill development was one factor found to increase the competitiveness of a given nation by Porter (1991), who linked HRD and TVET by noting ways in which government policy shapes a skilled labor force. Swanson and Holton (2009) noted the struggles and strategies in developing human capital at the organizational level. In reviewing the approaches used by the governments of Taiwan, South Korea, and Singapore to attain rapid levels of development Ashton, Green, Sung and Janish (2002) identified ways in which the economies of these three countries evolved from a demand for lower leveled skills to higher skills.

It has been argued that a “multi-pronged HRD approach” (Kraak & Perold, 2003, p. 661) incorporating high, intermediate, and low skill bands is appropriate for South Africa. This section will look at ways in which this demand for skills has unfolded beginning with a background on the unique factors that influenced skill development in the past twenty-five years since the country transitioned out of the apartheid era. Next, an overview will be provided of various ways to look at the topic of competence ranging from the more behaviorally oriented to social and contextually understood approaches. Finally, two different implementations related to how South Africa has chosen to apply

ideas of competence and skill development will be explored: national qualification frameworks (NQFs) and newer apprenticeship models known as learnerships.

South African Background

It has been noted that political conditions in South Africa in the late 1980's and early 1990's caused it to be left out in the early stages of international globalization (Ashton, 2005). The impact of this was twofold. On one hand, there was a need for self-sufficiency seen in such things as highly specialized engineering and manufacturing skills needed for national defense purposes within the country. But also, the lack of engagement and economic trade with other countries meant that goods produced in South Africa were not widely exported. In other words, manufacturing demand and thus output were relatively low. These two dynamics in turn influenced requirements for manufacturing skills with a need for greater numbers of high skills, and less low to intermediate skills. This has meant that the overall national economy is weakened, because natural minerals native to the country get sent abroad to be made into finished products which are then imported back into South Africa. The impact of how segregated the apartheid government was from the rest of the world, and how slow South Africa was to then engage in globalization, also influenced ways in which educational policies from other places were not widely disseminated there (Jansen, 2004).

As South Africa transitioned away from exclusionism in the mid-1990's and fully joined the world economic community that globalization brought, several shifts happened related to manufacturing skills. Those higher skills needed for the design and production of such things as military equipment and automobiles began to decline, but the broader foundation of lower and primarily intermediate skills were found lacking. By the time

the first democratic elections took place in South Africa in 1994, both the Ministry of Labour and Ministry of Education shared responsibility for the process of building up manufacturing and other skill sectors necessary for the country's economy (Jansen, 2004). However, having to play catch up severely limited this process and led to a "widespread consensus that South Africa's failure to shift to export-oriented industrialization policies before the early 1990's has severely constrained the development of the South African manufacturing sector" (Kraak, 2005, p. 59).

There is no doubt that South Africa is therefore challenged related to human resource development, education reform, and skills training. Responses to this condition have come from many sources including government policy, private higher education, and industry leadership. For example, Kruss (2004) outlined ways in which private TVET institutions, often associated with a specific niche industry, became accredited in the 1990's in order to both increase national capacity and offer credentials. However, the aim of closing the skills gap has yet to be realized (Allais, 2012; Wallace, 2009). Conditions such as having a historically underprivileged segment of the population along with a flood of available employees coming through their open border with Zimbabwe cause many to work in jobs not impacted by new technology (McGrath, 2002), and high unemployment levels due to an economy which is not prepared with job openings for the number of job applicants (Ashton, 2005). These conditions impact and attest to the manufacturing skills gap described above, though views on how to go about closing this gap are varied.

Large scale economic policy in countries around the world is connected with the question of how to position a particular nation's workforce. The idea of a knowledge

economy and lessons acquired from international examples of vast economic improvement point some to invest in higher level skills (McGrath, 2002). In South Africa, there have been suggestions for a strategy aimed at all skill levels including those at the intermediate and low levels (Kraak, 2005). Ashton (2005) suggested that though it may be looked down upon, South Africa's investment in lower skill development should be seen as a viable pathway both for individuals and the larger economic good. On the other hand, Allais (2012) questions the idea of skill development as it has been carried out in South Africa. She points to skill as being narrowly defined, and policies at the national level aimed at developing it to be poorly executed and overly focused on the needs of employers (Allais, 2012). Although there is debate, an undergirding premise of each perspective is that of human capital. A fundamental understanding from this theory is that investment in education leads to personal and national economic benefit (Sweetland, 1996). Those engaged from either side recognize the role skill development plays in both individual and general uplift. However, these opposing views related to skills and how best to go about developing them, be they for manufacturing or any other vocational area, are strongly contested related to three specific topics which will be reviewed next: conceptions of competence, notions of how NQFs have been employed, and updated apprenticeship models.

Views on Competence

Competence and the process of attaining competency in a particular skill area are very important in a hands-on or vocational field such as manufacturing which relies heavily on tolerances and measurement. Rauner (2009) highlighted this unique feature thusly: "Vocational education differs from all other types of institutionalized education at

schools and universities in that learning about the work process is an indispensable part of professional competence development” (p. 1451). Therefore, a direct link is found between imparting skill through education and the practice of that skill in a vocational setting. How a country, such as South Africa, thinks about competency development plays out as it coordinates national education and training efforts and eventually has an economic impact (Porter, 1991).

However, in the HRD literature the very notion of competence has been called a ‘fuzzy concept’ (Boon & van der Klink, 2002). One central debate has revolved around how scholars view the processes and attainment of competence (Mansfield, 1989). Important here is the question of if competence can be measured and by what means. The problem of whose perspective (employers, employees, industry, or governmental bodies) should be most legitimized, let alone included, is a further debatable feature. Another difficulty with the idea of competence concerns the many possible meanings associated with the term itself (Halliday, 2004). In a final example, Clarke and Winch (2006) note how the associated English terms of skill and qualification do not translate evenly to other European languages and standard codifications.

The notion of competence has historically been explored in primarily behavioristic terms (Sandberg, 2001). According to Merriam and Caffarella (1999), both HRD and vocational skills training has emphasized behavioral aspects as evidenced by learning tasks being broken down into steps and the measurement of performance by quantitative means. However, other lenses for looking at competence such as classifying it into knowledge-based, standards-based, and connective approaches (Young, 2004) are found within the HRD and TVET literature. It remains an important, but disputed

concept integral to individuals being trained for both specific jobs and broader industry areas such as manufacturing which demand certain types of skill (Delamare-Le Deist & Winterton, 2005; Kraak, 2005). This more traditional understanding of competence connects with educational standards and specific outcomes (Mansfield, 1989). From this view there is a belief in competence that can be demonstrated and codified through levels of behaviors which can then be used as benchmarks. Country specific benchmarking started in the 1980's in the UK, with national vocational qualifications (NVQs).

These NVQ's were seen as a revolutionary way to transform technical forms of training by linking education to employment (Burke, 1989). This use of benchmarks was subsequently seen in the development of national qualification frameworks (NQFs) put in place by governments in countries such as Australia and South Africa (Young, 2003). The aspects of measurement, identification, and assessment are common when competence is understood as something that should have a demonstrated outcome observable in actions and ultimately the products being manufactured. According to Parker and Walters (2008) practices of using NVQs and NQFs grew up because they "complimented the views of business and government, which saw qualification frameworks as a means to make education more 'relevant' to the work place" (p. 70).

Though firmly entrenched, the behavioristic perspective of competence has been found wanting. Such an approach can tend to be elaborately codified at the expense of independent factors influencing individual agents. Of the more positivistic views on competence, Garavan and McGuire (2001) noted how they can "promote a conformist culture and give recognition to rather insular learning activities, limit more creative learning activities and ultimately reinforce organizational inequalities" (p. 159). More

recent scholarship includes looking at competence through interpretive or constructionist paradigms and includes attempts to bring competing views into a shared framework. For example, in addition to the more behaviorist aspects, Delamare-Le Deist and Winterton (2005) explored the cognitive, social, and functional views of competence that weld into a “holistic model” (p. 40). This then makes room for individual and collective perspectives apart from standards or qualifications granted by government or education. In the case of the South African manufacturing industry, this would account for the fact that though FET colleges certify students as competent, the industry does not recognize this playing out once students are hired. Another viewpoint on competence was articulated by Velde (2009) as being “intimately bound with the lives and experiences of each worker, and the processes of power and struggle within workplace cultures” (p. 231). From this standpoint, how FET students or manufacturing employees view their own competence, apart from an external qualification or industry standard would be valid. Perspectives such as this, based on individual and internal considerations, rely less on prescribed qualifications or skill measurements. However, when contrasted to the more behaviorist outcomes of competence, this view is less integrated into national initiatives such as NQFs established by economic or education policy makers, because it is difficult to strategically plan for its development and evaluate on a large scale.

Contested National Qualification Frameworks

The transition to a fully democratic government in South Africa presented an opportunity for new initiatives to take shape which were aimed at benefiting both the macro-economy and individual citizens, particularly those who had previously been disadvantaged, within it. An example of this was the link that established NQF

standards as part of the State's overall *Human Resource Development Strategy* (Parker & Walters, 2008). According to Ensor (2003), "the ANC government set out to transform education and training through the mechanism of the NQF and a range of sectorial educational policies aimed at eroding three boundaries—between education and training, between academic and everyday life, and between different disciplines, in order to produce a system which would erode a fourth—that between different social classes" (p. 344). The premise seen here is that human equality, previously missing during apartheid, becomes more realistic by breaking down key distinctions that were supported by that unequal system. Related to this point, Parker and Walters (2008) highlighted areas of NQF contestation, but argued that although imperfect and established in a top down fashion, they remain valuable in post-apartheid South Africa to bring a measure of equity to educational systems through continuous incremental changes and add transparent qualification particularly in the manufacturing sector. Others are more strongly dubious of either the tenants or positive impact of NQFs in South Africa based on their uneven implementation, but also on philosophical grounds. Ensor (2012) cited the non-compatibility, in terms of knowledge and social structures, between foundational training and formal education; while Allais (2007) pointed out South African NQF's overreliance on outcomes, which she posed to be devoid of any specified inputs or context. Finally, as noted by Lum (2004) describing an outcome does not necessarily define the skill it takes to reach the given result.

The connection between NQFs and objective standards or outcomes is one that eventually led to outcomes-based education (OBE) being established in South Africa. The country's move toward OBE will be examined more closely in the section of this

chapter focused on TVET, but is instructive here as it relates to industry. Originally, “competency-based education” (CBE) was the term used by unions to train toward NQFs, but whereas NQFs were seen to come more from labor and emphasized the needs of employers, OBE was viewed as less behaviorally orientated and closer in line with updated approaches to curriculum development and teaching methodology within education (Jansen, 2004). Thus, it was planned that all levels of formal education, including higher education institutions either geared toward technical/vocational or more liberal/academic pursuits, would find linkages to skill development emphasized in policies from the Department of Labour.

It was hoped that these fixed skill outcomes would be both objective and transparent, through multiple pathways of education or training which were not pre-determined. Parker and Walters (2008) espoused an “approach to vocational and occupational training that places emphasis on what a person can do in the workplace as a result of completing a programme of training where competency refers to knowledge, skills and values required to perform a specific occupation” (p. 72). In South Africa, this has brought about a quality assurance process that at least in theory, transcends educational systems regardless of socioeconomic or ethnic background. These qualities are strongly valued given the history of segregated learning pathways during the apartheid years. The Department of Higher Education and Training provides potential FET learners with an outline of how National Certificate Vocational or NC(V) aligns with NQF levels 2-4 in 18 program areas (RSA, 2011). However, doubts remain about the value of an outcomes focused South African NQF approach. Allais (2007) voiced strong opposition to it stating, “Learning outcomes as ‘standards’ cannot express the

consensus which is implied in the notion of ‘standard’. The ‘over specification’ which follows is counterproductive...Consequently, all the claims made about this approach collapse” (p.538). Nevertheless, although the original design of NQFs has changed, they continue to be used in South Africa.

Newer Apprenticeship Models

Long before democratic elections brought the African National Congress (ANC) into power or the country’s NQFs were created, more traditional apprenticeships were used in South Africa. The basic premises of these models are found within the highly admired German Dual System (Hamilton & Hamilton, 1999). Generally, costs for training are shared between government and business enterprises (Lauterbach, 2008). This allows for students to get both practical experience working in a company and theoretical background knowledge studying in the classroom (Büchel, 2002). This socialization approach allows for relationships to be established to a specific industry or work context over a given period of time. In South Africa’s past, the customary apprenticeship model was used primarily to train white artisans.

Though still most strongly found within established trade areas, the traditional understandings of apprenticeships began to change throughout the 1990’s in several countries (Smith, Jennings, & Solanki, 2005). For example, in the United Kingdom the government organized a system of “modern apprenticeships” or MAs to bolster competence specifically aimed at intermediate technical skills (Gospel, 1998). In South Africa, a newer apprenticeship model called “learnerships” has been likened to these MAs (Kraak, 2008). Learnerships took effect in 1998 following significant national policy acts aimed at transforming training and education for the workplace. The basis of

this demand led, self-learning program is that students develop a portfolio of detailed work which can be credentialed by external moderators. One feature of both these updated apprenticeships models (MAs and learnerships) is that governing bodies are put in place to monitor the experiences provided by companies, collect and distribute funds from participating enterprises, and define specific skill outcomes. Whereas in the UK Training and Enterprise Councils (TECs) provide governance of MAs, in South Africa the Department of Labour oversees twenty-fit Sector Education and Training Authorities or SETAs which are responsible to coordinate and promote learnerships throughout businesses of all sizes operating in both the formal and informal economy. Another feature is that MAs and learnerships are closely linked with regulated skill standards and levels found in NQFs of both countries.

Reaction to these newer forms of apprenticeships, seen either as MAs or learnerships, has been mixed. In the UK, Gospel (1998) found areas for improvement, but also positive results due in part because MA's were not time bound, but competence based, and they helped to create new occupational labor markets. This function of being demand driven and connected to what industry wants is a top selling point, while from the perspective of potential employees, "apprenticeship performs a broader function of socialization into the trade and the world of work" (Gospel, 1998, p. 437). Davies and Farquharson (2004) used a case study method to examine learnership pilot projects in KwaZulu-Natal, South Africa within micro-enterprises where, following the newer model, individuals collaborate with training providers and cooperating industries to design learning outcomes which are coordinate by the local SETA. They found relatively high rates of retention (85-96%) in the pilot learnership process, but suggested adding

administrative layers to further ensure quality assurance control (Davies & Farquharson, 2004).

In spite of some positive aspects, one of the strongest criticisms of South Africa's learnerships is that they do not in practice provide a link to employment due in part to the lack of structured relationships between formal providers of vocational education and employers and also the poor quality of training (Kraak, 2008). Both of these characteristics reflect negatively on the Further Education and Training (FET) structure, where the education side of learnerships mostly takes place, and the SETA framework that governs them. Whereas FET colleges are deemed less attractive compared to private institutions found mostly in large urban areas, and SETAs often have poor monitoring systems depending on the principle sector they oversee, the success of learnerships is seen as uneven at best (Smith, Jennings, & Solanki, 2005). In part to address these issues, in 2009, the Department of Higher Education and Training assumed responsibility for skills development that had previously been controlled by the Department of Labor (RSA, 2012).

TVET Organization, Approaches, and Systems

Having surveyed the topic of skill development it is now valuable to look at issues impacting TVET particularly related to approaches and systems organization both worldwide and in the South African context. In this paper, I have chosen to consistently use the acronym TVET although it is common in the literature to reference many other similar labels to describe the field. Some of these include vocational education and training (VET) which has traditionally been used in Europe, vocational technical education (VTE), and continuing and technical education (CTE) in such places as the

United States (Agrawal, 2013). Though any of these labels are found in particular contexts, TVET is used more widely across the world such as by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (Lauterbach, 2008).

Although there is significant overlap from the economic, labor oriented perspective of a skills shortage and topics such as competence, NQFs, and learnerships, views from the TVET side contribute in distinct ways to setting the scene for how and why the TDM Powered program came to South Africa. Movements around TVET organization globally have focused on a decentralized structure that encourages partnerships with private entities and allows for increased responsiveness to local business needs (Akoojee, 2008). There is a common recognition, especially on the African continent, that not only does TVET contribute to larger skill development leading to economic benefit, it also addresses the problem of youth unemployment (McGrath, Akoojee, Gewer, Mabizela, Mbele, & Roberts, 2006). In places such as the European Union (EU), a tradition of “social dialogue” (Winterton, 2008, p. 104) has contributed to both the value placed on this form of education, and a mutual ownership of it between many stakeholders including government, industry, and society at large. In their review of the ‘high performing Asian economies’, Ashton, Green, Sung and Janish (2002) found “distinctive forms of vocational and technical education designed to ensure that the requisite technical and occupationally specific skills were available to employers” (p.18). Winch (2002) advocated for strong TVET systems as supports for occupational identities and virtues, and beneficial contributors at the individual, workplace, and societal levels. In general, countries around the world see their technical training systems as key contributors to economic growth.

In spite of the world-wide phenomenon of espousing a value for TVET development at the government policy level, it often suffers in the way it is perceived by or carried out to the broader sectors of a given country (McGrath, et.al., 2006). Therefore, this section will begin with a brief review of the often negative associations that TVET carries with it particularly in the African context. Following this, a sampling of TVET organizational structure and research will be provided to point out examples of best practice found in the literature. Next, the history of technical and vocation education specifically in South Africa will be surveyed covering the time period of the past twenty-five years with special attention paid to Further Education and Training (FET) colleges. Finally, the origins and impact of outcome-based education (OBE) within the country's TVET systems will be explored.

Negative Associations

It is not uncommon globally for TVET to be viewed as second tier or less desirable by those in more emerging economies in addition to people from countries that are further developed. However, particular issues rooted in history plague it in places such as Africa. Though not meant to be an exhaustive list, a brief summary on some often seen negative associations is instructive. First, there is a specific history of TVET systems being put in place by colonial super-powers who saw them as the most appropriate route for their own country's advancement (Steiner-Khamsi & Quist, 2000). Also, Lewis (2009) noted ways in which technical and vocational education has been organized around purely economic terms and manipulated for increased production benefiting employers. This negative association would appear to be appropriate in places such as on the African continent where TVET programs have often been transferred from

elsewhere in order to profit either the lending nation or specific interests group within the borrowing country.

It is not only for historic reasons that these negative associations about TVET persist. Today, it is often seen simply as training for production in a specific job and not as helpful as broad general education for a career (Oketch, 2007). Although the reality may be that just as other forms of education are now intended to prepare students for future education, this assumption about TVET persists and becomes coupled with the ever changing nature of work. This then encourages a normative cultural desire in many countries for a white collar job, or knowledge career (Young, 2006) which is viewed to come exclusively through a university or advanced degree. The tension between general education and specific vocational training is one that is often viewed as a zero sum game with primary and secondary education systems placing more prominence on the former which emphasizes more broad based, foundational knowledge (Akoojee, 2005; Oketch, 2007). In this way, there is a cyclical de-emphasis placed on TVET since being trained for a particular field is seen as limiting. All of these negative associations can be found in South Africa.

TVET Practice and Research

With connections to both adult education and human resource development, TVET is a unique field within the larger realm of education. The classroom interplay between students and instructors with experience in industry, the measurement of skill development, and unique financial constraints are all illustrative to the practice and research of TVET. Vocational education makes use of tools and machinery from the workplace in addition to books and computers which are the primary modes of learning

more general education topics. Along with the need for greater physical space to house the vocationally based equipment, this factor increases the costs associated with TVET particularly as technological advances make what was relied on in the past outdated or irrelevant to the present working environment. Funding comes from public as well as private enterprise that have a stake in skill development. However, in places such as the global South these alliances have been historically difficult to pull together and agencies from the United States, European Union, World Bank, and United Nations provide capital. However, this influx of support often comes with strings attached and benefits enterprise more than individuals according to Bennell & Segerstrom (1998) who sought to “raise a number of concerns about the Bank’s policy agenda for VET in both developing and transitional economies” (p. 271). The advancement of new TVET training pilot programs is also of note along with technological change and funding issues. As highlighted through a case of how a TVET program was piloted in Germany, Laur-Ernst (2008) laid out several best practices including the need to recognize the unique features of TVET in pilot program design, the value of having pilots of a sufficient scale to show meaningful results, and ways in which these programs should be evaluated before they are more widely applied.

Teaching practice and methodology are also uniquely applied in TVET. Like other types of adult educators, instructors use a traditionally styled classroom to teach those aspects, such as theory, that are best suited to a more customary learning environment. In addition, they make use of a laboratory or workshop where students can practice the tools and equipment used in their intended field of vocation. This practice along with the opportunity to apply skills in an actual workplace environment through

OJT and apprenticeship experiences orient a learner to the environment where their particular vocation will be carried out. These components of TVET can be viewed in Hinchliffe's (2002) concept of "situational understanding" which connects behaviorism with the Aristotelian idea of *technē*, or applied craft skill. In making these points he invokes Schön's (1987) concept of a "reflective practitioner" to promote ways that improvisation and creativity are vital to one's given work. Specific to the teaching of manufacturing tool, die, and mold-making, An and Su (2011) documented best teaching practices including a focus on orienting students to those aspects of their future job found in the affective domain such as attitudes toward a given task or procedure.

Apart from the methods used to impart specific technical skills, how TVET career and student support is given is an area that may not be initially considered, but which has shown to be important in several ways. For example, Bonica and Sappa (2010) conducted a longitudinal study on an innovative metalforming program in Italy finding that the commitment demonstrated to students and creation of a welcoming environment on the part of teachers, contributed to students seeing themselves as competent. These aspects of the TVET program were contrasted with the reflective experiences students had previously as "school leavers" (Bonica & Sappa, 2010). In the United States, Hansen, Marchwick, Schindler, and Stuart (2005) documented how having a dedicated position aimed at helping non-native English speaking students with non-academic life issues was the key factor for the success of a grant funded career training program in the manufacturing field. These examples point to TVET students with specific learning needs and those who were previously unsuccessful benefitting from supplementary types of student support. Finally, in a comprehensive study of 3499 TVET students in the

Netherlands, Kuijpers, Meijers, and Gundy (2011) found that career dialogues between teacher and student contributed more to student's application of career competencies than traditional measures such as tests and conversations with a career counselor. Although such conversations were shown to be difficult to structure, they were found to "contribute to career reflection, career forming, and networking; in fact, this dialogue is more strongly correlated with the development of career competencies than personality traits are" (Kuijpers, et.al., 2011). The type of guidance that instructors can provide in explaining the future application of skills in concrete ways is something that should be considered as students move from education to work.

The approaches in which TVET practices are researched and evaluated are a final consideration here. According to Fretwell (2003), though the high cost of TVET would point to a need for strong evaluation methods that could be used by national policy makers, this is not often done in either a systematic or comprehensive manner. As it is a relatively young field, having largely developed outside more traditional scientific or university systems (Rauner, 2009), it is rare to find examples of strongly positivist research in the TVET literature. For example, Wedekind (2010) used a constructionist paradigm when he interviewed sixteen individuals involved in FET instruction or governance. The experiences of these stakeholders were compared and contrasted to connections back to the broader contexts of government policy and educational change impacting FETs in South Africa. Although they point out that TVET research is not well defined and there are many approaches applied to investigate it, Grollmann and Hayward (2008) employed case studies to point out how TVET systems are organized and can be evaluated. Akoojee (2005) sought to inquire into the characteristics of private TVET

management practices in South Africa using both quantitative and qualitative measures. He began with secondary survey data from 238 private VET providers and then picked 10 on the basis of representative characteristics (typology, location, and size) as case study samples to provide evidence of their important role apart from the larger publicly funded FET colleges. It is also well documented how public-private partnerships (PPPs), oftentimes involving international stakeholders, have played a role in South African TVET since the mid-1990's (Pampallis, 2004). The development of these FETs as the primary mode of TVET education will be reviewed next.

South Africa's FET Landscape

The backbone of South Africa's TVET system was structured in 1998 as FET colleges. One feature of the system is the shared responsibility for their organization and operation between the government's Department of Education and Department of Labour (Jansen, 2004). As higher education public institutions, FETs are dispersed throughout the country with responsibility to provide efficiency and equality in vocational education (Akoojee, 2008). However, the history of technical training and education in the country began many years before. Fisher, Ros, Powell, and Hall (2003) trace the TVET sector's importance both because of changes to the national economy and in preparing students primarily in relation to discoveries of mineral deposits in the nineteenth century. These authors noted the structure during apartheid such as provisions for the organization of more elite, high skill TVET pathways for whites and the establishment of rural training centers for blacks. In 1991, this led to the establishment of 123 technical colleges with whites making up approximately two thirds of the total student population of 76,435 (Fisher, et.al., 2003).

In the ensuing years since the end of apartheid, TVET education has been an area of focus and change even as resources and systems are reallocated in significant ways. One goal of the policy changes was to counteract any negative associations thus elevating the standing of FET colleges in the minds of students and employers. Kruss (2004) noted how national education initiatives “aimed to negate the ‘cinderella’ status of technical and vocational education and training in South Africa relative to the traditional academic, theoretical and professional education offered by universities” (p. 48). Educational development policies, such as the 2006 Joint Initiative on Priority Skills which provided for FET colleges role in skill development, are given as examples of what McGrath and Akoojee (2007) view as the consistent high regard and financial investment given to TVET in South Africa. In 2000, there was a consolidation of smaller institutions with stronger colleges leading to the configuration of 165 campus sites and 50 FET colleges (Fisher, et.al., 2003). From these examples, the opinion can be supported that whatever barriers FET colleges and the larger TVET system in South Africa still encounter have not come as the result of neglect or a lack of effort to address them. Even so, in 2012 the Department of Higher Education and Training came out with a report owning up to many shortcomings found within FET colleges which were labeled as “mainly weak institutions” (RSA, 2012, p. 10) that still have not developed as trusted pathways to employment.

In the same way that human capital provides impetus for skill development, human rights is a strong motivator for much of the educational policy changes made in South Africa. The desire to reckon with the legacy of apartheid remains a goal, which though unrealized, has nevertheless guided much of the educational framework of the

ANC government, specifically at the TVET level (Sayed & Ahmed, 2011; Soudien, 2006). It has been noted that the policies enacted in the last fifteen years prominently place education in its many forms, including TVET, as a right (Sayed & Ahmed, 2011). However, there remain wide differences in areas such as access, instruction, materials, and physical learning environments. For these reasons Tikly (2011) advocated for a social justice approach, or one that includes greater participation in local communities, national accountability, and a focus on not equal but different kinds of resources for learners with different needs.

Several barriers remain in the management and organization of FET colleges which must be resolved for them to be seen as more viable higher education options. One barrier is the FETs inability to build stronger connections with local businesses and industries which undermines the intended focus on demand driven education (RSA, 2012). Industry does not view FETs as producing what is needed but does not yet have a structured role to play in addressing this. Although government investment is quite high (Wallace, 2009), the ultimate test of the system's value, employability of FET graduates, remains low. This disconnection from business support thus limits the flow of resources and potential employment connections for graduates.

A second barrier has been the low quality of teaching practices found within large segments of FET lecturers and the unbalanced funding capability of provinces to train current and new teachers (Akoojee, 2008). In addition to the skills needed as instructors, these individuals often do not have both high enough level of theoretical and technical experience in their subject area. Parker and Adler (2005) highlighted that though there has been an increase in regulation of lecturer qualifications found in the Norms and

Standards for Educators (NSC), it has been a confusing system to navigate with different bodies handling registration, accreditation, and financing.

The lack of either an articulated pathway to employment or opportunities for occupational mobility is a third barrier that FET colleges must overcome if they are to be seen in a more favorable light. In describing the transition from school to work, Hamilton (1994) identified these two dimensions with the terms “transparency”, or how clearly students can see their educational choices leading to an occupation; and “permeability”, the degree to which the system allows for movement back and forth between education and the labor market. In South Africa, the lack of validation placed on the credentials obtained in FET colleges hampers both of these qualities.

Additionally, the system that does not provide adequate career guidance for informed choices to be made, something that has been shown to increase both permeability and transparency (Stephan & Rosenbaum, 2009). Students are then doubly hindered after obtaining certifications that do not qualify them for entry into the labor force, nor link to increased levels of either employment or education.

A final barrier, as detailed by McGrath (2010), is that the arrangement of consolidating 123 technical colleges into 50 FET colleges has not brought the anticipated benefits of more uniform access to tools and equipment and standardized subject offerings. This is true both in terms of geography and racial diversity. Although black student enrollment increased by than 30% between 1999 and 2003 (Soudien, 2006), the learning environment found within an FET college in urban areas remains much different from those in rural areas. Practically this plays out in the types facilities, equipment, and opportunities that learners have access to.

Around these barriers swirl questions on how quality and equity mutually exist and to what measure in the South African TVET system. Sayed and Ahmed (2011) reviewed the debate as to whether quality measures have been too narrowly defined or even that inequality, though unintended, has grown with the implementation of new policies. Others have pointed out that neither the public providers (FET colleges), smaller profit nor not for profit private providers who special in training for specific industries, have quantitatively demonstrated high marks of quality and equity (Akoojee & McGrath, 2007). To those hoping to enter the workforce or incumbent workers looking for certifications that can improve their employability, these issues may realistically boil down to the lack demonstrated pathways between education and work. Kraak (2008) noted that although South African youth, many of them black, have had access to new pathways, upon graduation they have not been significantly employed in their field of study due to the incoherent nature of the current TVET system.

Outcomes-Based Education as Government Policy

The implementation of outcomes-based education or OBE in South Africa is a final consideration which has a considerable impact on TVET organization, learners, and lecturers. Coming into educational and labor policy development in the mid 1990's and closely connected with the NQF movement, the history and key figures who were involved in the process are documented by Jansen (2004). As the newly democratic country had greater access and visibility than under the apartheid regime, this was a time of renewed interest from those outside and increased attention from within South Africa to what was happening elsewhere. In terms of education policy it was also a period

where another former British colony, Australia, was implementing a form of OBE called “competency based training” or CBT (Hager, 2008). According to Chisholm (2012), the active, student centered, and democratic aspects of OBE were directly heralded as antitheses to the more authoritarian and traditional modes of teaching employed in the apartheid era.

Jansen (2004) showed how in fact what became OBE in South Africa came from Australia initially through connections between the labor movement and business. Since TVET in South Africa is organized through both the Departments of Labour and Higher Education and Training, which operate under different focus paradigms, there was a balancing act between the various participants who were involved in the process of putting the new OBE parameters in place. For example, Spreen (2004) noted that “the OBE language at the national policy level tended to be driven by economic concerns, but when it reached the more concrete classroom level, it was about equity, access, and redress” (p. 109). Included here, was a comprehensive set of standards at all levels of education coordinated through a top-down and centralized system. Parker and Walters (2008) documented how the national standards development process continues to be a work in progress and highlighted the strengths and limitations of OBE as evidence. Although it may be too early to judge the full impact of bringing OBE to South Africa, either positively or negatively, it continues to be an important framework for thinking about teaching and learning (Spreen, 2004). This example of how and why OBE came to be valued in South Africa underscores many of the principles found in the literature on education policy borrowing which will be explored next.

Principles and Exemplars of Borrowing Educational Programs

Having reviewed the pertinent aspects of skill development and TVET, the third portion of this chapter focusses on what is known in the literature as “education policy borrowing”. The history of educational borrowing goes as far back as Plato, but was more fully developed as a concept in the early nineteenth century (Phillips, 1993). Noah and Eckstein (1969) specifically point to comparative education’s modern comprehensive approach to the work of Sir Michael Sadler, an early British educationalist from that time period, but they trace the professionalization of the field through the impact of global actors such as the World Bank and the Organisation for Economic Co-operation and Development (OECD). Today, this idea of adapting, and adopting educational programs and models from elsewhere is a common feature of globalization found in the government policies of many countries, but particularly in South Africa. As noted by Jansen (2004): “Almost every national education policy of the post-apartheid government of South Africa has major design elements that originated in another country” (p. 199).

This section will first draw out several of the principles issues often covered in the field of comparative, international, and developmental education to give an overview of the types of considerations that come into play when educational system transfer takes place. Next, the foremost model proposed by Phillips and Ochs (2003) for looking at how educational systems are borrowed and lent between countries will be reviewed. Since, it has been noted that education policy borrowing or transfer has a long tradition in TVET (Gonan, 2012) a concerted effort was made to find the most similar types of examples as to what took place when M-Powered became TDM-Powered in South

Africa. From this search, six exemplars of using a case study approach to investigate TVET program transfer across national borders were uncovered and will be examined.

Theoretical and Strategic Issues

The topic of education systems borrowing is most typically reviewed in broad theoretical principles and examples which point to strategic issues. Phillips and Ochs (2003) identified six common aspects of education practice or policy that are borrowed including specific structures, goals, ideologies, and techniques. Cultural fit, the role of funding agencies, and compatibility are some of the other principle issues covered in the literature. For example, Spreen (2004) used the example of OBE coming to South Africa from such places as Australia and the United States in order to show ways in which power, language, and the need to legitimize internal policy often comes into play. According to Robertson and Waltman (1993), public entities that carry out borrowing often have difficulty when they try to separate elements of policy from specific strategies for carrying these out. Further, though governing educational systems are encouraged toward “policy learning” from examples abroad (Chakroun, 2010), their actual wholesale borrowing and implementation become more or less successful depending on a host of contextual factors including how they are aligned with the needs of industry, how TVET is viewed and utilized, and other cultural or societal impacts of how youth transition to work.

It was previously noted how colonial powers borrowed educational structures, but even today in places within the African continent, those coming from former colonial countries in the global North or West have been shown to be inconsiderate of the local environment (McGrath, 2002). These external entities use their own consultants to give a

framework for what might work best, and provide support only toward those ends that they, and not those in the “borrowing country”, devised. In cases such as these, the motives of financial donor agencies such as the World Bank are called into question (Lewis, 2009; McGrath, 2002), and greater influence is given to political factors and funding mechanisms than the actual policies or environments they operate in (Steiner-Khamsi, 2004). Missing from these types of situations is the idea or consideration of compatibility (Phillips & Ochs, 2003; Turbin, 2001) whereby what is borrowed can be used as it was originally intended. Though they may indeed be well intentioned, such examples are analogous to well-meaning importation of modern fire trucks to locations where essential elements such as water hydrants cannot be accessed, thus making the truck and hoses virtually useless.

Four Stage Borrowing Model

Phillips and Ochs (2003) proposed one framework for looking at the borrowing process between nations. Although it is not the only model found in the literature (Perry & Tor, 2009), it is a major conceptualization that is used to classify what takes place. Consisting of four primary stages known as Attraction, Decision, Implementation, and Internalization, it builds upon Ochs and Phillips (2002) earlier analysis of what was found related to the specific nature of attraction when they reviewed the history of English interest in the German education system.

Represented graphically as a wheel with arrows moving in one direction, the educational policy borrowing process begins when those from one particular country feel an impulse to look abroad (Attraction). These preconditions then point to the motives of those involved whether they represent financial, political, or educational sides. One point

of emphasis is that there are two ways to see this attraction taking place. First, there is an internal impulse phenomenon within a country such as “system collapse” or “knowledge/skills innovation” (Phillips & Ochs, 2004). Then in order to meet this particular need, the second part of attraction happens in looking abroad. According to Phillips and Ochs (2003) this “externalizing potential” might range from broad guiding philosophies to specific process features found elsewhere as part of another country’s education system.

The start of an actual change process, or making a decision to change, is the key idea in the second stage of this model. Phillips and Ochs (2003) specifically categorize South Africa’s decision to incorporate OBE as a “quick fix decision” (p. 455) as it came quickly out of the post-apartheid era and didn’t have the proper structures in place to support it. The other three types of decisions they point to are given self-descriptive labels as well: theoretical, phony, and realistic/practical (Phillips & Ochs, 2003). Whereas a “theoretical-based” decision would be made with consideration for the impracticality of setting up contextual factors to actually transfer something, a “phony” type of decision might be enacted for political reasons without the possibility of being applied. However, the most valued type of decision, which they term “realistic/practical” would be seen through a successful consideration of the context of where adaptation will take place. According to Phillips and Ochs (2003), this is an ideal type of decision: one in which what is seen elsewhere is not intended to be entirely duplicated, or when a considerate evaluation is made to the feasibility of transferring it.

Implementation, or the next stage in Phillips and Ochs (2003) model, takes place when supportive structures and “significant actors” (p. 456) are in place and the process

of adaption happens. When actual change happens it could be seen rather quickly or over time. Part of this is noted to be dependent on what Phillips (2005) identified as the willingness of those institutions or individuals “with the power to support or resist change and development, and they can be particularly effective in decentralised systems, where there is less direct control” (p. 32). In other words, part of what may speed implementation is a strong mandate from those in elevated positions of authority. Without the recognition of a need and consensus by key stakeholders to implement the decision, no further action may take place thus halting the borrowing process.

The final stage of the Phillips and Ochs (2003) model of education policy borrowing is Internalization. Also referenced as “indigenization”, this stage includes some measure of evaluation or reflection on the effectiveness and impact of what was implemented which in turn may lead to the process starting over again. Part of what is evaluated is not only the objectives of stakeholders who carried out the transfer process, but also the program’s impact on conditions in its new environment (Phillips & Ochs, 2004). The considerations of context and issues that stem from this are a major theme found in the internalization stage and the model generally. These influence not only the source, or home country, of what is lent, but also the target country where it is borrowed to. Phillips & Ochs (2003) stated their purpose for proposing this heuristic model was in part to “draw attention to ways which will help to structure investigation of the phenomenon of cross-national attraction in education and the consequent development of policy and its implementation” (p. 460). Thus, it was meant to be used as a tool for research into specific cases between countries.

TVET Program Borrowing Exemplars

Although the subject of policy borrowing has a long history within TVET (Gonan, 2012), there are surprisingly few in-depth illustrations of how a specific model such as the one described above are be applied to particular cases. However, six studies were found and will be reviewed to elicit both themes in the literature and the particular standpoints used by the authors to understand a certain example of educational transfer. Four of these take a case study approach reviewing either historic or more recent examples of a government or policy organization looking abroad to another country for a model to apply. One exemplar is focused more on how philosophical approaches are borrowed while the rest are more practically based, but all six deal with some aspect of technical or vocational education. Although only a few directly apply the four stages of borrowing proposed by Phillips & Ochs (2003), these exemplars are useful to look at in having a foundation for investigating the transfer of M-Powered to South Africa.

UK transfer to Russia. Green and Holloway (2007) reported on the evaluation of a nursing program that was transferred from the United Kingdom to Russia using a humanistic approach. The main aims of their study were to describe the program as it was originally transferred, report on three separate qualitative evaluations of it, and address issues that came out of the final evaluation. In that summative evaluation they used semi-structured interviews with fifteen staff members who had been involved with the program in Russia and applied their findings within the final stages of a policy borrowing model. The authors highlight methods in which a TVET program that is started and funded from one context often comes from an ethnocentric view which makes

it difficult to even-handedly evaluate the new program in a different context in culturally relevant way.

Through the lens of globalization, particularly related to health care and education, Green and Holloway (2007) lay out the nursing training program from being funded through the British government to being implemented in St. Petersburg, Russia. They went into considerable detail presenting a humanistic theoretical framework and the qualitative research principles that guided their methodology. One of their primary assumptions was that, “People and communities should be understood in context and holistically” (Green and Holloway, 2007, p. 25). As researchers from the UK, they noted in multiple places the value they gave to working closely with and getting feedback from their Russian colleagues in order to negotiate an understanding of the TVET program. They devoted a key section of their discussion to the problematic aspects of how meaning was negotiated through verbal interviews with an interpreter, noting the many opportunities for misunderstanding due to “language and cultural barriers” (Green and Holloway, 2007, p. 33). Recognitions of the need for contextual understanding, the limitations of language, and the value placed on collaborating with those being studied were also brought up in the discussion section.

The authors pointed out how their research focused on the implementation and internalization (final two) stages of the Phillips and Ochs model of policy borrowing. By way of conclusion they note “future evaluations of knowledge, policy and practice transfer programmes are recommended to give equal attention to the earlier stages in order to give fuller consideration to the specific contextual factors that constitute the preconditions for change and allow the clearer identification of innovations and practices

that prove to be successful in the given context” (Green & Holloway, 2007, p. 36). They suggest uniting the Phillips and Ochs model with the humanistic theoretical approach they used to evaluate how TVET programs are transferred between countries.

Implementation in the developing world. Powell (2001) used a case study approach to map 19 TVET projects that were implemented in “developing countries” from elsewhere with an aim to understand the role that local participants played in the process of initiating funding and implementation of programs once funding was obtained. Unique features of the author’s research methodology were the use of semi-structured interviews with the policy makers involved in the process along with document collection. The major perspective that shaped this investigation was the relationship of dependence that was established between those in more developed nations who provided funding and those in the developing countries, specifically Jamaica and The Gambia, they were assisting.

Powell (2001) begins by noting the lack of long term success found in sustainable TVET program implementation by those such as the World Bank. Although the World Bank and other major aid agencies may recognize the need for partnership frameworks and local project ownership, there has been criticism of forced agendas and ignorance of local conditions which are pointed out as undermining educational system borrowing success (Bennell, & Segerstrom, 1998). In carrying out the research, cases of TVET programs were reviewed and ninety-nine interviews were conducted with those from aid agencies, local government administrators, and institutions where the TVET programs were delivered. The specific nineteen post-secondary programs had been implemented between 1970 and 1990 in Jamaica (nine projects) and The Gambia (ten projects), two

countries chosen for comparative purposes both for their similarities in terms of geography and British colonial past, and differences such as their economic structure and educational systems. One unifying factor was the number of projects in both countries funded from outside “to support the development of income generating skills amongst those considered marginalized” (Powell, 2001).

On one hand, the results point out how valuable financial and infrastructure support were given and local management of implementation often took place. However, on the other side there was a lack of autonomy on the part of those receiving this support to identify local consultants and they were most often in the position to carry out decisions about major project components that they themselves did not have a role in shaping (Powell, 2001). These findings indicated both positive and negative impacts of this dependency style relationship. Moreover, issues such as efficacy, autonomous control, and long versus short term impacts were confounding variables seen in the specific examples given which limited any definitive formula for how dependency relationships should be carried out (Powell, 2001).

The issue of when the ideas of decision and implementation officially begin was also highlighted. In his study, Powell used the idea of “initiation” to include many points along the process lifecycle. These included when proposals were put together and funding was initially approved, on down to when the new education program was officially opened. According to Powell’s (2001) investigation, if TVET program borrowing can be thought of as “successful” depends on how or from which vantage point one views the lifespan of the given program: “...the evidence suggests that it is far too simple to evaluate the development of any project at any particular point of delivery.

In the end, the project needs to be considered in terms of its overall achievement in the long run” (p. 426). These insights are particularly instructive for any investigation into a particular case of borrowing as they point out the difficulty of viewing distinct phases of the process, and the value in taking the broadest view possible from its origins of attractiveness, through how it becomes established in the new country.

Case study from Kyrgyzstan. Messerlia, Abdykaparova, and Taylor (2006) present a case study investigation looking at a Swiss supported TVET farming program in twelve rural areas within Kyrgyzstan. Started in 2001, and aimed primarily at young woman, it seeks to bring agricultural sustainability and gender equality through three primary functions: school based learning, business support, and apprenticeships. The curriculum was developed through an initiative of Helvetas, a Swiss international cooperation non-governmental organization (NGO), working in partnership with local government sponsored vocational schools. Extensive instructor training and support, textbooks and assessment materials were noted as key features to the program’s success.

On the subject of changing notions of TVET internationally, the authors emphasized “where there is a perceived need to shift from teaching which is instrumental (to satisfying labour and employment needs) towards learning which is transformational (linking personal learning and change to wider processes of social change)” (Messerlia, et.al., 2006, p. 457). This then provides a backdrop for looking at how the program in Kyrgyzstan was organized less with a focus on human capital and more geared to societal equality and sustainability. Going against traditional practice, the training program specifically separated male and female students (ranging from 18-30) into gender specific

course tracks in order to give opportunity for equal access to micro-loans, apprenticeships, and business planning.

Thus, the theme of their investigation brought up a question of using an educational program borrowed and funded from an external source to change the culture and tradition of the environment it is enacted in. Although examples are given by Chisholm (2009) of “South – South” cooperation in educational development, typically programs travel from the global North to the South or as in this case are originated and funded by those in the West. The authors acknowledged the program’s goal for lasting change, even as examples such as bride steeling, arranged marriage, and pregnancy at an early age were given as barriers to its ultimate success. The tone the article set forth championed individual improvement through practical education with far reaching societal implications. Further, it is noteworthy that two of the three authors, though Kyrgyz nationals, were employed by Helvetas, the main funding agency.

Critical view of Western influence. Che (2007) took a different approach than (Messerlia, et.al., 2006) and used a critical paradigm to analyze the influence of western education methods, curriculum, and teaching philosophies through discussions with Cameroonian TVET instructors. She first provided a historic context for the topic establishing the impact of Cameroon being a former colony, and highlighted the country’s high enrollments in TVET secondary education relative to other African countries. Also in her introduction, Che (2007) stated, “Similarly, the imposed, primarily Western curricula of many African countries can perpetuate Western hegemony in these societies” (p. 334). Che chronicled how she used data from semi structured interviews with fourteen instructors in four secondary schools. She wrote, “...the teachers I

interviewed took development or modernization to be an essentially unquestioned positive goal, and they were confident that the best aspects of their indigenous culture would survive and perhaps even be enhanced through Western-style development” (Che, 2007, p. 335). In using an ethnographic methodology Che connected herself to the views of Paulo Friere, an early critical theorist. A further example of this came when she troubled the notion of who defines quality when “educational reform projects flow in a West → Non-West direction” (Che, 2007, p. 336).

In her summary, Che (2007) found “Not only has Westernism disconnected many Cameroonian teachers from themselves, but it has also introduced a logic of domination which values exploitation of resources, quantification and prediction of nature, and objectification of reality” (p. 343). Such a conclusion points to the perspective that those who are unwittingly being suppressed often take up the views of their oppressors (Kincheloe & McLaren, 1998). Since TVET is consistently framed as a country’s pathway to “economic and individual development”, Che’s critical theory outlook points out the underlying notion of how and by whom development is defined and questions longstanding notions of human capital theory that are often taken for granted by those in the field of HRD. For example, Che (2007) noted that her findings raise the troubling question: “What alternatives for progress are there besides Western-style development” (p. 342).

Revisiting a “classic case”. Steiner-Khamsi and Quist (2000) looked back on the “classic case” of an industrial education model developed for African Americans being adopted in the early 1900’s in Ghana by the British colonial government. This specific education program, focused on agricultural and manual training, was used in part by the

Tuskegee Institute in Alabama, and actively promoted by a philanthropic organization in New York whose mission was “to promote the education of natives and blacks both in the United States and abroad” (Steiner-Khamsi and Quist, 2000, p. 273). Labeled “adaptive education” it was subsequently used in many parts of the world by European powers to train the indigenous populations they controlled. By reviewing this specific case, the authors’ aim was to apply this oft-cited example used in the comparative literature to both draw principles about the phenomena of international players taking educational programs to new contexts, and to analyze how those who carry out these processes see importation as a solution to their local educational issues.

Their findings can be seen in part through the idea of agency, or the capacity to exert action or power. First, Steiner-Khamsi and Quist (2000) highlighted how the program as it was originally conceived in the United States was not without its critics. By becoming policy lenders to another country, those that supported the program in the US were in some sense able to legitimize it. Second, the British, believing in the need for a format that would prepare students for work back in their villages and which could compete with schools in the Gold Coast established by missionaries, were open to incorporating the adaptive education model and accepting the support that came with it from North America. Thus, as borrowers they established Achimota College as a comprehensive academic institution and then selected an international example that could strengthen their own case for the importance of appreciating manual labor even when it was contested locally. In other words, they were able to use what they found elsewhere toward an “Africanization” of their curriculum. This example provides evidence that part of the history of educational program borrowing has come as the result of movement of

either policies or specific programs from a domineering society toward aboriginal and indigenous groups.

Another important component of their research is the insight that Steiner-Khamsi and Quist (2000) provided regarding the relationships between the three individuals who played major roles in the practical establishment of the borrowing process. One was British, the then governor of the Gold Coast who sought out the framework from the United States. The other two came from the United States and were the commissioner of the New York based philanthropic organization, and an African American specializing in sociology and “black education” from Columbia University. Steiner-Khamsi and Quist (2000) identified that what appeared to bring them together was the political climates on both continents that were opposed to the adaptive education model. Thus, though united by a common belief in the value of the particular model, both the lenders and borrowers had specific motivations for coming together which were unique to their particular context and role in the process.

History of Britain borrowing from Germany. The history of Britain looking to borrow educational systems from Germany covers two centuries, and is reviewed by Phillips (2000, 2011) in order to shed light on the issue of attraction between countries. As early as 1800 Prussia’s state run and organized system of education up through university was attracting attention not only in Britain but in many other parts of the world as well. It was noted that this strongly centralized control mechanism both interested those in Britain for its efficiency, but brought concerns based on fears such things as a loss of local independence (Phillips, 2000). The theme of positive and negative attraction at all levels of education are pointed out related to the perceived benefits including high

standards and focus on technical education found in the German system, and the negatively viewed conceptions such as its leaning toward militaristic ends and layers of bureaucracy.

Aspects of this positive and negative attraction are traced in a historical arch, even through the periods of war between the two countries. This outline provided a view into what was lacking in Britain at various stages over the past two hundred years as much as describing aspects of the German educational system and how it evolved. Regardless of the specific program or framework, there were things such as a cultural or collective understanding about the value of education, not easily quantifiable or duplicable, found in Germany which were attractive to the British (Phillips, 2000). It was further noted that drawing comparisons to the German system “might serve best, however, to help make British policy-makers aware of continuing shortcomings at home and their potential to be solved by showing what is possible, rather than as exemplary characteristics to be copied or ‘borrowed’” (Phillips, 2000, p. 305). From this view, it is more instructive to compare the outcomes of ones given education system with those of other systems, and not necessarily use another country’s system as a model.

Current Practice in TDM-Powered

Through a review of the issues related to skill development and TVET organization that frame the South African environment, and by way of an investigation into examples of educational borrowing policy, an overview of what was previously known about TDM-Powered in South Africa is now appropriate. Although it is difficult to clearly delineate a time frame, the “borrowing” process from what it was in Minnesota to when it started in South Africa took at least two years. M-Powered was adapted by

having those individuals who set it up in 2007 get directly involved in implementing similar components of the TDM program alongside those hired by TDM. Some aspects were kept, others rejected, and important additions were often made. This process was impacted by the unique stakeholders, geo-political forces, and traditions of the borrowing and lending environments.

TDM was set up to provide occupational skills primarily for those matriculating from secondary education up through learners in their later twenties at a foundational level. One aim was to include those previously disadvantaged and women, on a clear pathway from education to work and this can be seen in how students were assessed and chosen to enter the program. It includes a holistic educational approach including specific coursework on broader job skills, math, and English that places learners' perspective centrally. In addition to lecturers teaching on specific technical skills a staff member at each site, known as the 'single point of contact' or SPOC provides for the personal support of students. TDM's emphasis on personal development and the wide range of diversity within student experiences provides evidence of the humanistic oriented qualities of the program.

The TDM Programme also has overt connections to a particular industry. TDM originated through a specific manufacturing coalition, the National Tooling Initiative Program (NTI), who identified a skills gap in qualified employees coming from FET colleges. There are 189 companies that have participated in the on the job training (OJT) segment of the program. Although funds are primarily sought through the South African Department of Labour, TDM continues to be led and partially funded by a private industry organization known as the Tooling Association of South Africa (TASA) which

is committed to raising the nation's capacity in tool, die, and mold-making. Because of this connection to a specific segment of the manufacturing industry, students are assured their progression through the program and qualifications acquired will make them marketable to member businesses in this coalition.

This association with tool, die, and mold making businesses also allows for work-based learning experiences and prominence given to lecturer modeling. A hallmark of each year of the TDM model is the cycle of classroom/lab based learning interspersed with on the job training and practical internships at affiliated companies. Implicit with this framework is an understanding that competence is applied through interaction at a specific workplace and embedded within a process of industry identification. Lecturers in the program were recruited primarily from industry instead of those with experience exclusive to education. These individuals can model and speak to actual workplace conditions and their connections with local businesses where the on the job training portions of the program take place are invaluable assets. Further, built into the lecturer training is an understanding that one of their fundamental charges is to model behaviors and characteristics found in artisans employed in the industry.

An international accreditation process is used by TDM to certify matriculation through each stage and year of the program. TDM does this by contracting with the National Institute of Metalworking Skills (NIMS), a US based organization also used by M-Powered that incorporates industry specific standards through both online testing and review of pieces crafted by students in the program. In so doing, NIMS provides an added level of quality control independent of how different lecturers in TDM's twelve sites evaluate their students' work. These standards can be likened to the NQFs which

South Africa employs. Additional prominence is given to the measurement of learner growth through quantifiable tests and statistical analysis. Students are evaluated and tracked in several ways including at the twelve local FET colleges, through the central TDM administrative office in Pretoria, and by NIMS. In 2011, at the Apprenticeship Level of the program, 86% of students passed their work pieces (hand done projects shipped to a neutral agency for testing) and 80% passed their online NIMS assessment. One ongoing issue related to these exams has been the differences in the US measurement standard used by NIMS and the international metric systems students are more familiar with. Utilizing the various measurement instruments and tracking progress not only provides empirical data about student development, but also fits the model of OBE model desired by both the Department of Labour and Department of Education. It thus affords TDM with leverage in acquiring local and national funding mechanisms which is required for continued sustainability.

Synthesis of the Literature

This chapter has sought to move from broadly uncovering issues facing skill development for South Africa's manufacturing sector, to a consideration of South Africa's TVET, and an overview along with examples of educational system borrowing. The goal has been to paint a picture of conditions influencing the need for this investigation into the factors that were important in the successful transfer of M-Powered to TDM-Powered. This review has drawn upon sources from both within and outside of South Africa in addition to a summary of the known facts relative to the two manufacturing skill development programs.

The primary areas of research and the corresponding sources reviewed thus far can be found in Table 1 below. This synthesis is provided in categories to identify where the literature from TVET, HRD, and educational policy borrowing inform this topic, and also includes the primary research methodology sources that will be used in Chapter III.

TABLE 1: SYNTHESIS OF THE LITERATURE

Review of the Literature Sources	Skill Demand and Competency Development	Akoojee, S. (2005) Soudien, C. (2007) Young, M. (2006) Tikly, L. (2011)
	TVET in South Africa	Ashton, D.N. (2005) Kraak, A. (2005, 2008) McGrath, S. (2002) Sayed, Y. & Ahmed, R. (2011)
	Educational Systems and Policy Borrowing	Bennell, P. & Segerstrom J. (1998) Phillips, D. (2005) Phillips, D. & Ochs, K. (2003) Steiner-Khamsi, G. (2004)
Methodology Sources	Case Study Research	Green, A.J. & Holloway, D.G. (2007) Marsick, V. J. & Watkins, K. E. (1997) Maxwell, J. A. (2005) Stake, R. (1995 & 2005) Yin, R.K. (1994)

This dissertation will continue the narrative concerning the TDM-Powered program published in *Human Resource Development International* (Stuart, 2012).

Further, although there have been models for how educational system borrowing takes

place, the study will highlight the need for a constructionist approach based on a specific case which has not yet been undertaken to my knowledge. Thus, the context for situating the proposed topic and the issues highlighted above guide the next chapter.

Chapter III: Methodology

A case study utilizing both quantitative and qualitative methods is my proposed methodology for understanding the primary research inquiry: What features were important in the successful transfer of M-Powered to TDM-Powered? As the researcher, I believe that the relationship between the two sides of the borrowing process provides an opportunity to look at a specific occasion of how a TVET education model moves from one context to another. Instances such as this where the process was led by participants on both sides who were not connected to funding agencies has not been widely reported in the literature. Conducting a case study affords the opportunity to learn about the experiences of these participants on the US and South African sides and which elements they saw as important.

In organizing my methodological approach, the education borrowing model proposed by Phillips and Ochs (2003) was used as a conceptual framework for the four sub-research questions:

1. What factors, both internal to the state within South Africa and external about the M-Powered program made it appealing or interesting to potentially borrow or lend? (Attraction)
2. Why were those from the South Africa side (NTI) and Minnesota side (MnSCU & HIRED) motivated to form the Intsimbi Partnership? (Decision)
3. What were the key elements involved in the process of transitioning and changing the M-Powered program into the TDM-Powered program? (Implementation)

4. What characteristics of the Minnesota to South Africa TVET transfer were most important for the ongoing success of the TDM program according to each participant in the process? (Internalization)

Although I would like to be able to gather insights that could lead to creation of an original theory or model (Eisenhardt, 1989; Torraco, 1997), I begin aware that in this type of research there is not an established starting point and the main focus should start by looking at the relatedness or interconnection of the data (Maxwell, 2005). This chapter will explain the research methodology of my investigation in four sections. It will begin with a presentation of my philosophical orientation as the primary qualitative research instrument. Next, the principal case study approach which was used (Stake, 1995) is explained. The third section will present the data collection methods, and the fourth will be an overview of the data analysis procedures.

Philosophical Paradigm

This proposed study will examine the topic of how M-Powered was transferred to South Africa through a constructionist philosophical paradigm. As the researcher, I am seeking to understand how the participants of the process experienced it. In so doing, I will be looking for multiple perspectives, and a lived awareness that comes directly from those involved more than the specifics of what was actually transferred. Ontologically, a constructionist paradigm includes context dependent, non-dualistic, emic constructions of meaning (Guba & Lincoln, 1998). Constructionism is concerned less with truths and more with relativistic understandings. Although constructionism and constructivism bear many similar qualities and are often used interchangeably (Crotty, 1998), Schwandt (1994) noted the constructivist emphasis on “individual minds and cognitive processes”

(p. 127). In contrast, using a constructionist approach, this study will be more interested in the collective understandings of the US and South African groups. The philosophical paradigm I bring to this investigation, along with a review of my history with the two programs being study, and the cultural and personal biases I may convey will be explored in this section.

Application of Social Constructionism

A social constructionist underpinning can best be applied to this study because there were multiple influences (i.e. industry, education, funding), various actors from two countries, language differences, and cultural implications involved in the process. It is a paradigm that emphasizes how specific contexts such as the linguistic, social, historical and political shape understanding (Hacking, 1999). Following this perspective it is my belief that all of these contexts had an influence on the transfer process, but will further impact how the findings are interpreted. I will be looking less to predict what might happen in similar instances and more to explain and describe the transfer experience from the standpoint of the primary actors involved in it.

This constructionist paradigm provides a valuable lens for the study of interdisciplinary topics such as when TVET is compared between countries either within education, industry, or society in general. There is also recognition in the TVET literature that both knowledge and skill have multiple constructs including attitudinal and affective, both within individuals and collective groups (Rauner, 2009). Consequently, constructionism will be a most useful lens for understanding the various constructs involved in this case study.

Epistemologically this study will be primarily concerned with the collective or cultural shaping of how the educational program transfer took place. From this same perspective, I believe that any findings from the investigation will be understood intersubjectively by the reader through the function of the researcher both in collecting data, analyzing the results, and using language to convey what was found. In other words, as I function as the primary research tool mediating the results of the study, there is an awareness of my own preconceptions and desire to both address and lay these aside.

Situating the Researcher

One disclosure that becomes important is my role related to the manufacturing programs functioning in both countries. As a member of the broader community involved in this project, I am engaged in what Flinders (1992) refers to as “relational ethics”. Although I was not originally involved in the transfer of the M-Powered program, I do have contacts both to it and to TDM. In the second year that M-Powered ran at HTC, I managed the development of curriculum for a component aimed at English language learners. I did not teach any of the material, but did oversee the primary instructor, and traveled to the Precision Manufacturing Association (PMA) headquarters in Cleveland, Ohio to present on the results of this module.

Then just before TDM was first rolled out in South Africa in 2010, I acted as one of two trainers for the initial seven lecturers that had been hired from industry. Thus, I could be described as a relational member of the greater M-Powered/TDM group. Prior to the start of two subsequent years of the TDM-Powered program, I was hired through HTC as the lead trainer for new lecturers at all the location sites. Thus, in some ways I am a participant observer with my own experience as part of the total process. However,

one distinction to reiterate is that I was not involved with the planning that set up the initial transfer of the program.

Cultural Prejudices

Having already established relationships with most of the study participants will aid in gaining entry and cooperation with them. Even though these relationships are in place I want to be aware of both my own cultural prejudices and any perceptions of me or the borrowing process, primarily from those in South Africa. Having cultural sensitivity should be an aim when looking at educational programs between countries and must be addressed throughout (Green & Holloway, 2007). This is also important to remember due to the historical nature of education borrowing often being of an imperialistic nature from “more developed” to “less developed countries”. On the extremes there may be a blind acceptance or valuing of someone coming from the outside, but there may also be a preexisting distrust and desire for autonomy.

Further, coming from the U.S. side and being involved in the lecturer training process may cause some to see me either as prejudiced or partial to the experience of those from Minnesota. Over time, as the program in South Africa has matured, there seems to be a bit of ambiguity about the role of the U.S. side and in some instances an understandable distance has been established between certain parties on both sides as TDM-Powered has taken a unique shape. My pre-existing viewpoint is that those who had experience in Minnesota with M-Powered and were originally helpful with the transfer process believe they still have expertise to give TDM. This may or may not be true even though the South African version is now much bigger than it was in Minnesota.

These are all issues to consider related to how I as the investigator come to the case under investigation prior to data collection or analysis.

There are aspects of my history with both sides that encourage trust between researcher and study participants, but for better or worse it also links me more closely with the group from Minnesota and the United States. Additional understandings of my place as the researcher and the role of bias point to the intentionality of constructionist epistemological research practice (Crotty, 1998). As a white, male researcher from the United States looking at a case in Africa, I am aware of the historical backdrop I bring to this experience associated to issues of position and power. When interviewing those involved in TDM, I will most certainly be seen as representing M-Powered, though I have no direct involvement with the program. When analyzing the findings from this study, it is important to point out that my bias will tend toward seeing the results from the US side in a more empathetic way.

Case Study Approach

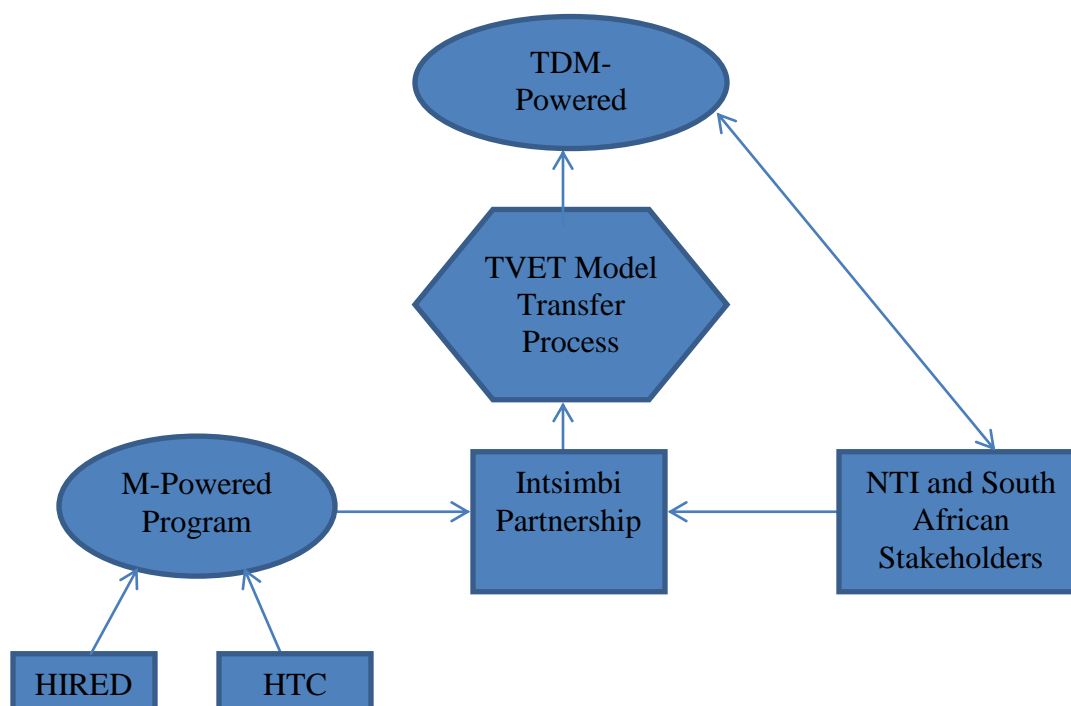
Within the qualitative research tradition, case study design is an example of a methodology based on the constructionist paradigm (Guba & Lincoln, 1998). In order to answer the research question and sub questions set forward, it allows both for a recording of the case and a simultaneous examination toward meaning (Stake, 1995).

Epistemologically, a case study method is based on the assumption that the investigator is linked with the subject under investigation which means that as the research process unfolds the findings are created (Guba & Lincoln, 1998). Since the aim of my research is primarily one of understanding (“What features were important in transferring M-Powered to TDM-Powered?”), a case study provides a wide analytical field to answer the

question. Although there were multiple sources that were used, Stake (1995) was the primary author I drew upon to help set up my approach to the case study and analyze the data collected.

This investigation included a single focus case study aimed primarily at the how and why of the TVET model transfer process. With numerous influences involved from both sides of the Atlantic there are also additional units to be studied such as stakeholders who helped bring the two sides together. The different units being studied in the case study are presented as a graphic model in Figure 1 below. Whereas, the process itself is shown as a pentagon, the two separate programs, M-Powered and TDM are represented as ovals and the various stakeholder groups are symbolized as rectangles.

FIGURE 1: MODEL OF CASE STUDY UNDER INVESTIGATION



As is seen in this model preview, what will be researched through this case study covers more than the main focus of the TVET model transfer. For example, M-Powered

was developed by HTC and HIRED who influenced what went into it being an attractive model. The stakeholders from the South African side, such as the NTI recognized a skills shortage and looked overseas eventually forming the Intsimbi Partnership to address this. Finally, the outcome of the transfer process was a new program, TDM-Powered, which has been running for several years and falls under the auspices of the NTI. Additional units being studied may be added as the case unfolds (Stake, 1995) and will each provide specific lenses with which to understand a complete picture of the TVET model transfer not as something from a fixed time period, but as a relational process that has continued to evolve as TDM runs independently.

Variables and Scope

Stake (2005) posits that a comparison, not of individual variables, but of related case studies is what moves the field of knowledge forward related to this type of research methodology. However, in this instance the lack of similar research in the literature makes this difficult. The primary variable that will be investigated through this case study is the reflective experience of those involved in the educational system transfer. As descriptive survey research, no manipulation of this variable will take place. However, comparisons will be possible between the collective responses from the lending group in Minnesota and the United States, and the borrowing group from South Africa. Measurement will take place both at the nominal and ordinal levels. In the survey questionnaire portion, ordinal measures of the participants experience can be quantified as continuous variables. Conversely, in the phases of the research where observation, data collection and interviews take place these discrete variables will be nominally measured.

Related to the scope of this case study, Creswell (1998) noted the importance of setting appropriate boundaries so that what is investigated gets to what was intended. This will be important to remember with the variety of data being collected, the multiple perspectives involved, and the many potential directions that could be taken. Although a case study research methodology can be used as a model instrument to follow, most of the specific research instruments I intend to use are not ready made. Looking at it from one angle, I as the researcher could be considered a measuring instrument (Gall, et. al. 2007) because of my personal involvement at each stage of the process. Other considerations related to this study's variables and scope includes validity, reliability, and applicability. These issues point to the extent to which qualitative research is regarded as trustworthy or a realistic representation of what was studied (Bloomberg & Volpe, 2008), and the steps taken to address them will be reviewed in the section at the end of this chapter related to quality and rigor.

Study Participants

The participants of this case study investigation are the stakeholders who undertook to transfer M-Powered over to South Africa. Only those individuals involved in this process from the beginning can be included. Each participant has a historical investment in the process being studied. They were the primary drivers who made it happen and continue to play significant roles as it continues to evolve. Specifically, the sample in this case study is made up of two groups: those responsible for organizing M-Powered in the United States and helping to transfer it, and those assembled in South Africa looking to borrow the program and implement it there. The six study participants from the United States are listed under pseudonyms with their actual title.

- Joe Fredkove – Director of Training Development for Customized Training Services at HTC
- Nancy James – Senior Program Director of HIRED
- Rich Kelly – Business Development Manager for Customized Training Services at HTC
- Kathie Montagnese – Former Assessment Coordinator at HTC and current Senior Assessment Manager at The College Board
- Judy Swanson – Project Manager at HIRED
- Jim Wall – Director of the National Institute of Metalworking (NIMS)

These individuals played vital roles in developing the M-Powered program. In addition, they were key contributors to assisting the borrowing process. Each of them continues to be involved in some degree with M-Powered, and some still have ties to their counterpart in South Africa, more than three years into TDM's implementation.

The South African participant group is of similar size. Their members include individuals who first envisioned the idea to look abroad for a manufacturing program that would meet specific needs of the manufacturing industry, program managers who helped transition M-Powered, and key staff who first implemented the TDM-Powered program. All but one from this group is still involved in the TDM program and they include the following (again listed by title under a pseudonym):

- Carlos Barbosa – NTI Program Manager
- Maudie De Wit – TDM Assessment & Life Skills Manager
- Ebbe Dommissie – Former TDM-Powered Manufacturing Training Director
- Herman Pienaar – TDM-Powered Curriculum Manager

- Dalene Seymore – TDM-Powered Life Skills Training Director
- Roger Skidow – Former NTI Program Manager and current TDM Lecturer
- Dirk Van Dyk – Intsimbi National Program Manager
- Victor Winn – NTI Program Manager

The final study participant does not fit clearly into either group. Willem Ellis, President of BartlettEllis, helped connect the two groups and played the role of a cultural bridge between the two sides. He is a South African expatriate living in Minnesota. As a partner in the process of setting up the South African Business Council, he served as the facilitator of the transfer progression and continues to be involved as a liaison with specific relational ties to members of each group.

This sample size of fifteen is sufficient in that it includes all the principle players who were involved in the borrowing/transfer process over a five year period. Each of them participated in meetings, took tours, and set up the framework traveling between both countries. Further, the members of this sample share certain characteristics. They could all be described as passionate about technical and vocational education and training and experienced with the manufacturing industry. Many of them had worked collaboratively together before on other projects in their respective countries, and many have maintained relationships beyond the time period under investigation. The fifteen individual study participants will be sampled both as units and then as fitting into two subgroups, from the United States and South Africa. Their collective recollections will be used to tell the narrative of how M-Powered was transferred. Thematic findings from each side will also be explored, but since he shares characteristics with both groups and doesn't perfectly fit into either, Mr. Ellis will not be included in a country based

subgroup. The details of how this will be carried out are explained within the data collection and analysis section.

Data Collection

Although, I had background knowledge about the TVET model transfer, due to my experiences with both sides, the vast majority of what I learned about this case came after this investigation officially began. Information was gathered in four main ways: through existing documents, a participant background survey, one-on-one interviews, and two focus groups. This was not necessarily done in phases, since data gathering in a case study method is an unfolding event without clear linear steps (Stake, 2005). Although each type of data was obtained separately, they did not clearly progress one after the other. This was partly due to the logistics of having two groups and the availability of meeting those in South Africa in person. Each portion of data that was gathered will be explained in this section following an overview of the study's ethical and confidentiality issues.

Issues of Ethics & Confidentiality

In conducting this investigation issues of ethics and confidentiality were considered. An IRB exemption from full committee review was obtained through the University of Minnesota (Appendix A) and no further authorization was required on the South African side. By participating in this study all fifteen members of the sample were asked to be transparent with their thoughts as much as possible. A consent form which can be found in Appendix B was given to the participants outlining the purpose of the study and the various procedures they would be asked to contribute. All fifteen of them signed the consent form prior to being asked for any documents they had from the

process and being sent the online survey link which were the first steps of their involvement in the study.

It was conceivable that by giving unfiltered access to organizational data and individual feedback a participant, their group, or organization would be put a less than flattering light. This would be reason for them not to share honestly or choose to withhold information. To negate this potential effect, they were told that the information they gave would not be identified directly to them and they would have the opportunity to read the findings. In sharing the quotations gathered from participants, they were notified that an assigned code would be used when presenting what was learned from each person or using direct quotations. It was further explained to the participants that this record was for research purposes and any data collected would be kept confidential and secured. All electronic documents, interview, and video files were stored on a password protected computer. If the documents obtained from the participants were not from the public record, as was the case with the Intsimbi Partnership, authorization was received to include them in this study.

Collecting Documents & Surveys

Once I received their consent form an email was sent to each participant asking for any documentation they could provide about their experience. Data collection began most naturally with the participants from Minnesota and the information they had related to the M-Powered program. In several instances, I went online to find articles and webpages about the organizations on both sides and program participants. Those from the study sample on both sides of the Atlantic made a host of paper and electronic data available to me. Where appropriate a few of these have been included as appendices.

Photographs were also requested, and two participants from the US side gave me access to multiple binders that were full of “project team logistics” they had put together during the transfer process. In addition, I collected documentation on how the Intsimbi Partnership was formed, and quantitative data such as costs, assessment scores, and student demographics from the M-Powered and TDM programs. Email communication from the participants was saved, and I also reached out to additional staff members, such as recruiters and instructors, of the two manufacturing programs for anything they could share with me.

The specific study participants from each side of the process were also asked to respond to an anonymous survey consisting of open ended questions about their background and quantifiable statements about their involvement. The seven questions were:

1. *Which side of the process did you primarily work from?*
2. *Are you still in the job you had during the “transfer” process?
If “yes”, how long have been in your current role?
If “no”, how has your job changed or what is your current role?*
3. *Had you previously been involved with a similar project before participating in the Intsimbi Partnership? If “yes”, please describe below:*
4. *Is there anything that stands out to you about what was significant in making the process happen?*
5. *What suggestions would you have for those undertaking similar types of educational transfer projects?*
6. *For the following questions, please rate your opinion as follows:*

Based on my experience....	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I think the Intsimbi Partnership was successful.					
I enjoyed my participation in the transfer process.					

I appreciated the personal relationships that developed though the process.
 I remember challenging aspects of the process.
 I witnessed cultural differences or misunderstandings during the process.
 I would be interested to participate in a similar transfer process.

7. *If there are any other comments you would like to make about your experience of the process, please do so below.*

These questions were worded to help the participants focus on the transfer process and not the M-Powered or TDM programs. These queries were put into Survey Monkey and a link was sent to each participant. It was hoped that information gained from the introductory survey could be used as background data before the interviews took place.

This part of the information that was gathered happened mostly at the beginning, but continued even after the interviews and focus groups had been concluded. There was the ability to request specific pieces of information as it became apparent what was important. Notes were taken in several notebooks on what was learned or what was needed as more types of data became available. These aspects demonstrate how the data gathering and data analysis process overlaps when conducting a case study (Stake, 2005).

Interview and Focus Group Procedures

Gathering data through interviews and focus groups overlapped in several ways, but again because of their closer proximity and the convenience factor those from the Minnesota were the logical group to start with. This was done in part because it was hoped that they would provide more details as to how M-Powered first came to be since they were the primary actors who helped to establish it. Although probing and clarifying

questions were also used, Table 2 below presents my interviewing protocol for those in both the United States and South Africa

TABLE 2: INTERVIEW PROTOCOL

<p><u>Create Context:</u> The purpose of this research is to explore the process of how the M-Powered Program was transferred from Hennepin Technical College to South Africa becoming the TDM Powered Program. Today I would like to ask you about your role in making that happen. I am interested to hear your unique story.</p>
<p><u>Initial Question:</u> Tell me about your primary role in the transfer process. What did you do and who did you work most closely with to make it happen?</p>
<p>Guiding Questions:</p> <ul style="list-style-type: none"> ○ How were you brought in to participate and what do you recall about the timeline of events? ○ Are there any stories or examples you might give to highlight what the experience of working on this project was like for you? ○ Who did you work most closely with, both on your side and from the other side? ○ How do you feel the two sides did in working together? ○ What factors do you think were important for getting the process started? Completing it? ○ Were there any specific parts that were difficult or challenging? ○ What, if anything, did you learn through the process?
<p><u>Closing Question:</u> Is there anything else you would like to share about the process or your experience that has not been covered?</p>

It has been noted that using an interview protocol in a case study is a means by which to gather multiple perspectives leading to linkages, explanations, and deeper understandings of the subject under examination (Stake, 1995). One goal in this interview process was to build rapport with each person in hopes of gathering honest,

unfiltered responses about the experiences they had and opinions they could give about their involvement. It was also hoped that participant answers would be useful in providing information to develop open ended questions for the focus group questions.

Interviews with Minnesota participants. The interviews with participants from Minnesota took place in various conference rooms at both campuses of HTC - Eden Prairie and Brooklyn Park. They were all digitally recorded. The longest interview was ninety-two minutes and the shortest went for forty-six minutes, but on average they lasted about an hour. Two different audio recorders, one analogue and one digital, were used. I relied on the digital recorder because it could be transferred directly to my computer, but in one of the first interviews it didn't capture the audio, so having a backup device was a valuable safety net. The results from these interviews provided a first glimpse, though only from one side, of the transfer process.

Special considerations for Mr. Ellis. It was previously noted that the role Mr. Ellis played in the transfer process was as a logistics and culture broker between those who started the M-Powered program and those in South Africa. His participation in this study was therefore included in a unique way. He was the one participant asked only for supporting documents and interviewed. He was not given an anonymous survey to fill out since he did not specifically fit into either side of the process. Likewise, he wasn't invited to participate in the US side's focus group. However, because he worked primarily from Minnesota, and helped get things started when NTI was looking for a model to use, the information he provided about the process was included as someone from the US side. This was done primarily for coding purposes so that his recollections of the story on how things unfolded could be included but not directly tied to him.

However, the interview feedback Mr. Ellis provided was not considered during the process of looking for themes on what elements were important to the process.

Data gathering in South Africa. In January and early February of 2013, I was able to travel to South Africa to conduct the interviews and focus group. Getting back there to carry out the research had been a major hurdle, but I was able to do it through my job at HTC. This has traditionally been the time of year when the TDM staff meets all together at one of two of their main sites to plan for the beginning of a new program year, and I had once again been asked to be the facilitator for the lecturer training seminar. Interviews were conducted over the course of ten days in Cape Town and Pretoria. One hour was set aside with each person in locations including offices, homes, and my guest house, and the interviews were again digitally tape recorded. Spending nearly a week at two of the TDM sites also allowed me to talk with other TDM staff such as the SPOCs (single point of contact), students, and industry leaders. I was able to take pictures of the workshops, machines, and classrooms, and also conducted video recorded interviews with two TDM students.

My time in South Africa culminated with the participants meeting as a focus group on February 2, 2013 at the NTI/TDM head office. Ninety minutes were set aside, but we finished after one hour and eleven minutes. Although it was originally intended that audience response technology would be valuable in getting anonymous feedback to guide open ended dialogue (Campt & Freeman, 2009), this was dropped due in part to the smaller number of participants. Because of scheduling conflicts and the fact two individuals lived outside of Pretoria, there were only four who participated in this focus group. In addition to a digital voice recorder that was used in the interviews, the focus

group was video recorded in order to capture the facial expressions and body language between the participants. In establishing the mood of this gathering I was cognizant that a focus group gathering should feel nonjudgmental, nor aim for collective agreement (Kreuger & Casey, 2000). Therefore, light refreshments were provided and I set the tone by reiterating my focus on the transfer process and my intended data collection protocol in both countries. Participants were told that they did not have to all answer each question, but pauses were used by me as the facilitator to make sure there was space if someone wanted to interject.

An unfolding picture. A better understanding of the full picture occurred during the course of collecting data about the transfer process. Jim Wall's name emerged as someone from the US side who had been to South Africa multiple times in addition to his involvement with M-Powered, and I subsequently added his name to my list of participants. I was not originally familiar with him since he was the only person from the US based group not from Minnesota, and he had not played a direct role in starting M-Powered. His primary part on each side was in setting up and coordinating the outside NIMS credentialing for both programs. I interviewed him later than the others after returning from South Africa. Adding Mr. Wall to my list of participants meant changing my point of reference in terms of a Minnesota group into a broader understanding of a "US side" to be compared with a South African side. This was a change to the original case study model I had set up and also altered my research protocol, since the survey was sent to him long after the others and he was interviewed after focus group on the US side was completed. However, this understanding was useful and it points out the flexible nature of conducting a case study and following the trail of the data.

Final steps. Upon returning from my trip to South Africa, the focus group with those from Minnesota was conducted on the 20th of February, 2013 at HTC's Brooklyn Park campus. It involved the same format that had been followed previously. This time six of the seven participants who were invited were able to attend and it lasted for the full ninety minutes that were allotted. The final one on one interviews were also held in February with two individuals I had not been able to connect with. One now lives in Australia and the other in Washington D.C. so neither had been involved in the focus group discussions with their respective sides. They were still able to be digitally recorded, but were the only two interviews that I conducted which had to be done through Skype. This limited my ability as the investigator to read facial features, interject at appropriate times, and pick up on body language. Even after all the interviews and focus groups were concluded, I was still able to contact specific participants with questions or concerning documents they had mentioned. This meant that my data collection continued as I began to analyze what was gathered.

Data Analysis

Qualitative data analysis does not begin at a set time after the collection process, but rather is an ongoing effort to make meaning during collection as well as a summative compilation (Guba & Lincoln, 1998). Thus, a breakdown and examination of the information I collected took place when I started the data gathering process and then continued after I completed the last focus group. According to Denzin (2002), "...the researcher's goal in constructing the phenomenon is to re-create experience in terms of its constituent, analytic elements" (p. 360). In doing so I sought to lay out the unfolding

narrative of what happened, and then look for thematic elements from both sides as to what made the TVET model transfer process successful.

There were several arrangements used to analyze the data which were collected. As noted by Krueger (1998), analysis of interviews and focus groups should be conceived not as individual tasks, but a fluid process by which data is reduced into findings. I read through and made notations in the different documents that were collected. While conducting the interviews and focus groups, I took notes which were reread and added to. Although I started to transcribe the nearly eighteen hours of digital audio files myself, I realized this was time consuming, so a professional transcriptionist was hired to put each of the electronic files into text. Several steps were taken in conducting structural analysis looking for themes (Tesch, 1990). I read through the transcriptions several times using color codes that could be grouped into an Excel spreadsheet. I also ran the transcripts through QSR NVivo software to look for common elements from each side. Any patterns that repeated were set aside and later enhanced as the collection of data continued. Using Stake's (1995) four phases of case study data analysis as an outline (Table 3), allowed me an over-arching design to make sense of the plethora of information obtained in the documents and audio transcriptions.

TABLE 3: OVER-ARCHING PHASED DESIGN OF THIS CASE STUDY

Phase One – Description	Data were reviewed to obtain a general overview or narrative of what took place over. This involved listening multiple times to the audio files and reading transcripts.
Phase Two – Categorical Aggregation	Data were grouped according to examples of critical incidents which showed the experiences of those on either side of the process. Coded colors

	were used to put data into an Excel spreadsheet and queries were run in Nvivo.
Phase Three – Establishing Patterns	Category areas were analyzed for key elements and given a thematic label. A description was written for those elements that were found to be most common.
Phase Four – Naturalistic Generalizations	The findings from all the data gathered were reviewed and then interpreted. The particular case of this TVET model transfer was generalized and applied to the existing literature.

Following these phases, the analysis process went in two distinct directions. First, a narrative story of the how and why of what happened was able to be laid out. Second, thematic labels and a description could be given to the most common viewpoints found on each side. The final outcome of this was that results from the entire data gathering procedure were put into thematic pieces (Rossman & Rallis, 2003). As noted by Stake (1995), case study researchers gain insight both through interpreting individual participant perspectives, and in analyzing the accumulated data made up of multiple viewpoints. In other words, there were valuable insights taken from particular people that were not duplicated or found elsewhere, but there were also themes or a triangulation of experiences from the aggregate collection. Through the data analysis process the perspectives of the fifteen individual and what they contributed stood alone, but common themes were also found from two collective groups (US and South Africa). These could then be compared and contrasted depending on the role that was played, either in helping to transition or looking to borrow the M-Powered model.

Limitations

There were two specific limitations found in carrying out this dissertation research study. First, the sample that was identified to participate was asked to recall experiences that may have happened up to nine years ago. Several noted that they could not specifically recall the pattern of events. This made it difficult to lay out the findings with full certainty until after everyone's recollections were compiled and reviewed for accuracy. Secondly, the structures found within both M-Powered and TDM-Powered have been in a consistent state of flux. This is partly due to funding issues which impact both the ongoing relationships between the two sides, and how they are individually organized. As the researcher, I was aware at several junctures when participants seemed to be worried that I was making evaluations of their particular TVET program. This happened on both sides, but particularly in South Africa, and I found myself reassuring these individuals that my focus was the process of how the model was transferred. It should be acknowledged that any misunderstanding about the focus of this research being an evaluation of TDM may have influenced some individual's responses.

Criteria of Quality and Rigor

Finally, as a qualitative research study there are some unique criteria considerations regarding quality and rigor. Creswell (1998) outlined a spectrum of qualitative based standards from the perspective of positioning them as equivalents to more positivistic forms of research to the view regarding them as incompatible with more traditional forms. In structuring my research methodology, I am following Stake's (1995) "critique checklist" (p. 131) of 20 questions for determining the quality of a case study. I also intend to meet three of the four main aspects of empirical social research

quality including construct validity, external validity, and reliability (Yin, 1994). Some of the procedures I will be using to achieve this level of rigor include using sources from both sides of the process and allowing study participants to review the findings, clearly framing the study within an oft-cited policy transfer model, and clearly laying out my protocol so that another researcher could follow it. A fourth aspect of quality, internal validity, would not be valid for my study since it is related to causal case studies (Yin, 1994). Although generalizability will not be the foremost goal of my study, I nevertheless believe that if it is of high caliber those in the fields of TVET and HRD will find it valuable.

Stake (2005) highlighted the tensions involved in having certainty about ones findings when using a philosophical paradigm that views reality as being something that is constructed. However, it has been noted that it is not the absence of quantitative quality criteria, but more appropriate criteria that set qualitative research apart from more positivistic forms (Bailey, 1996; Toma, 2011). Several standards followed in this research protocol included clearly identifying my experience with the project, stating the preconceptions I brought to the study, and recognizing my role as the primary research tool interpreting the results. Using these various criteria to increase quality and rigor can be seen as “reflexive signposts” to situate the researcher in the study (Koch & Harrington, 1998). Since my biases and pre-existing perspective were potential threats to these aspects of quality, one tool I used to minimize them was triangulation (Denzin, 2002; Bloomberg & Volpe, 2008). This process encompassed using not less than four different methods of data gathering with two different sub-groups totaling fifteen sources. In addition, I used Stake’s (1995) advice to incorporate member checking by asking

participants in both countries to review finding sections for “accuracy and palatability” (p. 115).

Chapter Summary

This chapter has presented the case study methodology that was used to learn about the TVET model transfer. The researcher’s use of the philosophical paradigm of constructionism was shared in addition to his cultural bias and background with the TDM program. The fifteen research participants were identified and data collection methods, including interview and focus group protocol, were explained. Four phases of data analysis (Stake, 1995) were presented to show how the process of interpretation took place. Finally, the study’s limitations, as well as qualitative research criteria that were followed for quality and rigor, were addressed.

Chapter IV: Research Findings

This chapter describes the findings from the data analysis of the researched case study. It presents the story of how the two sides worked together by documenting their interactions and various levels of cross-national engagement in moving M-Powered to become TDM. In addition, it lays out the themes found in participant responses from each side of the process, the United States and South Africa. Before these two result areas are given, a review of the study participants will be presented. This will include what was learned about their backgrounds and general information obtained through the document review and anonymous pre-interview survey. Areas of difference and similarity will be highlighted from their demographic and background data. In addition, the anonymous participant coding process will be explained.

The next section describes a narrative of events that eventually led to TDM being run in twelve sites across South Africa. Key dates, documents, and experiences of those involved in the process are shared in hopes of establishing a picture of all that was involved in this multi-year undertaking. It relies on stories and examples given by those involved in the process on both sides. In addition, information found in documents obtained from M-Powered, the Intsimbi Partnership, the South African NTI, and TDM is shared.

The final two sections present the thematic factors which made the transfer process successful (the primary research question) as cumulative perspectives collected from each side. This will be done by looking at themes that emerged first from the experiences of the US participants and then from those in South Africa. The findings in these sections will be taken from the interviews held with fourteen of the fifteen total

participants. Information obtained from Mr. Ellis will not be included since he acted as a kind of neutral between the country groups and does not fit perfectly in either category of borrower or lender. Themes from the two sides will also be culled from the focus groups when participants were able to discuss their experiences together with those from their respective team. Simply stated, these elements were drawn out from one of two different angles:

- A) In terms of the unique aspects or programmatic elements found in M-Powered that became part of TDM once it was transferred.
- B) Related to what the primary participants of the process recalled as significant about the practice of actually making the transfer happen.

It is not the intention of this case study investigation to come to firm conclusions about the strengths or weaknesses of what took place. Unlike an evaluation of the process, this should be seen as a record of the key elements found in the process from multiple perspectives that can be used to confirm or add to the related literature record. The elements that arose for the different groups will then be compared and contrasted in Chapter Five.

Participant Background Results

There was significant learning that took place about the participant's background in the information gathering stage. Prior to conducting interviews, an anonymous survey was sent out via Survey Monkey to the study participants. Their responses provided both qualitative and quantitative background information. Although it was disappointing that despite repeated emails only 9 total participants completed the survey, the results were

useful in looking at themes and getting a description of their backgrounds. A full account of all the questions and the compiled results is presented in Appendix C.

Key findings from the survey included that some of the South African participants had changed jobs within the program. Before it officially ran they may have had a different role than they currently have. Although most of those on the US side are basically doing the same jobs they had at the start of the partnership, three on the South African side have changed positions within TDM and one is no longer with the program after taking a job in another country. Of those that returned the survey, only two respondents had a background participating in a similar project to the Intsimbi Partnership. There were three terms cited by multiple people to the question of significant factors in making the process happen: “commitment”, “communication”, and “hard-work”. For example, one person wrote: “*Communication was critical, clarification of expectations needed on ongoing basis, cultural and logistical differences needed much discussion.*” Two others used similar terms – “passion” and “enthusiasm” – as being significant factors.

Also, there were general areas of agreement between both groups. For example, when asked on a five point Likert Scale, if they thought the Intsimbi partnership was successful, all respondents chose “Strongly Agree”. In response to the statement, “I appreciated the personal relationships that developed through the process” two participants chose “Agree” and the rest “Strongly Agree” to indicate a high level of personal satisfaction. There was also agreement in considering times when the interactions between the sides didn’t go smoothly. To the statement, “I remember challenging aspects of the process,” 7 chose “Strongly Agree” and 2 chose “Agree”.

Finally, three separate sub-groups emerged on each side (see Table 4 and Table 5 below). The participants were not from just one sector, such as education, but came from several areas. Both the US and South African sides included equal numbers of individuals with backgrounds in education (3) and social service (2). A third sub-group from each side was slightly different. On the US side, a general sector label of “Business” can be applied to two participants, whereas three from the South African side specifically came from the manufacturing industry. Noting these sub-groups was helpful in seeing that the transfer project was informed by multiple areas and not necessarily the same in each country.

TABLE 4: BACKGROUND OF 7 US PARTICIPANTS

US Participants	Education	Business	Social Service
<i>Transferred the program from the US side</i>	3	2	2

TABLE 5: BACKGROUND OF 8 SOUTH AFRICAN PARTICIPANTS

SA Participants	Education	Manufacturing Industry	Social Service
<i>Transferred the program from the South African side</i>	3	3	2

These designation areas will also be used as part of an anonymous code given to each the participants which will be used when their direct quotations are included in the findings below. The country they were located in will come first, either “US” or “SA”. This will be followed by the first initial of the subgroup they came from, such as “B” for business or “SS” for social service. The last piece of their code will be a number given

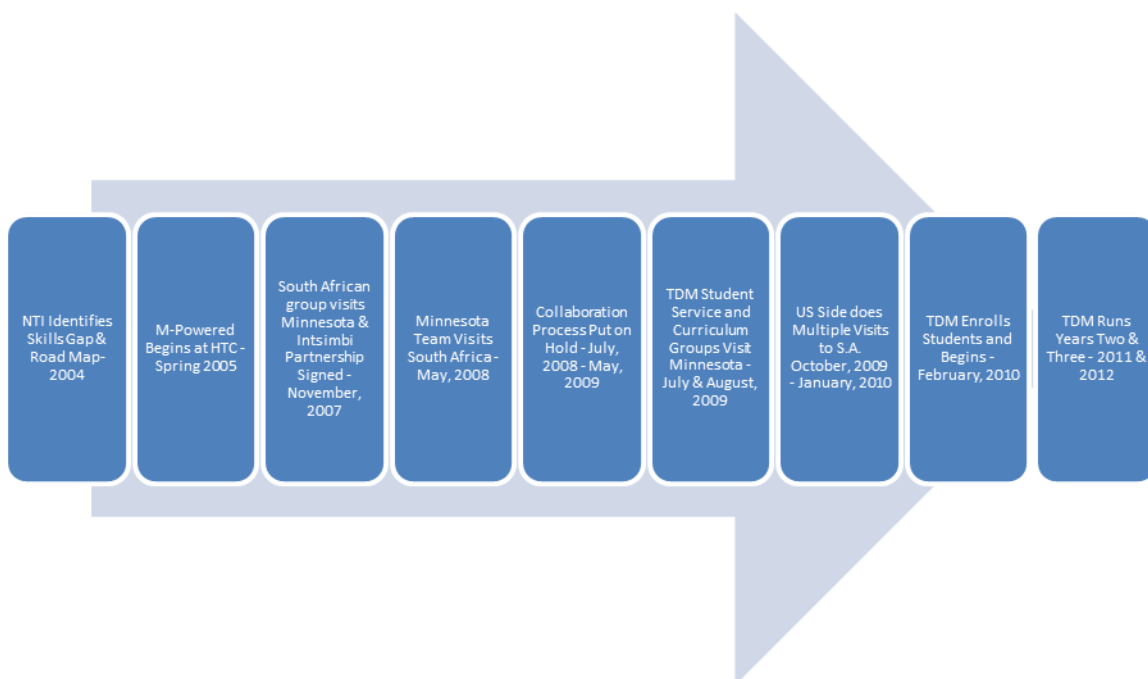
randomly to them (#1 - #3). In this way, if using information obtained from the randomly assigned “second” South African participant who came from the manufacturing industry, the designation “SA/MI #2” will be used.

Narrative of Events

The findings from this case study investigation provide an essential step in establishing a narrative arch of what took place. This can be used to look at the progression of the relationships and nature of the process in terms of linear events. It can also provide a contextual understanding for how or why things happened, and as the foundation from which themes developed related to the experience of those who helped transfer the program between countries.

This particular timeline was established by reviewing key documents and through the one on one interview process. It became clear through the initial interviews that the participants had difficulty remembering the months and even years of when key events, trips between countries, or significant meetings took place. Having been at least four years since some of the events took place, and because their involvement has been drawn over a long period of time, it is understandable that a definitive clarity is difficult to map out. However, through a collection of the participants’ answers and by checking with each side in the focus group settings, the following description was pieced together and can be considered a reliable record of what happened. Figure 2 presents a linear timeline of key periods which can be further understood by the narrative which follows.

Figure 2: Timeline of Key Periods



Backstory on the NTI

In order to understand how the relationship between the NTI and those running the M-Powered program in Minnesota germinated, it is valuable to get the backstory on what previously took place to raise national manufacturing skills in South Africa. In fact there had been two earlier initiatives, which included several individuals who eventually were in the Intsimbi Partnership. In each case, those in the tooling industry had attempted to specifically increase individual skill development and their collective manufacturing capacity. Neither of these partnerships, however, included international inputs. They only involved national players within the country of South Africa. Once in the early nineties, and once in 1996, the tooling industry tried to work through the South African government to invest in specific manufacturing skill-building programs. In both instances, broad studies were conducted on tooling sector skills, they had training

facilities and equipment ready to go, but eventually the government mandated a different direction and the relationship fell apart.

So that left a very sour taste with us in industry and we basically disbanded the idea, and I said to try anything with government is a risky business. And we then went about our business, but somehow through contacts that was upheld, we started in the early 2000's, 2001 we started a think tank called South African Tooling Industry Support Initiative [SATIS]... and that think tank met once every three to four months and we deliberated what went wrong, how to rebuild this relationship and that something had to be done because now, it's now, many years later, industry has sunk into a deep hole by then in terms of the tooling sector.
(SA/MI #3)

The SATIS think tank of members eventually came up with a roadmap that identified not only issues related to a skill competency gap, but also enterprise related problems such as quality, lack of technical capacity and recapitalization. They noted a need to redesign educational pathways that were more aligned with the value systems of the industry as priority number one. Now using the Tooling Association of South Africa (TASA) as their industry's mouthpiece, they agreed on the National Tooling Initiative (NTI) Road Map as a vehicle to mobilize action. TASA was made up as an association of related manufacturers who started in 2005 to look at foundational manufacturing programs internationally.

We then did some research and said part of our approach is going to be not reinventing the wheel, we don't think we are smarter here. We don't have a lot of time so let's look around and do the plug and play game. Find the best component solutions, modular components, wherever we can find them, string them together, modify them and pilot them and sort of then get into implementation so that was our rough methodology that we started following.
(SA/MI #3)

The goal was to find international pieces that would fit into a larger framework helping the industry both in terms of education and management. A starting point was to find an alternative model to the current FET college pathways and South African apprenticeship models which were currently producing entry level employees. A new method was needed to increase manufacturing competencies: “We kept up to par on the skill shortage, and we really got huge problems and this is what we're looking at trying to get the skills up and running again” (SA/MI #1).

Eventually in 2006 TASA collaborated with the South African Department of Trade and Industry (DTI) to form the National Tooling Initiative (NTI). The major driver the NTI identified to reach their objective of rehabilitating the tooling industry was “skill and expertise development” (Instimbi Partnership, 2009). They obtained initial funding through the European Union’s SWEP (a similar organization to USAID in the United States) to transfer an international model, currently not found in South Africa’s FET colleges or private training programs that provided foundational manufacturing education. A variety of programs were investigated from countries including Canada, the United Kingdom, the United States, and Germany. A “push versus pull system” (SA/MI #3) was envisioned whereby competency levels would be certified allowing students to enter the industry at multiple points through their education. NTI’s model for National Skill Development (Appendix D) presents a progression path of skill connected to specific manufacturing jobs that could take students from training at an FET college through a specialized engineering degree at the university level. A TVET model to be used at the foundational level is what they were looking to put in place first and this became the TDM program.

M-Powered Origin & Iterations

M-Powered began in the Spring term of 2005 through a partnership between HIRED and HTC. The focus was on small, metal manufacturing companies in the Minneapolis metro area. As these companies experienced an aging workforce and low skill work being done cheaper overseas, a key impetus for the program became the need for a higher skilled workforce (Kelly, 2007). It was designed to be “demand driven-employer focused, because then you can drive students to end results. You’re not here just to get an education. You’re here to get a job and acquire skills. And we get to see where you’re at” (MN/E #1). This required the backing of industry partners such as the Precision Manufacturing Association (PMA) in addition to funding for the initiative that originally came through a Minnesota Job Skills Partnership (MJSP) grant of \$374,256.

Over the course of 9-10 months, participants receive 96 hours of foundational manufacturing training including basic safety, math, tool and machinery orientation. Through a type of apprenticeship, they also do 480 hours of on-the-job training often at specific companies that support the program. Here students are placed with a mentor and apply the skills learned in an educational format to real world production setting. Finally, they get 72 hours of specialized classroom lab instruction.

All of this training is provided on a subsidized basis following a rigorous screening process and acceptance into the program based in part on students’ Accuplacer math and reading scores. This assessment designed in the US by the College Board is used in MnSCU institutions and throughout the world, but was uniquely benchmarked by HTC with cut scores early on to determine aptitudes needed to successfully obtain the desired manufacturing skills (US/E #3). The expertise of HIRED, in workforce

development support services, is utilized by employing what M-Powered coined to be the “single point of contact” or SPOC (US/SS #2). This is a dedicated person put in place to assist students with support services and the development of life skills that would lead to successful employment. A SPOC also works to place graduates of the program into companies. Upon completion of the program students can either expect a raise, if they were previously employed, or have the opportunity to get an entry level position with a median hourly salary range of \$18.05 per hour (DEED, 2009).

The basic format of the program has remained the same, but since its inception M-Powered has had several iterations. At different times they have focused on providing manufacturing skills to veterans, non-native English speakers, and incarcerated students. Though originally only focused on metal stamping and forming competencies, other skill areas have been rolled out including welding, plastic injection molding, and computer numeric control (CNC) milling. In 2007, NIMS received a grant to provide youth offender training from a US-DOL grant and they contracted with HTC to deliver M-Powered in the Minnesota prison system. Since 2011, an additional DOL grant through the Employment & Training Administration (ETA) for two million dollars has helped offset the program. There is also tuition reimbursement available to M-Powered students who are incumbents already working at a manufacturing company, and since it became a credit based program at HTC in 2010, students can receive financial aid as well. According to the most up to date figures obtained (Appendix E), 19% of M-Powered students have been women, and a total of 389 have passed through the program since its inception. Success stories about the program include one which outlines how M-Powered is filling the skills gap for Minnesota employers (Berggren, 2012), and another

detailing the experience of a student who took the program while incarcerated, but is now successfully employed in the industry (French, 2013).

Another distinctive of the program which is held up as a model by such organizations as the National Association of Manufacturers (NAM) is that it is industry led (US/SS #1). M-Powered is co-steered by someone representing HTC and someone from one of the member companies that make up of its advisory board. This group is tasked with identifying which manufacturing skills competencies are needed and then how they should be focused on and developed. This consortium of companies and stakeholders have been noted by the Hitachi Foundation (2010) as an example of a collaborative group obtaining grants that would typically only go to one business.

However, working together with their competition often puts these organizations in a “coopetition” situation (US/E #1). This means that as students’ graduate, they have the opportunity to go to the company of their choice making it the job of employers to sell themselves to students and not the other way around. However, all partnering businesses must agree not to poach incumbent employees from one another. Coming out of the program a student not only has a college certificate, but also accreditation through NIMS. One of the vocal industry supporters of M-Powered has been Erik Ajax, who runs a smaller sized, family-owned stamping manufacturer in Fridley, Minnesota. On the US Department of Labor website, he wrote an article about the program’s ability to produce skilled workers who can maintain the quality and productivity that make our company competitive through these partnerships between business, non-profits, government, and higher education (Ajax, 2012).

Forming the Intsimbi Partnership

A connection was first established between the South African and Minnesota sides in 2007. However, it was not the M-Powered program at HTC that originally drew them together. In wanting to start at the most basic level with students coming with little or no preexisting skills, remedial component frameworks used at another MnSCU school had been identified through the DTI's office at South Africa's Chicago Consulate through a pre-existing affiliation with Willem Ellis, an expatriate living in Minnesota and a member of the South African Business Council. As someone who knew of the needs in South Africa, Mr. Ellis had previous experience looking for world class capability that could be exported. In this specific case he saw his role to be selling those from the NTI on the potential of tapping into manufacturing educational programs in Minnesota that were innovative and had a proven track record.

He put together a presentation and invited a collection from South Africa to visit Minnesota to see if a model could be found that was suitable to their needs. One of the manufacturing industry stakeholders recalled, "we [were] all from industry so we were engineers and designers, toolmakers, businessmen and that sort, so we've never actually worked with educational institutions" (SA/MI #3). Mr. Ellis had experience facilitating business partnerships between the two countries, and thus became the main contact person between NTI and MnSCU. In late November of 2007, a group of six from the NTI came over to Minnesota to learn more about the MnSCU programs. This team included Chris Byers, from the Department of Trade and Industry (DTI), Dirk Van Dyk, who was spearheading TASA's efforts, Carlos Barbosa, an NTI staff member, and Roger Skidow, a manufacturing skills instructor who would later be part of the TDM program.

It was on this trip that the Intsimbi Partnership document, found in Appendix F, was signed between the two sides. One of the important drivers of this relationship was a “competency model” that included raising the bar in broad workplace skills, but also specific technical areas within the industry (US/B #1). It was their goal that “the Partnership provides the experience, programs, standards and guidelines, technology systems, skills and other resources in a local context, to equip learners with the academic, technical and social skills required to integrate African businesses as leaders in the global manufacturing industry” (Intsimbi Partnership, 2009). In addition to NTI’s involvement on the South Africa side, founding partners in the US included MnSCU, the Minnesota Department of Employment and Economic Development (DEED), and the South African Business Council. Mr. Ellis was appointed as the project manager for Intsimbi in the US, and he coordinated communication between the two sides going forward, while in South Africa, Mr. Van Dyk took the role of coordinator for NTI on a more permanent basis.

With the Intsimbi Partnership in place and their initial fact-finding began, it was a program at Dakota County Technical College (DCTC), another MnSCU school, that the NTI was interested in. The group got connected with Larry Radich, the academic dean who started and oversaw the project. Much like M-Powered, the DCTC program “took a life cycle approach to education, where you develop the person as you give technical skills, and then let them apply not just the hard skills on the job” (US/B #1). This component of preparing someone for a manufacturing career in a holistic way through education and training, but also with social service support had not been found in South Africa. NTI’s position was that they didn’t want to have to reinvent the wheel, but find something that could be similarly duplicated in their context.

It had already been earmarked through the Intsimbi Partnership that the NTI would be working primarily with DCTC. However, as part of learning about other MnSCU programs, Mr. Radich invited Rich Kelly and Steve Mandes from NIMS to explain to the South African contingency about how they had launched the M-Powered program at HTC and how it worked. They also met Nancy James from HIRED who coordinated the life skills portion of the M-Powered program, and right away there were elements that seemed attractive about the model.

They got real excited about M-Powered, and I think they were interested in M-Powered right from the start in terms of how you build the relationship and how they were looking for a model – and they just loved this model. It fit with everything Dirk [Mr. Van Dyk] was thinking about how to build this thing – it really did. Everything he understood about where to start. And it just clicked with him - you could just see it that day, it just clicked with him. (US/E #2)

The timing was such that the group from South Africa and Mr. Ellis were then able to take a tour at the Brooklyn Park campus.

Picture 1: Group members from S. Africa visits HTC for the first time



It worked out that they were also able to see an M-Powered graduation night including the reverse job fair where business leaders make the pitch to graduates to come and work for them. As one person from the social service sector recalled in meeting everyone that day it was startling to learn that people from South Africa of all places could be so interested in the program.

And, they were just like quizzing me and there was quite a lengthy conversation...I frankly don't remember all the details of what that was all about, but I remember walking away from that thinking "what just happened?". And, the feedback I got from them was that they used the word it "inspired" them.
(US/SS #2)

Interest in the M-Powered Model

Through further discussions with DCTC it turned out that their program's focus was really more geared to up-skilling in the railroad/transportation area, instead of tool making or stamping. Therefore, it was not as concentrated on the general or foundational manufacturing skills that the NTI Road Map had identified. However, M-Powered was focused on that area of competence development and many of the components that the visitors from South Africa had seen on their visit to HTC were understood to be what they were looking for.

When you know some way and you see the structure that's in that place it already speaks for itself, and then after engaging with people then you can add on that. So that's really much what happened when I went to Hennepin Technical College. I mean everything was neat. I mean they had high tech machinery you know, and then when we started talking to the various people in the departments we could see that they had the right lecturers with the right skills behind them... we could see that it was a well drilled organization. (SA/MI #1)

The individuals who they had met and structures they had seen gave a positive impression and the South African team wanted to learn more.

There were other examples of the linkages the delegates from South African saw in terms of what they hoped to deliver to increase manufacturing skill competence. Specifically these aspects included the backing of local industry, seeing manufacturing as a long term career path, how M-Powered was a foundational program that served multiple language (non-native English) speakers, and ways in which the program provided full student support wrap around services in terms of life skills.

We found a match - some of the things you were doing and we said, but hey, this is exactly some of the same arguments we've had. Some of the same things we identified that you guys are actually doing. You're already doing something, so are there components that we can borrow, modify and pilot on this side - and that's how we started. (SA/MI #3)

On the visit to Minnesota, it was noted that they had met M-Powered graduates and learned about the program's general demographics with students coming from a range of ethnicities and even with backgrounds of incarceration, which really stood out as a unique factor that held potential connections to the environment in South Africa (SA/E #2).

It was not an easy decision however to switch over the partnership from DCTC to HTC and M-Powered. When the South African group returned home, they kept in touch through Mr. Ellis and relied on him to help migrate their involvement more toward HTC. On the US side, several levels were involved, both higher up in MnSCU and in the two colleges which meant that there were inevitable political issues involved (US/B #1). A key breakthrough was recalled when in a meeting with a contingency of MnSCU stakeholders, Mr. Radich, the dean from DCTC said, "I want Hennepin to do this. I don't

want Dakota to run this'. And, wow, you could have heard a pin drop" (US/E #2). This then cleared the way for the Intsimbi contracting mechanism to go directly through Mr. Ellis to Hennepin Technical with no one else in the loop.

At the start of 2008 no official statement of work had yet been authorized for the two groups to actually start working together. There was not yet a firm pathway in place showing how M-Powered would be used as the model in South Africa. However, because of the attraction it had generated when those from the NTI had come to Minnesota, a trip was arranged for the key people who helped run M-Powered to go over to South Africa. It was emphasized by one person on the South African side that those in upper management at HTC had doubts about what might materialize from this (SA/MI #3). In this way, it was not those at senior levels who got behind and backed the partnership, but the individuals who had direct contact with what was working related to manufacturing skill development.

Minnesota Group Visits South Africa

In May of 2008 six people from Minnesota traveled to South Africa. Along with Mr. Ellis and Mr. Kelly, four additional individuals were identified because they had helped get M-Powered running and could speak to the distinctive elements of the program (US/E #2). Mr. Fredkove had helped put M-Powered together at HTC and did marketing for it, Ms. James was the Senior Program Director from HIRED who was on board from the start, Ms. Swanson served as the primary SPOC, student support person, for the program, and Ms. Montognese, who was then employed at HTC had put the assessment process in place using Accuplacer. At least one person was "shocked to

learn the trip was approved and I needed a passport” (US/E #3), and none of those traveling, other than Mr. Ellis, had ever been on the African continent.

The rationale behind their two week visit had several pieces. First, it would give them the opportunity to explain the M-Powered program model to government, industry, and education leaders in multiple areas. The Gauteng province, including both the cities of Johannesburg and Pretoria, was home to the largest number of TASA manufacturing company members and they began there. A pattern was established whereby Mr. Van Dyk would get up in front of an assembled group of potential stakeholders introducing first some background on the forming of TASA, the NTI, and Intsimbi, and then he would set the stage for those from Minnesota to explain M-Powered. Mr. Ellis typically gave a brief introduction of each person and explained his role. Then in turn each of them would talk through PowerPoint slides that corresponded with their role and the piece(s) they coordinated that were important to the model. The Minnesota contingency was introduced and made connections through an exhausting schedule of tours, dinners, and presentations (US/E #1). They traveled with their South African hosts from Gauteng, along the Garden Route with stops in Durban, Pietermaritzburg and Cape Town, then finally up to the more remote provinces of the Northern Cape and Limpopo meeting the local players in government, industry, and education.

A second part of the rationale for this trip was that it would help those from the Minnesota group see the education and manufacturing environment for themselves within the larger context of South Africa. One of the participants repeated a quote from Mr. Van Dyk that “you guys have come over here and smell this place” (US/E #2), meaning they had to see it and experience it for themselves. It was immediately apparent that the

educational environments between the two countries were different just in terms of resources and machinery that students had access to. However, in terms of what they found in the businesses and with skill shortages things were largely similar: “The guys like Rich [Kelly] and so on that were in there understood exactly that your manufacturing environment has the same problems that we have, that the Germans are struggling with and that everyone in the world is actually struggling with” (SA/MI #3). In addition to getting tours of FET colleges and manufacturing sites, trips to tourist destinations including a game preserve were also included in their itinerary. An afternoon in a “shanty-town of like 330,000 people living in shacks” (US/E #2) was recalled as an eye opening experience to see as well.

The visit by those from Minnesota was described by those on both sides as an important step in the transfer process. For example, the personal characteristics of those who went were noted as important because they listened and wanted to learn (US/B #1). From the South African side it was emphasized that they didn’t try and sell M-Powered:

We found very open communication [with those from the US]. People willing to listen, people coming forward with ideas and people immediately recognizing that some of the needs we’ve got are some of the things that they’ve already got some experience with. And they’re prepared to share it, come and have a look at what we are doing, see if it might suit our purpose with slight modifications. (SA/MI #3)

Thus, as the consortiums from both sides had the opportunity to feel each other out on this trip, personal relationships were strengthened and understanding grew in both directions regarding what the M-Powered model involved, and about the environment that it might be transplanted into. In addition to Mr. Van Dyk, other individuals who had visited Minnesota including Mr. Barbosa and Mr. Skidow had the opportunity to host and

explain more about their experiences. This allowed those from Minnesota to be introduced to some of the unique cultural impacts:

I felt like the very first trip over was significant in the sense that I really needed to get a handle of what it was that we were dealing with. I had never been to Africa before. I had actually done a lot of international travel, and done a lot of training and work with other cultures in different places but I had never been to that particular location. I think every culture is different...it struck that it felt extremely comfortable being there versus going to other cultures. It was an intuitive thing, but I felt like this is not going to be something, we're going to have struggle through. This is something I can really soak in and absorb. (US/SS #2)

Far from making the hindrances to transferring M-Powered stand out, the trip impressed a sense of stronger connection. Both sides parted with an understanding that some key provincial government leaders would be willing to fund a pilot program.

It was also on this trip that additional key players were introduced to the M-Powered model who would ultimately be involved in implementing it. Mr. Winn was in attendance at the Wingfield FET College (Cape Town) presentation where he was serving as the Head of Department (HOD) in manufacturing and trades. What he heard impressed him so much that he eventually became a key member of the NTI and TDM staff. They also made contact with Ms. Seymore who had been a long time contact of Mr. Ellis. He had originally thought she could play the role of project coordinator from the US side, but after introducing her to Mr. Van Dyk, he had hired her part time which afforded the opportunity for her meet up with the visitors from Minnesota. Not originally from a manufacturing background, this was when she first got to see how student support services were used in the model.

Start then Stop

What came as a result of the visit to South Africa by those from Minnesota was a promise of provincial government financing along with federal level support through the DTI. The actual transfer process could start and was outlined in a detailed work plan agreed on by the two sides. This document spelled out three specific areas that those setting up TDM wanted help with.

By then we had gone back and forth enough to understand what was needed and what we realized they wanted to do with Dirk [Van Dyk]. They wanted to do marketing and promotion of the program to go out and find students. Then wanted to do assessment based on the M-Powered model, and they wanted to do the curriculum pieces for the first year of remedial or sort of the foundation core of the curriculum. (US/E #1)

Mr. Ellis would be facilitating a process where the five M-Powered staff who had been on the trip would work with those on the South African side responsible for the three pieces. These individuals (Mr. Kelly, Ms. James, Ms. Montognese, Mr. Fredkove, and Ms. Swanson), along with Tony VanDanacker (an M-Powered instructor), Steve Mandes, then Executive Director at NIMS, and eventually Jim Wall would be the principle participants of the transfer process from the US side.

On the South African side, as of mid-July of 2008 Ms. Seymore was continuing to make connections with potential partner organizations and moving to hire people she knew who had experience with areas such as marketing and career guidance. This was when Ms. De Wit, who would eventually play a role in such things as student assessment first learned about the partnership. The overview and a broad picture of M-Powered had been given, but it lacked any specific details that would help to start something from the ground up (SA/SS #2). However, at this time Mr. Van Dyk and Ms. Seymore were

moving ahead to put structures in place, and the name Tool, Die, and Moldmaking (TDM-Powered) was chosen for their program. In spite of progress steps, the promised funding from the South African government had not come through and so things came to an abrupt halt by the end of July when plans to do any type of model borrowing had to be put on the back burner. Although they would now not be starting in 2008, it was hoped by those on the South African side that within the next year they could officially be financed to get their program started (SA/SS #2). In the meantime, all the collaboration efforts between the two sides were effectively placed on hold for the ten months between July, 2008 and May, 2009.

The Porting Process Starts

Things took off again suddenly in May of 2009 when the long awaited South African government funds came through. Mr. Van Dyk notified Ms. Seymore that TDM was back on and that she could start hiring people full time to go over to Minnesota in July. It was from that point through the end of the year when the key transfer ingredients were put into place. And there was a specific word that was used to describe the experience of taking the M-Powered model to South Africa:

Dirk [Mr. Van Dyk] used the word “port”, as in “we ported it over”. And I kind of love that term, because there’s a technology piece to the idea of porting a database from here to there or that idea that’s a framework or a set of software and rules and stuff over on this side and then you have to port it over to use it, make it work over on that side. And there’s always stuff you have to do to sort of look at everything on this side and everything on that side to see where this is similar to that. (US/E #2)

Through frequent communication and trips back and forth between the key players, the porting process took about seven months since TDM's first offering was planned to start at the beginning of 2010 with seven sites across the country.

Student services & curriculum columns. To oversee all the logistics involved, one structural point they decided in South Africa was to have two distinct columns of responsibility, Student Services and Curriculum. Ms. Seymore would head the Student Services side of the house which was made up of marketing, assessment, life skills support, and SPOC hiring. She was able to visit Minnesota for three days by herself in July 2009 to see how M-Powered ran, and the two sides planned a longer visit from those who would be hired to work on the student services side. Mostly through personal connections established in previous project management roles, five individuals were "hand-picked" (SA/SS #1) to coordinate those logistics with her and they all traveled to Minnesota for a week from August 5 -11. They brought experience in multimedia production, student assessment and counseling, and general project management (SA/SS #2). As none of Ms. Seymore's team came from a manufacturing background, their understanding about M-Powered included a steep learning curve, and of this group, only Ms. De Wit stayed on with TDM full time once it officially began.

During their summer visit to Minnesota, and the subsequent visit by those in the Curriculum column, a general agenda was followed. Using HTC's Brooklyn Park campus as their base, there would be full group meetings or outings in the mornings. Everyone involved on both sides would talk through a particular component of M-Powered, go on a tour at a participating business, or visit a class. Then after lunch they would break out into their specific pieces to discuss logistical issues in the afternoon. In

this way Ms. Swanson and Ms. James talked with Ms. Seymore and two other South African colleagues about student support and the single point of contact (SPOC) system, and Ms. Montognese interacted with Ms. De Wit and her other South African counterpart on the assessment logistics. It was commented on that a paradigm change took place during their visit related to how student services were run:

America had quickly sorted out cultural differences to help a wide variety of students and has ways to help learners get those career/life skills. It was a mind shift that we had to go through and it was a pleasure doing it with a small group. (SA/SS #1)

In addition to those previously involved in the porting process from the Minnesota side, a key contact was made through Mr. Kelly, and Lynne Osterman, formerly a State representative, was brought in to work with the TDM group on marketing and awareness. She became “very instrumental” in assisting them with those pieces, and it was on this trip that TDM’s logo was developed (US/SS #1). For that first pilot year, it would include the slogan “Make It Happen”, and this would subsequently become a motto of their experience (SA/MI #1).

Picture 2: The TDM-Powered logo developed the summer of 2009 in MN



Back in Pretoria where TASA, the NTI, and TDM were now headquartered together, Mr. Van Dyk hired Ebbe Dommissie to head the Curriculum column. This side would include everything related to the actual training program including relationships

with industry, how students would do the OJT, NIMS testing, and lecturer coordination. Looking at the big picture (Table 6), TDM's skill development strategy was designed to taken place over the course of seven years.

TABLE 6: TDM PROGRAM YEARLY LEVELS

Year	TDM Level
2010	Foundation Programme (Pre-Apprenticeship Programme)
2011	Apprenticeship Programme – Level 1
2012	Apprenticeship Programme – Level 2
2013	Apprenticeship Programme – Specialisation
2014	Master Artisan Programme
2015	Engineering Qualification

Students would be certified to enter industry after any given year, and eventually could be admitted at multiple levels. Although M-Powered's basic intake, assessment, and student services structures would be used in all TDM levels, it was only the first three years (2010-2012) of curriculum that came from the US program.

Later in the month, over a shorter period of time (August 23-28), a group of five TDM staff including those from education and industry visited. Several, including Mr. Winn, Mr. Barbosa, and Mr. Skidow had made previous contact with the program, so of the group only Mr. Dommissie was completely new to the M-Powered model at this point. In addition to time spent on visiting companies, HTC's manufacturing labs, and the logistics of the M-Powered porting process, both groups from South Africa also had dinners and took outings with their Minnesota hosts. In the Twin Cities area these excursions included visits to the State Fair and Mall of America, but since they were in

country for a longer period, those from TDM's Student Services column were also taken up for a weekend at a cabin near Alexandria, Minnesota as part of a joint US/South Africa teambuilding experience.

Once they returned to South Africa, weekly meetings were held online between the two sides, and those in Minnesota were heavily involved even from a distance. On many of the logistical components needed to get TDM off the ground M-Powered staff provided assistance. For example a participant from Minnesota was involved in the SPOC hiring process:

Until October when I went over there, we did a lot of long distance working with resumes, trying to do advertising, trying to get the word out, trying to do screening of all the resumes. They did online interviews and they would send them back to me. We would do assessment of all the candidates... they did some really interesting things. I appreciated the fact that they were able to video tape and that was one of the things that they really pushed for because they wanted input. (US/SS #2)

Those in South Africa were relying on the experience of those who had already set up a similar program. The time differences hindered their communication since those in South Africa would be Skyping late into the night (SA/MI #1), but they had a firm deadline to start running TDM in February of 2010.

An intense visit. In early November of 2009 the group from Minnesota, along with an M-Powered instructor (Mr. VanDanacker) and a coordinator from NIMS (Jim Wall), were brought over to South Africa for a week to continue "unpacking the curriculum" (US/E #2). This was recalled by those on both sides as a very intense visit because of looming deadlines, cultural differences, and the need to get detailed specifics about M-Powered out on paper. It was also when distinct changes were made to reflect

how TDM would run differently compared to the model in Minnesota. One change is that the timeframe of hours in M-Powered (1/3 theory, 1/3 OJT, 1/3 workshop) would be extended and the workshop hours would come before the OJT experience in South Africa.

So we just extended the hours and there was quite a debate about that between the South African team and the American team...So there we dissected the curriculum in a lot more detail and really profiled the program as it should be for that year. (SA/MI #2)

Those working as part of the Student Services column also collaborated during this same period to begin talking through the “nuts and bolts logistics” (US/SS #1) of the assessment protocol including use of the Accuplacer, written application, and motivational profile. The joint group purposefully decided not to take only the top students based on their Accuplacer scores, but to stratify the incoming class into three groups placing a greater emphasis on non-academic factors (SA/SS #1). In this way there would be students enrolled who had higher overall aptitude, but there would also be students included in the pilot whose biggest qualification was a measurement of their desire to be in a manufacturing career. Part of the reasoning behind this decision was for purposes of having a comparison group. According to the executive summary report on the TDM pilot: “This was done to determine whether ‘weaker’ students will be able to pass the Foundation level, given that they were provided with additional interventions to uplift their skills.” (TDM Powered Programme, 2011).

Up until this visit most of what had been shared about the M-Powered was more conceptual and now it had to be very specific. Those who coordinated the program in Minnesota had the knowledge in their heads, but it hadn’t been formalized or

documented. Training protocol and reference guides would have to be developed, but when they first arrived in November those from Minnesota hadn't done this.

That was I think the biggest problem we had in the beginning when the Americans came back here with Judy [Ms. Swanson] and Nancy [Ms. Janish]. They had slide presentations and I said this is just not good enough, I need written documents. And that was a big thing on their side, it created really a lot of stories between all of us. (SA/SS #2)

One US participant recalled a revelation from this trip that so much more detail would be required for them to provide, because at each TDM site an individual SPOC would need to be "self-sufficient in their community" (US/SS #2) without the types of additional supports that existed centrally in M-Powered.

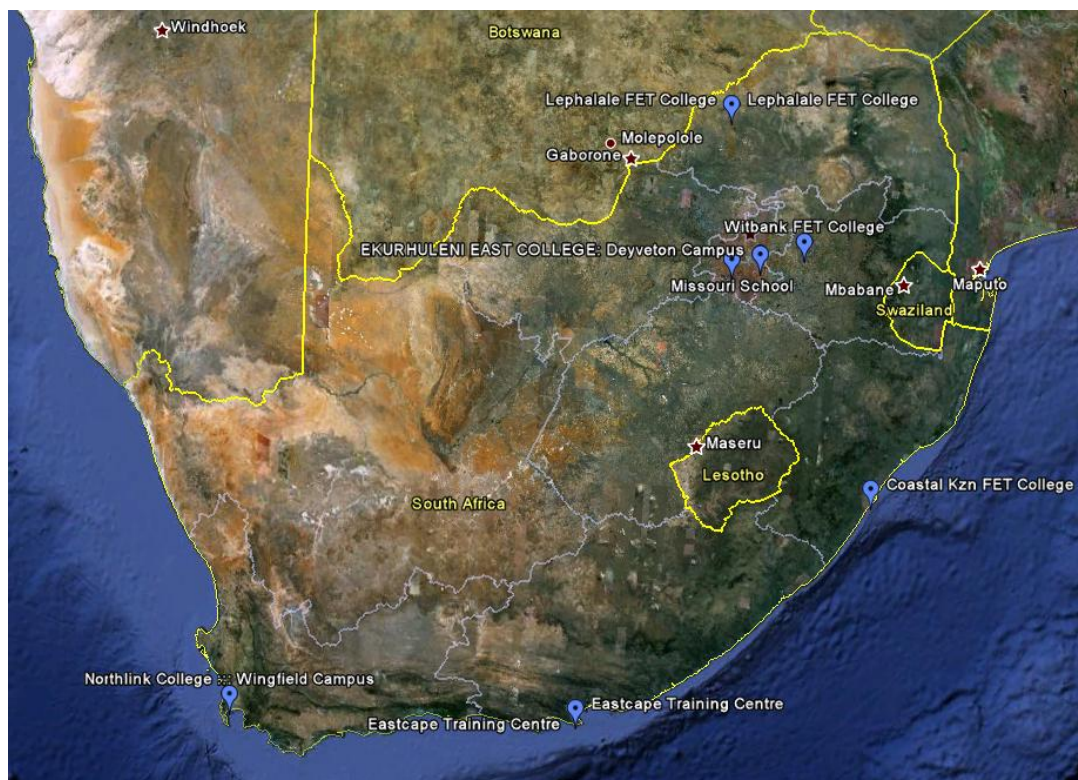
This visit and the intense process of getting details hammered together also brought out one of the few cultural clashes mentioned between the groups. Through most of the interactions that were recalled, similarities such as the manufacturing environment and need for skill competencies had been highlighted as bringing the groups together. However, in this instance a difference was noted from the South African side:

Minnesota nice irritated the hell out of us...a very big problem. It was the fact that we were a very straightforward lot and you guys were always so nice until we started to know one another better. That was that -- everything was fine. With us, nothing is ever fine. It's just working well, or it's not working, or it's working very well. So, that was challenging...but that's how we work. (SA/SS #2)

By the end of this intense visit, the two sides had worked through this cultural difference and the other logistical issues by putting together the foundational level (first year) curriculum outline, establishing the student intake/assessment protocol, and hiring seven SPOCs all with a background in either social welfare or counseling.

Final preparations. When the US team returned home, those in TDM's Curriculum Column were busy procuring tools and machinery, establishing companies to host the OJT portion, and hiring lecturers. Originally, when it was thought that TDM would run at just one site, an M-Powered instructor was going to come over to teach in South Africa. However, as the scaling of the pilot had been expanded to seven locations across the country lecturers had to be hired for sites in Pretoria, Johannesburg, Peitermaritzburg, Port Elizabeth, Cape Town, Lephalale, and Mpumalanga (see Picture 3 below). They came mostly from industry as the thinking here was to go outside of those currently employed in the FET education system, to hire artisans who were passionate about their trade (SA/MI #1). In this way, just two of the seven lecturers were from an education background, though three others had experience doing some form of training within the manufacturing industry. Marketing to potential students was done in part by helping to change the perception of manufacturing as a low-level career. One such venture was designed by putting a DVD together titled *Product Development Lifecycle in Manufacturing*. This chronicles all the ways that people are employed in manufacturing and how it is vital to so much of what we take for granted. The professional production quality of this DVD meant that it could be sent far and wide to potential students. Then from early December until mid-January, 2010 not much interaction took place between the two sides as mid-summer coincides with the holiday season in South Africa.

Picture 3: Map of 7 original TDM pilot sites.



It was at that time that seven people from the Minnesota side traveled to Pretoria in order to conduct training for the newly hired SPOCS and lecturers. As the primary developer of the forty-hour technical teaching program, this was the first experience I personally had with the M-Powered to TDM project. Along with one other trainer, we gave 50 hour workshop on such topics as adult education theory, technical training practices, and classroom management logistics over the course of six days. This training program concluded with each of the seven lecturers presenting a mini-lesson. We also facilitated team-building activities for the SPOCs and lecturers who would now be working together at each site.

TDM Officially Begins

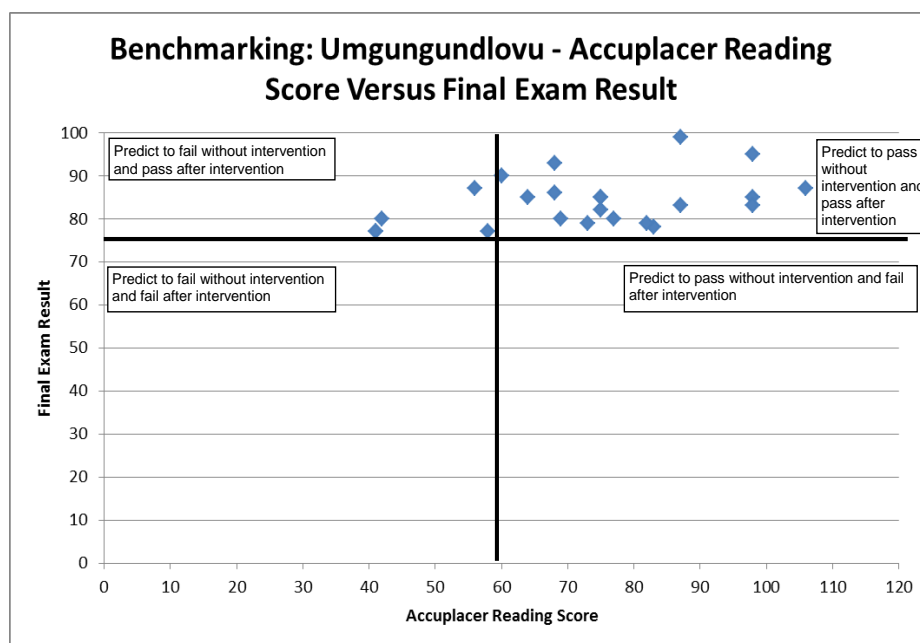
The first year the TDM-Powered program officially ran in 2010, there were 154 students accepted into the program. From February through November, these students matriculated through the foundation level with phases consisting of 300 hours of theory or classroom based learning, then 480 hours of practical, hands on skill building in a lab or “workshop”, and finally 480 hours of OJT career exposure at 42 partnering companies. Though 26 students left the program for various reasons over the course of that year, 96% passed the online NIMS test after three chances and 76% passed the competency based portion the first time (TDM Powered Programme, 2011). Those that failed their work piece below 100% accuracy could try again during the second year of TDM, and in total there was only 1 student who completed, but ultimately failed in phase one and was then not accepted to continue in 2011.

A few trips to South Africa by those from the US also took place during TDM’s first year, although this was the beginning of less involvement from the US side. Mr. Kelly returned with Joe Mulford, the Dean of Customized Training at HTC, in May to meet with industry leaders and visit two of the TDM sites. Ms. Montognese went in December to help prepare TDM for placement of the second year of students since some would now be entering at the foundation level and others would be placed into “Year One”. She was also familiarizing them with changes to the Accuplacer exam, and encouraging TDM’s use of the online version since up until this point hundreds of assessments had to be shipped back and forth to the US for scoring.

All of TDM’s results were specifically benchmarked against those obtained in Minnesota with M-Powered. A Balanced Scorecard (Appendix G) was used and regular

check-ups took place between the sides. Since they had directly copied or slightly revised the Accuplacer cut scores used for admittance to the program, they could now report on how students had performed. For example as seen in Figure 3 below for the case of reading scores for the 21 students at the Umgungundlovu site, the cut score had been 59, but some students were still accepted who scored below this mark. Then by using the final exam score of phase one where students needed to pass with 75% or higher, they could show how their predictive measure matched with the final result.

Figure 3: TDM Student Accuplacer Reading vs. Final Exam Result



This was done in part for funding purposes to document how the TDM pilot had supports in place to “uplift” (TDM Powered Programme, 2010, p 42) non-traditional types of students. The ultimate goal for TDM to become financially self-sustaining was to become the main provider of manufacturing skill training, thus tapping into the fund that manufacturing companies had to pay to South Africa’s DTI (US/B #1).

TDM Year Two

Several substantial changes took place both in terms of capacity and leadership after TDM's first year. Starting in 2011, TDM expanded to twelve sites hiring additional SPOCS and lecturers to staff these locations and build structures for the next level of the program. A key change that took place happened when Mr. Dommissie took a different position at the NTI and a new head of the Curriculum Column had to be put in place. Thus, a key relationship linking the two sides was lost (US/E #2). A week of teambuilding and training for all TDM staff kicked off the year in January 2011. However, unlike in the first year, only two trainers, including myself, came over from Minnesota to deliver the instructor training portion. Skype meetings took place about once every two months, but only between individuals from the US with those from the Student Services column (SA/SS #2).

With a new group of incoming students at TDM's Foundational Level and a continuance of students matriculating into the second level (Apprentice Level 1) this was a year of growing pains for the program, especially financially. It was said to be partly due to the "high touch and thus high overhead" (US/B #1) involved in having SPOCs so involved in helping TDM students with support services. In another example, one person from the Curriculum Column noted the cost simply due to having to mail the metal student work pieces to be tested to the NIMS competency standards: "In 2011, I think we lost 1.2 million Rand [\$120,204] because of work pieces that failed and with limited funds we had it was big loss" (SA/E #1). This came as the result of an "extra step where they [TDM] hired a metrology company to sort of have a central inspection location for all parts to get checked" (US/B #2).

Apart from specific examples of costs found within TDM's model, their overall funding mechanism was inconsistent. They would be paid in batches from the government, but while waiting for these to come through sometimes it was industry partners that would have to front the program money (SA/MI #3). It was even noted that some in the TDM management had to take out loans and it almost "seemed like they were running a charity" (US/B #1). These funding inconsistencies also led both to TDM staff not being paid on time, and students dropping out of the program. In year number two of TDM, nearly half the students (19 of 39) who left their Apprenticeship – Level 1 did so to switch over to another manufacturing skill program, many of which were better funded (Van Vuuren, 2012).

Another outcome of the funding issue was less involvement from those running M-Powered. In hopes of securing some type of financing to stay involved from their side, Mr. Ellis headed a group of five from Minnesota, including myself, to go to Washington D.C. in October, 2011. This team presented at a gathering convened by the American Association of Community Colleges (AACC) who had received a USAID grant and were in need of educational models that could work in South Africa. Although they felt the M-Powered/TDM model was well received, and were told it looked great, no eventual partnership was established (US/E #2). But in spite of continued financial uncertainty and with increased student numbers, TDM continued to grow the next year.

TDM Year Three and Beyond

Starting in February 2012 another level was added to the TDM model so that there were now three different years that students could enter. Unlike the previous two years, no one from the US side came over to do any training to kick off the new level.

However, Ms. Montognese had been hired full time by the non-profit organization, College Board, that developed Accuplacer. Thus, TDM was still getting consulting from her and Mr. Wall from NIMS, but on a less regular basis than at the start. The only visit to South Africa from the US side came when Mr. Wall coordinated a train the trainer course for industry partners who were mentoring TDM students.

In May 2012, Mr. Van Dyk, and Ms. Seymore, along with Henk Snyman, CEO of the Gauteng Tooling Initiative (GTI) led a group of seven South African government leaders to Minnesota to look into replicating the M-Powered/TDM model for other industries such as jewelry making. This trip also provided face time for the original members of the “porting process,” and was viewed by those on both sides as providing valuable support to their ongoing relationships.

It's good to have a sound board that's got that much experience and can say rather do it like this, do this, look at that, it was a very positive experience for me to be able to go back and say Judy, this is working or this is what we're doing because I think the one thing the Americans learn from us again was the marketing part.

You know, the marketing and the career guidance, we're doing much bigger than your guys are doing. (SA/SS #2)

As can be seen from this comment, their cross-national relationship continues to develop beyond borrowing something from one location to another. Each side is now able to learn something from the other.

Summary of Narrative

This section has reviewed a time period of eight years, from 2004 through 2012 giving a contextual understanding on several fronts. The history was shared on what led those in TASA and the NTI to look abroad for a competency based skill development, how the M-Powered model developed, and what was attractive about it. This connection

resulted in the Intsimbi Partnership between the sides and through the course of just over two years M-Powered was “ported over” to become TDM-Powered in South Africa. The subsequent interactions between the two sides as it ran for three consecutive years was also covered.

The unfolding story on the implementation of TDM and the ongoing relationship between the US and South African sides ends at a critical juncture. The results from this investigation concluded in February 2013 at the start of the final year of introducing a new TDM level. Essentially, their student intake is “doubling up again” (SA/E#1) as they add the last layer of TDM curriculum and can now place students into one of four different competency levels. Logistically this means more lecturers have been hired and additional companies will have to be brought on board to allow for all the students to have an OJT experience. As one participant from South Africa noted, “We don’t learn. It’s a marathon. You run the first one and you say never again, but then you sign up thinking, I’m going to do better” (SA/MI #1). In addition, on the US side M-Powered is in the final year of funding at HTC and has applied for an extension. Communication and consultation has not ended between the two sides, but how this will continue from either end is uncertain.

Key Elements from the US Side

Having looked at the narrative of events involved in the process of transferring M-Powered to become TDM, it is now possible to review key elements that each side viewed as important to their experience of the model being transferred. These themes are presented below using areas of general agreement and direct quotations from individual participants. Although it would be possible to start with themes from either side of the

process, findings from the US side will be presented first because of the fewer number of participants and due to the fact that all but one of them were involved from the start of the Intsimbi Partnership.

There were five key elements that the interview participants from the US side identified as part of their interaction with the process of transferring the program. The elements which emerged after coding were given the following summative labels:

- Relational Trust
- Groundhog Day
- Leadership from the Manufacturing Industry
- Viewing the Student Holistically
- Finances & Funding

It is important to recognize that these themes did not come as a direct result of asking what made the transfer process or program model successful. Instead, open ended questions that did not presuppose a positive or negative answer were asked to get at whichever elements the participants identified as informing their experience. Following a presentation on these findings from the US side, those themes found in data collected from the South African side will be shared.

Relational Trust

The first element which was mentioned by all six of the US participants was the idea of relationship development leading to trust. One member of the group encapsulated this idea well when he said, “I was most impressed by the respect I saw between the two sides, how we sat together, listened, and wanted to learn” (US/E #1). In the pre-survey that was given to the participants all of those from the US side strongly agreed with the

statement: “I appreciated the personal relationships that developed though the process”. The sense from interviewing the participants is that they genuinely enjoyed the individual personalities of the people from South Africa that they got to know. The relationships between those on each side developed over the course of working together for years, and that time period even included tragic events such as the deaths of close family members on both sides. For several on the US side, the personal connections they made have continued even though their direct professional involvement in TDM has ceased. This has even trickled down into TDM staff subsequently hired once the program was put in place who those on the US side got to know (US/E #3), and has led to other collaborative efforts between individuals on both sides looking to do other forms of work together (US/B #2).

Two aspects of trust. Five of the six participants on the US side specifically mentioned the word “trust” during their one on one interview. This attribute was used to describe the result or outcome of working together, and also as an encouragement toward making the process happen. Those on the South African side were mentioned as encouraging this relationship growth and the resulting trust that developed.

One of the pieces that I took away and try to implement here on this side is just the value of the relationship piece. I think that you can go a long way with diversion thoughts when you have a trust in a relationship developed and I thought that they [on the South African side] did a really good job of emphasizing that piece. (US/SS #2)

In the example above, someone from the US side was impressed with how trust was valued by those on the other side of the TVET transfer process. Another illustration of how this was developed came when several US interviewees mentioned staying in Ms. Seymore’s home on their visits to South Africa. They noted this as something that was

probably pretty unusual, or at least they hadn't considered having one of the South African visitors stay with them in Minnesota.

Picture 4: Visitors from the US on an excursion with their South Africa hosts.



This establishment of relational trust didn't only come from one direction though. Those on the US side also tried to demonstrate this relational trust. One interviewee spoke from the perspective of what it might have felt like for those in South Africa to be working with a group coming from an outside country:

It was the key in my opinion to this success that this - that there was a trust established, that it wasn't just somebody over in the United States that was trying to push this on us, but we met these folks. We trust Rich [Mr. Kelly]. We trust what HIRED is doing. We trust this approach. (US/SS #1)

Those from the US side were aware of the baggage that might accompany them as Americans coming to Africa. This was noted, for example, from feelings which they picked up on but tried to overcome as they gave presentations to officials in the various sites during the first visit when they talked about M-Powered to potential stakeholders

(US/E #2). They tried to use inter-personal approaches such as listening to show genuine interest in terms of both the conditions they found in South Africa and the people they met there. In other words, they chose to distance themselves from the perception that they were salespeople of an American manufacturing model. As one person said, “With me, it was all about relationships. It wasn’t about the program” (US/E #1). Those from the US side did not want to “bring a top down approach” (US/SS #1) in terms of what someone from the US thought would be good for South Africa, but as equals who were open to learning themselves and could be trusted.

These encounters over time helped to make connections both between the two groups at large and between specific individuals. Whereas each person involved in the US had previously established relationships with everyone on their side, they also got to know all the major participants working on the South African side in the large group planning sessions and over informal events such as dinners. Then individually, they specifically developed rapport between their counterparts on the side who they worked most closely with through hours and hours spent on process and logistics. For example, Mr. Kelly was directly unpacking training content for Mr. Dommissie, while Ms. Montagnese and Ms. Swanson worked closely with Ms. Seymore on assessment and student support. Establishing these relational ties with specific individuals then helped solidify the working process that got things done.

Together 24/7. Even though conferences calls, email, and Skype communication took place on a regular basis during the collaboration process, it wasn’t always easy to forge relationships through those mediums. In fact, the time difference between the two countries and having to go through a technical interface was at times one of the most

frustrating aspects of partner development (US/B #2). Instead, trust was seen to develop mostly through direct contact when both of the parties were face to face for weeks at a time in one of the two countries mostly between 2008 and early 2010. For example, on their first trip over to South Africa when they traveled around together to the different locations in South Africa, everyone stayed in the same guest houses and had meals together. They also went as a mixed group to the famous Kruger National Park, and to sight-seeing locations in the different cities they visited. This was really when the relationships got established between those from the US and those who would later be key staff of the TDM project.

This experience of being together around the clock continued when the various South African teams came to Minnesota at different times during the summer of 2009. Involvement in running M-Powered was only one part of what those employed at HTC and HIRED did, but when the TDM groups were in town, everything else was dropped and all their energies were focused on hosting and getting the frameworks in place (US/SS #2). Those on the US side held dinners at their homes, took the visitors shopping to the Mall of America, and would pick them up and drop them off at their hotels. An event that was fondly recalled by several was when they took seven of the visitors who came with the South African group focused on assessment, student services, and marketing up for a weekend at a cabin on a lake in Northern Minnesota. Specific experiences mentioned on that excursion were fishing together, and sitting around the camp fire talking late into the night (US/E #3).

The final period of the time where very intense personal interaction took place was during the two trips to South Africa at the end of 2009 and beginning of 2010 just

before the first year of TDM was set to begin. This was referred to as an emotionally tiring time by four of the six participants. It involved hard deadlines, some difficult discussions, and last minute changes that were needed just prior to students enrolling. The pressure they felt to make a good outcome for those involved in TDM made these trips especially trying for two specific members of the group. Ms. Swanson came earlier than the rest of the group in November and was asked to make drastic changes and additions to the work binders she had put together for the SPOCs: “Dalene wanted it in a different format and poor Judy worked night and day” (US/E #3). During the January trip, Ms. Montognese was sent on her own up to Lephalale, Limpopo, one of the more remote TDM sites to deliver the Accuplacer test in the older paper and pencil version. She was separated from the rest of the team for three days, but was able to rely on her South African counterpart to process all the assessments. The trust that had been built up between the two sides was tested, but ultimately proved invaluable in helping particularly those from Minnesota make it through these difficult periods of interaction.

A culture broker. One final piece of this theme on relational trust, which came out particularly during the US side’s focus group session, had to do with the critical pieces that Mr. Ellis brought to the table. He was described primarily as a “culture broker” for them to better understand who they were working with and the larger South African context. For example, it was from his encouragement not to use a “missionary approach to fix your problems” (US/E #2) that helped orient those on the US toward how they should build relationships and the tact that was needed when making presentations to government, business, and education officials. He also had previously established

relationships with people on that side such as Ms. Seymore. Going through him allowed those on the US a cultural and relational filter:

Having a partner on this side who knows the country, the culture – that’s really, that’s how you do it. Otherwise, it gets into politics and bureaucracy. What I’m telling you is- it comes down to relationships. (US/E #1)

Practically, Mr. Ellis did things like interpret native Afrikan-speakers English pronunciation or terms, and tweaked language in their PowerPoints. He explained background context pieces such as the history of how assessment was used during the apartheid era which became critical for understanding how the M-Powered intake process would have to be modified (US/E #3).

And Willem [Ellis] was very clear about saying...you have to understand this place, you have to partner with these guys. They have good ideas. Listen to them, modify, change and that’s where so much of our learning has taken place. (US/E #2)

This orientation then helped the US team look for things that they could learn and turn the relationship between the two sides into much more of a reciprocation. Instead of potentially being seen by those in South Africa as someone who had left their country to escape to the United States, he served as a liaison and cultural informant helping to establish trust between both sides.

Groundhog Day

The second thematic element that came through data collected from the US side of the transfer process was the experience of repeatedly trying to explain the format of M-Powered, and find ways best suited to translate the main elements. “Groundhog day” was a code term that one member of the group had come up with during the years when it felt like they were constantly going over and over things trying to communicate about the

model and how it could be replicated. This term became a mantra used by those in Minnesota, and it was directly mentioned by several participants to encapsulate the experience of going over things again and again either to explain the M-Powered model to the same individuals more than once, or to talk about it for the first time with so many new people who were interested or getting involved in setting up TDM.

It should be noted that the practice of having to explain multiple times and in a variety of ways about M-Powered and how it offered a different model was not something they were unfamiliar with. Working with manufacturing companies, students, and educators in Minnesota had taught them that it was often discounted as a viable model by some, and took others a few times to hear before they really understood how it worked. Because M-Powered relied on using the “side door instead of the front door” of the college (US/E #1), it was non-traditional and required a different sort of marketing in addition to strong industry support. But before people could get on board they needed to understand what it was all about.

A lot of people have said, “People [in Minnesota] don’t understand the model.” Okay? They don’t understand. We talk to them. We tell it to them 3, 4, 5, 10 times – they still don’t get it. The industry doesn’t get it. The students don’t get it. (US/E #1)

In some ways, it shouldn’t be surprising then that it would not be easily understood by South African stakeholders or even those hired to implement TDM at the very beginning. The findings on this experience for those on the US side revealed two separate pieces. Part of the difficulty was revealed to be due to the need to unpack or repackage what M-Powered was. The other issue was the challenge they ran into when it was realized they didn’t always have standard processes in place and would be required to take things they

had been doing and formalize them into policies and procedures for the many different TDM sites to follow. Both of these issues will be explored below.

Unpacking and repackaging. Those on the US side repeatedly found themselves unpacking the model and then repackaging it in a way that would fit the South African context. This experience happened first when they went over to South Africa and gave big-picture presentations about M-Powered to potential stakeholders from government, business, and education. Most days on that two week trip, they would meet in large group and then a one on one setting to unpack the model. Some of the key components such as industry's role, and the life cycle approach to student development were new concepts for many in their audiences and they got better at anticipating questions that might come up (US/SS #1). This sense of having to go over things multiple times also happened when new TDM staff were hired and introduced to what M-Powered was. The following example was given to describe what it was like when the new training director came over to the United States for the first time:

We started on Monday and Ebbe was floored - just question, question. Oh my gosh this guy couldn't get it. Tuesday he comes back and Dirk keeps interrupting and going, "Well, now remember Ebbe we're trying the build the..." And by Wednesday you could just see it - he got it. You could just watch the light bulb go on: "Oh! I get it now". It's such a different model. It's such different approach. (US/E #2)

When it came to more and more logistical detail, the importance of being able to communicate things clearly and in the most judicious way only grew.

This issue was addressed over the course of the summer and fall of 2009 when both in Minnesota and South Africa the structure became the same. In the morning, everyone would be together to keep tabs on the big picture questions. Then in the

afternoons, smaller individual groups would go over particular areas such as curriculum or assessment. In other words, once more people got involved and were responsible for transferring specific pieces of the model, direct counterparts on each side were set up to work together. There was someone responsible for sitting down with TDM's marketing person, as even the scripts and video themes to be used for the TDM marketing DVD were reviewed. Ms. James from HIRED and Ms. Seymore, who would become the TDM Life Skills Director, sat down with one another and talked through logistics on how student support would translate for TDM. To ensure that the TDM staff got a complete picture of the M-Powered model, the South African team observed classes to get a first-hand sense of the learning atmosphere, attended a graduation and interviewed students of the M-Powered program. Other modes that those on the US side found successful in giving a complete picture of the model included taking TDM staff who into businesses that participated in M-Powered, having them talk with industry leaders from Minnesota, and giving opportunities to be involved with different parts of the assessment or intake procedures.

A component that was difficult to repackage was the curriculum. One idea that the team played with was to hire instructors from Minnesota to be the initial lecturers during the foundational year of TDM. This plan would have been difficult on multiple fronts and was eventually discarded. A solution to the issue was conceived in part by the other "groundhog day" experience of having to formalize what had only previously been in the heads of the M-Powered practitioners.

Formalizing what's in our heads. The second part of what members of the US side explained made it difficult for them to communicate about M-Powered was the fact

that prior to the Intsimbi Partnership they were all doing their individual jobs, but had never written down, overtly thought through, or established a training record of how things were being done. There was now a need for this not only because someone in a different country would be doing similar tasks, but also because of the importance to replicate the model not just at one location (similar to how it is run at HTC), but at multiple sites across a wide geographical area. As noted by US/E #3, “they wanted us to be very nuts and bolts”. This practical ability to formalize things proved to be difficult at times since it was only 5-6 individuals who were involved in running the key aspects of how the model operated in Minnesota, and many things only lived in their minds.

We were all doing our thing and knew what we were doing - but we didn't have binders. And - and we certainly didn't have it organized like Dalene wanted with one point, one point, whatever. But that's the only way they operate over there which maybe we could learn a little from. (US/E #3)

Thus a great deal of time had to be spent documenting what had previously only lived in the individual heads of the M-Powered practitioners. This was done both during the joint visits when everyone from both sides were together, but also when individuals in Minnesota had time to think through what they did and formalize the process on their own time.

Two specific examples of this can be seen with the need to hire SPOCs and the assessment process. In Minnesota, Ms. James and Ms. Swanson had come up with the term SPOC for “single point of contact”, but it was primarily Ms. Swanson who served in this capacity. There was no formal job description for that position and they had never had to hire a SPOC. They hadn't thought through the key characteristics of this job except on a very broad scale. But what Ms. Seymore needed was a highly formalized

process that would help her identify the most ideal candidates to be hired at the seven TDM sites. They ended up developing a full portfolio of materials to explain everything about the SPOC role including things such as processes, best practices, and typical student service issues. On the intake/assessment side, Ms. Montognese had worked with Mr. Kelly to identify Accuplacer cut scores, but the scale with which they had to make decisions on who would be accepted into M-Powered was never any more than 40 at a time and was sometimes modified depending on specifics of the individual situations. TDM needed a way to stratify the multiple assessment components they would be using and come up with rubrics to determine who would be accepted into the program. This had to be standardized in a formal process as they would be dealing with hundreds of applications at a time.

Leadership from the Manufacturing Industry

The importance of the leadership role that the manufacturing industry provided from the South African side was a theme that came up in several ways for the US based participants of the transfer process. Going back to the narrative that led up to the Intsimbi Partnership, those in TASA and the NTI had tried to coordinate similar efforts before. There had been some learning about how to best go about it moving forward, and they as an industry group were committed to doing whatever it took to get something done even it meant bypassing the current educational and government processes in South Africa.

Those on the US side first picked up on the leadership role industry would play during their trip in May 2008 when they were going from location to location making presentations about M-Powered to the business, government, and education leaders.

They're all sitting in there in the row and everybody else is smiling and these guys [from the federal education department] look like they are not happy to be there. And at the end, they absolutely - they just hammered Dirk and Bevin [business leaders in TASA]: "You must work within the system. This is absolutely unacceptable. You are not taking our curriculum. You are not doing our thing. You must be within the system. You must take our curriculum. This must be the way it is". You know they were just hammering these guys. And I remember Bevin standing up there going, "I'm telling you man, if we use your stuff, I'm out of business in 5 years. It's that simple. This is about survival of my company". (US/E #2)

In the minds of business owners hiring employees, it was such a great need that they felt they had to try something different outside of what was being offered to them from the traditional channels of skill development in South Africa. It was the manufacturing industry which had taken initiative to engage with those in the United States, and they were prepared to be the main drivers of getting what they liked about the M-Powered model implemented. In other words, industry leaders believed that it was only through a new model of training their companies' potential human capital that their businesses would be able to persist.

Participants noted how this industry leadership stood out to them because it was in contrast to what is typically seen in educational models. Even the M-Powered model was constructed mostly from within an education framework that then reached out to industry partners, not the other way around (US/E #1). In fact, this hallmark of how TDM developed was pointed out to be in contrast to what those on the US side had learned about more traditional educational pathways in South Africa. However, it wasn't spoken about as something unfamiliar to them having worked with other manufacturing skill development systems in the United States.

One of the things that I noticed in the FET system was it really is kind of the same thing as we see in major huge urban areas you know whether in Chicago or Philadelphia or Newark. You know there's tons of money in the educational system but they're not engaged at all with industry and that's kind of the hallmark at the TDM program that its industry-driven and industry is involved. When you visit the FETs they're just not involved with industry at all so you had people who are teaching and might not have ever been in the industry and don't have any contact with the industry. So with the TDM program, its industry association is driving the whole initiative and they've got industry support at every level. (US/B #2)

Both in the United States and in South Africa, this was not only seen to be uncommonly established, but once a connection is made between educators and employers, it is often viewed to be an uneasy relationship. Several noted that it took a strong united front on the part of TASA and the industry leaders to drive educational change, and more than one person on the US side said it was something to be emulated.

I was very impressed by that approach that they had in South Africa. I wish we would see fifty manufacturers come together and say 'We need twenty-five hundred precision manufacturers here in the state and we need that produced in the next three years or our jobs are going to California or China or someplace else because we need this kind of worker, but we're going to stick together on this. We're going to put money into it in order to make sure that that happens'. And that's what they did. This was not a government program. This was an industry - - very much an industry approach. (US/SS #1)

In South Africa, TASA had to eventually link up with the DTI to form NTI, and their plan involved utilizing some of the current FET educational structures, but the manufacturing industry was always the main driver in setting up that structure and bringing in M-Powered as the model to be used. Not only the transfer process, but also how TDM is now run starts with industry's leadership role.

I have to say, what I'm gonna tell you is the structure of the way this was put together with Dirk [Mr. Van Dyk] and how his being on his side from the private sector – and being a separate organization, not part of bureaucracy is key. Having industry partners is very, very key. (US/E #1)

Driven from the top. As the quote above illustrates, one of the people who was mentioned again and again as driving much of this industry support was Mr. Van Dyk. This is not surprising since his early involvement with the NTI helped establish the Intsimbi Partnership, and it was he who took on the full time role of executive director for TDM serving as the main decision maker and contact person on the South African side. There were nevertheless exceptional characteristics that he displayed which made him a great leader and key person to lead the South African manufacturing industry's involvement. He was described at various times as “a very smart guy” (US/E #1) and someone that just got the model right from the beginning (US/E #2). Van Dyk, though in a position at an executive level, made personal connections to each person on the US side (US/SS #2). He was also persuasive, usually in leading off the joint presentations to potential South African stakeholders with personal examples as a business owner. The picture of him that comes through is that of a passionate visionary who helped bring others on board whether they were internal to the project on either side, or potential partners and business leaders from the manufacturing sector.

In addition to his personal characteristics, Mr. Van Dyk's unique roles played out from the industry perspective were noted to be significant. It was the relationships he had established with other leaders within manufacturing that got things started, and his clout was mentioned as something that made it possible to add more and more businesses to sign up for the OJT portion of the TDM curriculum (US/SS #1). He served as the main

coordinator with the South African government, both in advocating for the program and securing funding from various sources. At strategic points during the transfer process and once TDM began choices needed to be made, and Mr. Van Dyk was credited as the main decision maker willing to make those difficult changes (US/B #3). Finally, he was mentioned by several as the biggest advocate from the industry side for using pieces of the M-Powered model. This comes out in the instance related below about making decisions on how much of TDM's student assessment process would be based on what was done in Minnesota:

But what we had all the time was Dirk [Mr. Van Dyk]. He was very key, always saying that, "Okay we're going to add all those assessments – fine; but we're going to do the ones that we found were successful in Minnesota". (US/E #3)

This example concerning how students would be evaluated as candidates for the TDM program links to another theme found in the data from the US side which will be explored next.

Viewing the Student Holistically

The broad framework of seeing and supporting the student as a complete person was a fourth element that came out through interviews and the focus group. Many of the pieces from M-Powered, such as assessment and support that corresponded to seeing students holistically were either not found or in direct contrast to past and current practice in South Africa. As a result, this was noted as something that required a few mindset changes on the parts of those working on the transfer process from that end (US/E #3). This was also an area where the terms used to describe something had to be altered by

those on the US side, and they subsequently adjusted their vocabulary to refer to “students” as “learners” which was the preferred label in South Africa (US/SS #2).

Seeing the student in this holistic manner was a theme that emerged on two separate fronts. First, the idea of providing full service student support was a central piece of M-Powered that was borrowed to become a hallmark of TDM. Second, student assessment practice was expanded to take the fullest picture of potential TDM learners into account. Both of these areas will be explored below using examples from the transcripts, patterns noted in the answers given from those on the US side, and through their direct quotations.

Full service student support. The US participants had been painted a picture of the traditional South African educational system as being top down and instructor driven, under an authoritarian paradigm of strict conformity. By placing students at the center of the model, it was noted how this older framework was turned upside down (US/SS #1). The student would now be viewed as a client. Another reality connected with this was the fact that the majority of TDM students would be non-white. As historically disadvantaged groups, their significant needs related to access and support would be addressed (US/E #1). Parallels had been drawn between the types of student service issues that immigrants and refugees in the M-Powered experienced. However, at least one person on the US side did not believe this racial component or the role played by HIREd was initially understood:

What I later learned as part of that was just the ethnicity that to have me as a white person warmly interacting with someone that was non-white stood out to them. Also part of it was that my role as a non-profit person interacting with the students on campus at a college campus was kind of an odd role or a unique role.

And, I don't think early on they understood that we were really even a non-profit. I mean they knew it, but they didn't really understand the different roles. (US/SS #2)

Because South African non-profits or NGO's were primarily focused on healthcare, TDM would have to incorporate the student services role that HIRED played for M-Powered. A great deal of the transatlantic transfer process was wrapped up in explaining, codifying, and then hiring staff for this role at each of the original seven sites across South Africa. It was more than just employing a position to do the role of what M-Powered termed the "single point of contact" (SPOC), since many of the same resources didn't exist over there and had to be included in that role for TDM (US/SS #1). Because of how highly this was valued, eventually a system was put in place whereby TDM students had access to a specific intake specialist in addition to a host of logistical and support services. This network of reinforcement included transportation and child care, a go-between with the instructor, connections with industry, counseling and life skills training, and upon graduation a format for employment placement. Such a full spectrum of services was thought to be a piece of M-Powered that was attractive to those in South Africa and which was a major part of the transfer process (US/E #3).

Alternative and expanded student assessment. The second part of the "viewing the student holistically" theme is specific to the assessment systems that were brought over in the M-Powered model and how they showed up in South Africa. It was a new concept to employ the adjusted testing format found in the Accuplacer, where the questions being asked are increasingly based on previous responses (right or wrong answers). On a first visit to an FET college, one of the visitors was able to see an example of their assessment and relayed, "It was a paper pencil test that had been copied

so many times some of the questions were almost off the page. I think it was copyrighted in the sixties or something...and wow, was this even measuring what they needed it to measure? (US/E#3). The Accuplacer's adaptive online format was ultimately used by TDM, although due to infrastructure issues it was logistically difficult to implement it right from the start. This meant that for the first year and a half hard copies were shipped at great expense over to South Africa and then back for scoring.

Those from the US side also tried to advocate for non-cognitive assessment measures which would better place the student for success. M-Powered was developed on the premise that intake and placement were keys in the formula for skill development and employability. This stood in direct contrast to how assessment had historically been done under the old apartheid system, more as a way to keep people out, or even as firm benchmark used to exclude potential candidates even in more recent years.

Well, again they had to change their attitudes towards these young people – that there is potential. I have to say, I think the biggest change that I saw was that Kathie Montognese had. When she went over there – that was like opening a whole new door for them around how we do it [assessment] and how we approach it because their processes were terrible. (US/E #1)

It was recalled that there was some resistance even from the two assessment folks that TDM brought in, but due to Mr. Van Dyk's strong support to use what worked in Minnesota (US/SS #3), they were able to agree on adding more qualitative forms of assessment, such as interviews.

The idea of seeing how "assessment" can be done in a holistic manner concerns more than just the student intake process, however. TDM also adopted the general student evaluation format, specifically in how NIMS was utilized by M-Powered. In both countries there is a two part process that includes written exams and hands-on

manufactured pieces to 100% specifications which are hallmarks of NIMS credentialing. However, unlike in the US, the TDM program does this in a reverse order (US/B #2). The thinking behind this was that most of the learners in South Africa would have an easier time doing the practical hands-on side first, and then build up their confidence to do the more theoretical online test. This connection through NIMS that continues today is one of the few ongoing financial ties that still exist between the two groups. It is also an example related to the next theme culled from this investigation.

Financial Funding

The final key element found in reviewing data from the US side was slightly less prominent, but nonetheless significant. This theme is a big factor that emerged from reviewing the official work plan agreement documents, as well as from interviews with four of the six participants. Many talked about funding mechanisms and the on-going need to finance the program in South Africa. How funding worked was also seen as mysterious and an on-going struggle for those running TDM. This element was further noted as having an impact on the future collaboration that those in Minnesota would like to be involved in.

Uncertainty and misunderstandings. From the very beginning when both sides started working together it was a funding issue that discontinued their association between the summer of 2008 and early 2009. Connected to this lack of financial sustainability, some of the US participants expressed uncertainty concerning where backing for the transfer process was obtained and how TDM was going to be financed. US/E #3 stated, “I never understood that [how funding worked] on that kind of scale”. Because they never saw individual monetary gain from the partnership, and remuneration

for their involvement was paid directly to HIRED and HTC, most of those on the US side were kept out of the loop in understanding the large scale financial issues. Another example of this came during the interview process when US/E #1 said, “I think they were trying to set up a new model to make it almost like a proprietary school. That’s what I think they’re ultimate goal was – to run it as a business”. Although the findings from Mr. Ellis and those in South African does not support this idea, it points out that the majority of participants on the US side did not have a clear understanding of how TDM was financed.

Desire for continued consultation. Finally, this thematic finding is connected to the Minnesota team’s interest in providing continued consultation and an external evaluation of how the program has been running for the past three years. Although all those interviewed wished to be more involved in TDM again, they realistically thought it would not happen unless there was a funding source from the U.S. side which has thus far eluded them. Because of their interest to do this and the value they think will be realized if they can provide evaluation, Mr. Kelly and Mr. Ellis have continued to look for funding from mechanisms in the United States.

We would love to get down there and do an evaluation... They [Mr. Kelly and Mr. Ellis] were the primary people that have been working on that, but they kind of get their foot in the door and all of a sudden they’re out of the door and the door is slammed again. And they have been getting this over and over and over again. (US/SS #1)

The context for this comment about ‘getting the door slammed again’ came in reference to the October 2011 trip that was taken by the delegation from Minnesota to meet with those from the AACC who had received the USAID grant and were still looking for partners.

Five of the six participants specifically related their belief that those on the US side still have something to give to the TDM program even though it has been running independently for three years. They expressed a conviction that their help was required, and the related need for funding, such as in an email from US/SS #2:

The general program model overview was relayed in theory, but because there are so many significant systemic differences needing to be addressed to take root, their team [TDM] needs much longer term support and guidance, and the funding to support ongoing consultation. (Personal communication, 2012)

This desire to be involved in TDM through funding primarily from the US side continues even in 2013, but has yet to be realized.

Summary of Key Elements from the US Side

Together, the five key elements mentioned above help to give a picture of the experience from the US perspective. First, relational trust was viewed as the hallmark in making the process work. Next, “groundhog day” was the code term that encompassed the experience of going over and over the details of M-Powered and how it could be repackaged. Third, leadership from the South African manufacturing industry was noted as the number one contributor to getting the sides connected, and as the primary driver to make the transfer process happen. Fourth, viewing the student holistically was a thematic element that those on the US side expressed as being a major differentiation of the program in the minds of the South African partners, and one that took a great amount of energy to set up in the new TDM program. Finally, finances and funding were thought of as a significant hurdle both during the transfer process and in the desire expressed by those in the US for continued involvement helping evaluate the TDM pilot.

These themes stood out more than any other subject matter from the US side. When looking at different word searches in NVivo or trying to find data linkages other topics such as learning being a two-way street, what the US side felt they gained, and cultural difference also came up, but not to the degree that each of the five elements above did. They were the strongest threads found through the data. As will be seen next, there were areas of both similarity and difference to what was discovered in findings from the South African participant data.

Key Elements from the South African Side

In comparison to those on the US side, participants from South Africa were able to give information over a longer period of time including the spectrum from before a connection was made to M-Powered through how TDM has been running for the past three years. However, unlike their US counterparts, they were not all involved from the same starting point. A few were involved virtually from the very beginning of the Intsimbi Partnership, while most the others only came on board in the summer of 2009. Either due to this fact, or that there were more study participants from South Africa, the data revealed a wider range of information. However, as in the US findings, there were five cohesive themes that they all mentioned or agreed upon. These elements stood out and were given the following labels:

- Skills Shortage
- Scaling of the Pilot
- TDM's Differentiation
- The Right People
- Changing US Role

This section of the findings will present these five themes as they came out from reading transcripts from the eight one-on-one interviews and focus group in South Africa. In addition to these primary sources, data was also obtained from the online survey results, interviews with two students, and TDM documents. As with those thematic elements found from the US side, these five areas can also be seen in terms of what was identified as key to the participants experience in the transfer or “porting” process.

Skills Shortage

The issue of the South African manufacturing skills shortage and ways to address it was a major theme for all the study participants, especially those who came from industry and education. The word “skill” came up again and again in interviewing these individuals. All six had some form of direct manufacturing experience, and they saw the current competency development pathways in the country including those involving FET colleges, learnerships, and apprenticeships as lacking. For example, one participant had experience setting up a learnership program governed by the Manufacturing, Engineering, and Related Services, one of the twenty-five Sector Education and Training Authority (SETAs) overseen by the Department of Higher Education and Training. Although it was originally viewed as a valuable program, it encountered several problems in this person’s estimation:

They weren’t paying the money directly to the college. That went to the company and then over there it was heavily administrated. And the other problem is it is a self-learning program for which our learners are not prepared, and that caused major issues. The amount of paperwork... Sometimes, you’ll find that the learner and the facilitator are spending more time getting the portfolios together than actually teaching and learning. It’s terrible. (SA/E #3)

This was cited as an example that both diminished the view of FETs as being able to produce competent tool, die and mold-makers, and also pointed out the disconnect between education and industry. Other roadblocks to skill development that were mentioned included a lack of updated curriculum or machinery (SA/E #2), the dictatorial “old-school” style of lecturers (SA/E #1), a lack of educational connections to industry (SA/MI #1), and an overemphasis on theory vs. practice (SA/E #1).

Nationalistic motivation. These problems were ones that those interviewed had a strong passion toward helping to fix. Their trade area of tool and die making, the manufacturing industry, and country were seen to be jeopardized. One person who came from the education sector said, “I was very concerned about tool making. In South Africa my trade was dying out, and I was very concerned about it” (SA/E #2). Another interviewee from the industry noted that he joined the project “to give back to the community and give back to the country” (SA/MI #1). Several also pointed back to the history of how and why skill development declined in South Africa, and then the role of the Road Map, that TASA and the NTI developed, to address things from the ground up.

The Road Map was for instance, things like skills. Value system had to be redeveloped for the industry from sort of a pre-apprentice level. That’s where we identified the need that there’s work to be done because of the weak schooling system...Something needs to be done at that level. So we need a new apprenticeship system. We need something that’s got better alignment with industries the way industry is going and so on. (SA/MI #3)

There was then identification that several structures in the country were broken. How industry and education linked together, ways to improve business management practices, and a need to have solidarity behind one collaborative voice were important issues in the Road Map as well. However, the problem of the skills shortage was a top

aim of their association: “We had to rethink all the other areas and prioritize them, but said the skill system is going to take us the longest, so that’s priority number one” (SA/MI #3). The motivation behind any decision to look abroad for a model was driven by this vital issue, because it was hoped that as skill competencies increased, the impact would eventually be felt at a national level. As another interviewee noted, “We were going to make a huge difference to the industry and then the competitiveness of South Africa” (SA/MI #2).

Aspects of M-Powered bridging the skills gap. The skills shortage, and motivation to close it for the South African manufacturing industry, fit into those aspects of the M-Powered program that were appealing. This was primarily because the model used at HTC was organized as a competency based model. Starting with the foundational level, TDM took the entire curriculum that Mr. VanDanacker, one of the main M-Powered instructors, was using (SA/E #2). There were some issues with the drawings, and everything had to be put into metric conversion with added sections such as unique to South Africa were added, but the basics came from outside of South Africa. The key in this process started with having “the correct curriculum which is an international technological curriculum and adopting that to the South African environment so that it’s applicable with its own needs” (SA/MI #2).

Picture 5: Workshop at TDM's site at the Wingfield (Capetown) FET College



Having an outside benchmark, the NIMS credential, was also completely different than what was offered in any other FET program. M-Powered's model was "outcome-based in all its credentials" (SA/MI #1). Although those from education were initially hesitant to embrace this since it was a loss of their academic control, those from industry viewed it as vital piece that TDM could bring:

We were benchmarking ourselves against an international standard [NIMS] because the industry had a problem with local education in that standards were lowered so that the numbers game, so many people must pass every year so there's no quality assurance. If we peg it to the new qualifications and framework, an international standard, we came with that and it was highly accepted by industry. (SA/MI #3)

Through this external accreditation, students are valued by industry: "We had to make sure that we had gotten the international credentials so that if this pilot is not working, the student has still got a career" (SA/SS #2). In the 1990's the worth of the "red seal" internal qualification within the South Africa manufacturing industry had been

diminished as more and more educational providers lowered their standards (SA/MI #1). However, NIMS took the qualification to an international level, and TDM simply adopted all of their standards, thus bypassing this problem so now, “once an individual has earned a certain credential; you have that credential for life” (SA/E #2). In fact, the use of NIMS was noted as a factor for TDM becoming the Developing Quality Partner (DQP) for the tool maker career path (SA/E #1). This certification (Appendix H), granted through the Quality Council for Trades and Occupations (QCTO), is a high designation for TDM. They have now been qualified to provide instruction and assessment which is the first time any industry association has had that distinction.

The final piece seen in the M-Powered model, which those from South Africa spoke of as a way to bridge the skills shortage, was the many linkages to industry. Though the education and industry sides did not always come together easily (SA/MI #3), TDM could be set up in such a way that learners would be getting support from both entities. One of the problems with other South African systems that do a form of OJT or apprenticeship is that businesses don't often have structures at the worksite to manage the process. However, in TDM, “We actually manage the process, and so industry is actually brought on board. We train them” (SA/E #3). As part of agreeing to be an OJT worksite, TDM lecturers are in the companies, and have even provided a train the trainer course. These lecturers coming not from education but as industry artisans, with experience using skill competencies they are teaching, was also mentioned as a significant ingredient (SA/MI #2). Lastly, the skill shortage element was addressed by TDM in implementing M-Powered's model balancing theory with practice at companies giving learners “state of the art knowledge” (SA/E #1).

As TDM has been running now for over three years, its impact related to skill development has been noticed on several fronts. In both of the interviews conducted with TDM students, they noted the ways in which they felt they were getting a more comprehensive education because of NIMS standards and industry experience. Companies told one person working on the student services side, “These are the best apprentices I’ve ever had” (SA/SS #1). These skill competencies demonstrated by students were also related in a story where two students did their final presentation at a company and the entire plant came out to see it:

And I took photographs of it and I thought, “Wow! Look at this”. And it’s only through the TDM-Powered Program which we saw it in America and then NIMS that this could have happened... Very, very impressive. The company speaks volumes about the abilities of these learners. (SA/E #3)

This stood out because it meant the company was essentially losing money by everyone taking time away from production but even the foreman wanted to see what the students did. Finally, TDM’s impact on the skill shortage was witnessed in the pride shared when the NIMS pass rates were quoted (SA/E #1).

Scaling of the Pilot

One of the primary challenges that arose as a theme from the South African side had to do with how fast and how big the TDM pilot was scaled. This data element came out related to aspects such as funding, making enough industry connections for learners to go on their OJT at local businesses, procuring sites and equipment for TDM to run, hiring qualified staff in diverse geographic locations, and assessing students. The NTI wanted to have an impact that would be recognized and could potentially be used as a

model in other educational sectors. As one person from the manufacturing industry stated,

Part of our strategy from inception was that we've got no time so we cannot pilot on a small scale and wait for that to be successful and then motivate a larger expansion and so on... So that's been a core part of, it was a bold strategy from day one and it just had to be done that way. (SA/MI #3)

This theme of scaling the pilot proved problematic however, as it was also uncovered in relation to five of the six South African survey respondents *Strongly Agreeing* to the statement: "I remember challenging aspects of the process".

It was a challenging issue right from the beginning, but one that also can be used to point to the transfer processes success. As mentioned in the narrative section, TDM was originally intended to be a one site pilot project with a US lecturer. However, due to the need to show results on a larger scale, seven sites were needed across a wide geographic area. Over approximately six months the original staff members had to secure space, machines, and employees for each location in addition to the process of porting over M-Powered from the United States. In the second year, the pilot grew to twelve sites and entering 2013 was poised to serve up to fifteen hundred students from a pool of 4000 applications (SA/SS #2). The findings related to this theme of scaling the pilot will be explored both in terms of problems that had to be overcome, and also as a sign of success.

Make it happen. In the first year of TDM, the official theme used on publications and in the TDM logo was "Make It Happen." This also became the slogan used by those on both sides to encourage one another through the difficulties associated with scaling the pilot. Further, it was used in setting up partnerships with the new FET

sites: “Coming around this motto, we used that so often right in the beginning if we had a negative situation at the campus, we used to e-mail them and say at the end ‘Let’s make it happen’ and you got a huge response. It changed the situation” (SA/MI #1). Employing it helped turn problems into challenges that could be overcome. Another participant from the education side recalled the steep learning curve in the three and half months leading up to TDM classes being first offered: “It was long hours, it was tough, but it was all exciting at the same time” (SA/E #2).

Picture 6: TDM staff including SPOCS and lecturers at training kick-off in 2011.



Once the program began, a lecturer had to be replaced in mid semester at one of the more remote locations, so one of the curriculum managers picked up the slack and moved there to fill in until a full time replacement could be found. Even students started using the motto and saying it to one another (SA/E #1). When the second year kicked off requiring 5 additional sites as well as running two levels at each of the original locations, the increase in logistical issues only intensified. Now, in order for a program director to visit

each TDM site, they would most likely have to be on the road for more than two weeks (SA/E #3).

Scaling has not stopped being a challenge more than three years later as the program continues to grow. Beyond making it happen, the new motto to ensure that this growth takes place appropriately has become “getting it right” (SA/SS #1). As of February, 2013, several on the South African side expressed doubts about how TDM would take on double the amount of students. Although the basic TDM program and structure is working at different sites, the capacity to place students into an OJT experience at local businesses is at a critical juncture. As one participant said, “It has worked and the way we know it works is the acid test of what industry has said. But yeah, just doubling the number, I don’t know about that...That’s a scary part for me” (SA/E #3). The increased need to scale in this way and make enough connections with local industries to take on OJT students is particularly difficult at the more rural TDM sites.

Signs of success. Though it has not been an easy process, having to scale the pilot up and serve a greater number of students was pointed to as a sign of the transfer project’s success. There were three examples of this given by the South African participants. First, because of the larger number of students they are able to accommodate, those in government and education have taken notice. When the Minister of Education made a surprise visit to one of the FET colleges where a TDM-Powered pilot was run, he was impressed after “...speaking to the students and so on and he made noise inside his own department to say that why doesn’t he know about a partnership of this scale across the country” (SA/MI #3). This led to increased funding allowing TDM

to expand in their second year. Though TDM still only trains for one sector of manufacturing, the fact that it is across the country has kept them on the radar of national policy makers.

A second indicator that the TDM participants pointed out to show success was that they are the continent's greatest user of the international credentialing system and have been chosen by NIMS to be that organization's representative for all of Africa and parts of the Middle East. Within this role, TDM has also successfully changed over the online testing provided by NIMS into a metric version (SA/E #1). A third sign of success was noted in how it was now the US side and those in M-Powered who were asking questions and learning from TDM. Due to having so many different sites, the Student Support was given as an example as a component that has gone far beyond what was originally done in Minnesota (SA/SS #2). From the perspective of those in South Africa, learning is now possible in both directions, not just coming from those the US.

TDM's Differentiation

A third common thread heard from the South African side was the many ways in which TDM differed from M-Powered. For those interviewed, these unique characteristics went beyond the larger scale in how it was piloted. Size, in terms of students, staff, tracking information, and with multiple locations certainly shows a disparity between the two. However, differences here also included aspects related to organizational structure, the South African context, and the demographic make-up of both TDM students and staff. In several areas where they originally intended to pattern themselves after M-Powered it turned out that in certain aspects they evolved to be quite different.

One area where this occurred was in terms of who the TDM students are. Part of M-Powered's mission is to upgrade the skills of incumbent workers already employed by the industry. When TDM first started the plan was to have an even ratio of incumbents and new comers to the industry (SA/SS #2). For several reasons it did not turn out this way, and now there are virtually no incumbents in TDM. This means that learners in South Africa are younger and have less workplace experience of any kind. Practically, this also necessitates that the OJT portion of the program comes at the end, unlike how it is run in Minnesota. This difference was not lost on one of the participants from industry who articulated it in this way:

We started with that model [having OJT come earlier] but then when we realized what was going on I stood up and I told them look we cannot use the model the way you structured it in South Africa, it's not going to work. You cannot put somebody working on the machine whether he hasn't even heard about the safety, how to look about the safety and things like that you can't do that. And that's why we've changed. (SA/MI #1)

It is not only when the OJT portion comes within the first level of TDM, but also how many times it cycles through. SPOCs and lecturers have to work with the same company sponsors in several places over multiple years to keep things fresh for learners who go back to the same business more than once.

Programmatically, differences were noted by the South African participants as well. For example, because the NIMS qualification is so highly valued, each of the TDM sites as well as all the lecturers need to be officially certified (SA/E #1). These were steps they added. Also, TDM is just one piece of a larger turnaround strategy for the manufacturing industry (SA/MI #1) not a stand-alone program run by one college. Linked to this is that it developed not mainly from education like M-Powered. That is

why, in South Africa the industry partners are typically easier to get on board than those in education (SA/MI #3). Additionally, it should be remembered that TDM only took curriculum content from M-Powered for the first few years of what they intended to do, eventually planning to include a skill range up to an engineer level which is far beyond what is done Minnesota (SA/E #1).

Although there were some similarities in terms of how those in South Africa structured their two separate columns (Curriculum and Student Support), employees in both areas were coordinated through TDM, not paid or organized through two organizations the way that M-Powered is run with HTC and HIRED. This means everyone falls under one central person who makes decisions for both sides (SA/MI #3). Another difference that falls under the Student Support column in TDM is that the SPOC wears many more hats in South Africa including intake, assessment, student support, and even teaching life skills (SA/SS #2).

Picture 7: TDM students with Ms. De Wit and her counterpart from the US



Finally, the findings in this thematic area also included that it was difficult at times for those on the US side to acquiesce to the difference in how TDM ran compared to M-Powered. For example, during the porting phase of the relationship it was mentioned that, “There was always a lot of resistance from them [the US side] because we’re changing a program and therefore the results probably aren’t guaranteed - that kind of argument” (SA/MI #1). The South African context dictated that how the model showed up there would be different than how it was conceived in Minnesota. For example, the student assessment structure still included Accuplacer results but was modified to include more qualitative features. It also carried over into the culture change that was noted as being important for TDM lecturers to undertake (SA/E #1). M-Powered does not do any form of teacher training, but this is an important piece of changing classroom management and approaching adult learners. Seeing the student as a customer went against how artisans had been previously trained and what was seen in FET colleges and making this paradigm shift was also viewed as major obstacle for TDM to undergo if it planned to be successful long term (SA/E #2).

The Right People

A fourth thematic element that came out in the data collected from the South African side of the transfer process was the importance of getting the right people involved in the project. Words such as self-driven, passionate, and hard-working were used in multiple interviews to describe the staff that made up TDM:

If you look at people in our team, it’s all people with a positive attitude, self-driven, high energy levels, good experience, background, good motivational

skills. That was the first thing people, people, people, and strong industry participants we selected from day one. (SA/MI #3)

Getting the right people in place was accomplished mostly through industry connections. All three of the participants from within the manufacturing industry and two from education had worked with or known each other before coming together as part of TDM. Those that made up the original staff of the Student Services Column had already worked with one another or at least knew one other person when they came on board (SA/SS #1). Though they knew each other in different capacities, it was easier to join forces in the new project because they had a shared experience and liked the personality and style of one another (SA/MI #2).

Included in this theme about ‘the right people’, was the idea that those on the TDM staff had credibility with the outside manufacturing industry. Two of those in TDM were actually part of managing turnaround strategies at different companies. In order to get businesses on board to mentor and provide an OJT opportunity for the over 700 learners that have come through the program, they had to make connections with local companies and this was facilitated by the clout they had in manufacturing:

But the success of this was where we had people that were employed in this organization that have got the technical skills. So we can say, “we've been there, we were in-charge of an organization in the tool room in manufacturing and we know what we're talking about.” (SA/MI #1)

In this way, the trust they established through personal and industry connections was strategically important to the success of the program.

Not just a job. With the financial instability and under the auspices of a “pilot project”, individuals nevertheless were excited to join TDM. Part of this was said to be

due in part to the leadership they saw exhibited by Mr. Van Dyk and his role as a mentor (SA/MI #1). Others thought of their job as contributing to something important. As a participant from the Student Services side said, “It’s an eye opener to see you are doing something valuable! It is not just a job – we are having a turnaround strategy for skills training” (SA/SS #1). This part of the “right people” theme came out in the focus group discussion where each person related what it was that originally drew them to TDM, and how though it may have been a bit risky professionally, it has been personally rewarding to be involved in the project. This was especially important in the beginning of TDM when the original staff made trips to Minnesota, and then all over South Africa setting up the original seven sites and making presentations to stakeholders. As was noted by one participant in the group, “The focus of individuals was not for their own benefits... getting a nice job and fancy salary” (SA/E #1).

Though it was acknowledged that the hours are often long, and problems come up, the characteristics of the staff contributed have contributed to TDM’s success. The interactions between the group members and two structural columns (Curriculum and Student Services) went beyond job relationships to become personal (SA/SS #2). It also was said to contribute to how the transcontinental Intsimbi Partnership unfolded: “People just did what they had to do when they had to do it. No one ever asked anyone to work overtime. People worked until they’re finished with their job and so the success lies in the human people” (SA/MI #3).

A utopian work experience was not conveyed, as more than one person mentioned mistakes that had been made and the presence of ongoing issues that need to be addressed. Included here are staffing issues with lecturers (SA/MI #1) and problems

coordinating a big program through a central office (SA/E #3). However, the quote below could be used to summarize how the original TDM staff viewed their position as more than a job:

It's like one big family. There's no hierarchy. There's no bureaucracy. We're all in here and we're all doing it together. It is wonderful to be a part of this... The work satisfaction, everything that is part of this program - it is a privilege really. I don't say it lightly. We have our issues, but everyone has an opportunity to grow – you must just grab it. (SA/SS #1)

This sense of family and togetherness is telling given the make-up of TDM staff including the “white, black, and coloured” demographic categories used in South Africa. There continues to be racial representation at all levels of the program.

Focus on learners. The second part of the “the right people” theme is found in their orientation to the mission of the TDM program in wanting to see students’ lives changed. When they saw how M-Powered ran as a way to offer people a career path there was a desire to emulate that: “It’s not just about a credential or a qualification or a part qualification, it’s sort of giving dignity” (SA/SS #2). It wasn’t just the original staff members who were drawn by this. It was also said to be an important factor for subsequent positions as well beyond those who are now employed in the central office (SA/MI #1). Part of the hiring evaluation for any of the SPOCs or lecturers being hired was based in part on their personal orientation to TDM’s mission. For example, Mr. Dommissie insisted that his top criterion for new lecturers was a passion for the trade and their students. Not meant to be shared as an outlier, the story of a lecturer and SPOC at the Johannesburg site was given when they pooled their own money on behalf of a particular student who needed transportation and housing (SA/E #2).

Picture 8: TDM Apprentice Level learners and lecturers from Coega FET College site



Thus, the program's impact on learners and their success was of utmost importance to the people in TDM. As one of the participants said, "We cannot play with people's [learner's] future. So, whenever we do something, we remember it's a pilot, but we don't play with people's future" (SA/SS #2). Although there was a recognition that industry was served through the program, the individual learner was viewed as the customer. "The focus was to help people on the career path that will be really worthwhile. To give people the best we can give them" (SA/E #1). This theme also comes out in the TDM Student Handbook which states,

NTIP is concerned with the academic progress of each student. We want all students to be successful throughout the entire programme. No matter what the problem, we will try our best to assist with the successful completion of the TDM-Powered Programme. (National Tooling Initiative Programme, 2010, p. 2)

When talking with two students at the Pretoria site, they spoke of how they felt valued and encouraged by their SPOC and lecturers. These examples reiterate how the program at large and the staff members employed by TDM are focused on learners.

Changing US Role

The role played by those who started M-Powered and originally gave input to the South African side was observed as a significant change that took place through the lifespan of the process. This theme is not surprising given that TDM grew and has been implemented at twelve sites for several years. In terms of logistics, “there is less communication with the Americans... as the people in this organization are now into the third year...and it’s becoming a little easier for us” (SA/MI #1). Although the relationship still exist between the two sides, particularly with those who coordinate student support in both programs, TDM staff view the US role in two distinct ways. There are still specific areas where involvement continues but to a different degree, but it was mentioned that the US side is now orientated to learn from them. These two aspects are detailed below.

Continued, but different involvement. Two of the links that have continued are with the key people on the US side who oversee NIMS credentialing and intake assessments with the Accuplacer, Mr. Wall and Ms. Montognese respectively. For example, “On the assessment side with Kathie [Ms. Montognese], we’re set up on this side to do everything. We still get her involvement. She makes sure that she knows when we’re doing things or if we have glitches to discuss” (SA/SS #2). With the relationship with NIMS, it was said to be a long, difficult process with several delays, but when interviewed at the start of 2013, it was anticipated that TDM would soon be able to take ownership of the online testing (SA/E #1). It stands out that both of these elements are also then the only remaining conduits by which organizations on the US side are being financially compensated for involved in TDM.

Learning from us. A critical piece in how the US role changed is seen in how those in South Africa mentioned ways that those from the United States and M-Powered were now in the position to learn from them. Whereas at the start of the Intsimbi Partnership, the US side played the role of information giving, those in TDM now have experience to share as well. Although one person stated, “I think that the relationship remains that we always measure ourselves against the industry in the US” (SA/E #1), and another pointed out the continued value in using M-Powered staff as a “sounding board” (SA/SS #2), almost all gave examples of where TDM had something to teach their counterparts on the US side.

During the focus group session one person told the story of Mr. Kelly looking at TDM’s curriculum and saying, “This is brilliant. We’ve never seen such wonderful work being done. I mean you guys have really done a fantastic job! We may need to buy this back from you” (SA/MI #1). So, there seemed to be a perception of interest from those in the US to learn as well. This incident was also referenced as surprising because of perceptions: “I was actually also very surprised about it [Mr. Kelly’s comment] because I think everywhere we go, we perceive the Americans as the ones that never make a mistake. They are the ones who always do everything right” (SA/E #2). This opportunity for learning from TASA and the NTI was something that one person mentioned had been a goal of those in the US all along:

Some of the guys in your system [HTC and M-Powered] saw an opportunity for future return in learning from what we are doing because your vision at that point in time didn’t go that far. It was focused on an immediate problem based on some grants that you guys could get for developing that program, but it wasn’t a long term development strategy where we had a very long term strategy and if we stay

in contact we might, in the future, succeed in doing the same thing on that side.
(SA/MI #3)

The final example of the learning roles being reversed was given in relation to the success TDM has had in getting industry involvement in the OJT practicum piece of the program in comparison to the difficulty it was for M-Powered to find industry placement.

They've [the US side] got difficulties in placing students right and I mean there's a project where we're not going to be learning from Minnesota, maybe it's an opportunity that they can come here and learn from us... because I'm sure this is going to shock you, but we had a list of companies phoning us and we had to put them on a waiting list. (SA/MI #1)

Summary of Key Elements from the South African Side

There were five primary themes found in the data collected from the South African side. Though several have overlapping components, they each stand-alone either as pieces that were important to the process of M-Powered becoming TDM or the characteristics found in the manufacturing model as it has been employed. First, a skill shortage was raised as the primary driver behind wanting to look abroad for an alternative training program. Finding a way to overcome this gap was viewed from the perspective of industry and national pride. In conjunction with this, aspects of M-Powered that addressed this competency gap were motivating factors to adopt it in South Africa

The challenge found in scaling the pilot was the second theme. TDM staff members had to overcome significant obstacles to “make it happen” in the first year and subsequently as the program continued to grow. Although scaling made the process more difficult it is now viewed in part as contributing to TDM’s success. Connected to this is the third theme of ways that M-Powered was not simply copied in South Africa. There

were many different ways, both structurally and practically that TDM is distinct from its predecessor.

Another finding was the importance placed on having the right people on board in South Africa to implement the transfer process and then run TDM. They were described as self-driven, with a concern for learners' success. Several gave examples of their work being more than a job and how they enjoyed the way it fit into a collaborative work atmosphere. Finally, the changing role of those who helped transfer M-Powered was noted. Although there were two components where those from the US side still serve as consultants, there were several examples given of ways they can now learn from how TDM has been implemented.

Chapter V: Discussion, Analysis, & Interpretation

This chapter discusses, analyzes, and interprets the findings of the research. It is organized through a structure of the sub-research questions that guided the study. Those category areas, connected with distinct phases or stages in Philips and Ochs (2003) education borrowing model were:

1. What factors, both internal to the state within South Africa and external about the M-Powered program made it appealing or interesting? (Attraction)
2. What motivated the South Africa side (TASA and NTI) and Minnesota side (MnSCU and HIRED) to form the Intsimbi Partnership? (Decision)
3. What was involved in the process of transitioning the M-Powered program to the TDM-Powered program? (Implementation)
4. What characteristics of the Minnesota to South Africa TVET transfer were most important to the process? (Internalization)

I will discuss them in order though it is important to note that the model's conceptual markers (Attraction, Decision, Implementation, and Internalization) should not be viewed along a linear progression or as clearly distinct categories. As an example, there may be factors first seen as attraction which also come into play when internalization takes place. Thus, overlapping discussion points may be seen in what follows.

For each category question above, I will be using two primary lenses to analyze and interpret the findings (see Table 7). One lens is through a comparison between the collective participant experiences on both sides of the TVET model transfer process, the ways they were similar to one another and different. The second is in reference to what

was found in light of the literature and how the findings from this particular case can either be seen to confirm or expound on it.

TABLE 7: PRIMARY LENSES OF ANALYSIS

Analysis in Reference to Participants	Analysis in Reference to Literature
Ways in which experiences of participants from each side of the process were similar.	How the data follow the path set forth in the literature
Ways in which experiences of participants from each side of the process were different.	How the collected data expound on or go beyond the literature

Following this outline of discussion for each of the four analytic categories, several implications will be highlighted in the conclusion including additional to suggestions for research and practice.

Analytic Category #1: Attraction

The findings from this case study highlighted the conditions present in the South African manufacturing and FET environments, as well as unique structural elements of HTC's M-Powered program that made it appealing. These conditions, those internal and external, were what led to the attraction and started the borrowing process. This section will first reiterate what was uncovered in reference to the state of the country of South Africa. Following this will be an examination of what the study participants said attracted them to the M-Powered model. Next, an analysis of attraction by way of comparing the collective findings from those on each of the process will be given followed by an interpretation in reference to the literature.

Internal Issues in the South African Environment

In 2008, TASA and the NTI were looking for an existing model to use which brought in students at a foundational level and gave them practical competence based

skills as well as experience in the industry. As a multi-stakeholder partnership, they had identified dwindling numbers of employable workers and a specific gap in tool, die, and mold making skills. According to one of TASA's leaders their goal was to find an existing educational framework that could be adopted as part of a larger manufacturing skill development program fit within a systemic effort to reform the management practices of their members (Henk Snyman, personal communication, 2012). This feature is notable since it demonstrates that the initiative for attraction did not come from education but originated with industry. As was stated by one of the study participants, "the solution was born from industry and not from external research or people" (SA/MI #3). In fact, it became a major hurdle for the Intsimbi Partnership to get the leadership entities of South Africa's public TVET system (FET colleges) on board with this plan.

A related point on what was attractive based on the internal environment was that Dirk Van Dyk, a founding member of the NTI, had previous experience in trying to put together an alternative education pathway for manufacturing students back in the 1990's. Although it had failed, several things were learned that made him believe that establishing "a pull versus a push system" was the key to any program's ultimate success. NTI wanted to demonstrate to potential students and employees that there would be jobs (the pull) waiting for them at the end of a prescribed pathway. This was one of the things that they saw about the practice of the M-Powered model that attracted them. It is instructive that on one of the first days they learned about the program in Minnesota, members of the contingency from South Africa attended an M-Powered graduation where employers were making pitches for students to come and work for them. This hallmark of the program, a "reverse job fair" (US/E #1), would have been totally foreign to FET

graduates in manufacturing where industry was skeptical about the competency levels of those who had been certified through education only.

The issue of finances came into play right from the beginning when those in South Africa saw a need in their country. Funding for their investigation to find alternative TVET models in other countries was discovered to originally be provided by a South West European Partnership (SWEP) grant given through the European Union. As a mechanism similar to USAID, this resource started the group off looking to Germany. However, they soon realized that though models there could be implemented later for higher manufacturing skill levels, they would have to find a route starting at a more foundational level.

A final issue related to the internal environment in South Africa was a sense of both industry pride and nationalism. This came out as part of the theme of a skills shortage from the study participants on the South African side. As SA/MI #2 stated, “I think the whole idea when we started this program was to get the whole of Africa, the manufacturing, back on the map again and I think this is the only way we can get it”. There was a personal investment on the part of those involved for one or all of the following: the betterment of individuals, the collective manufacturing industry, and the standing of the country. The same business people who started looking abroad for an alternative TVET model bought into this idea and eventually were the ones who carried it out.

Elements of Attraction in M-Powered

In addition to the internal state of TVET and manufacturing competency development in South Africa, there were specific pieces of the M-Powered model that

were attractive to those on the South African side. Even though these pieces tied into the aspects of industry support and that it was aimed at the foundational skills level, both of which were outlined above with regard to the internal environment, there are at least three additional external components that were mentioned over and over.

The unique role of the SPOC within M-Powered was the first of these. For those from the South African industry side who first saw how this operated, the role of the SPOC as a liaison was viewed as a piece that would bring value to students seeing manufacturing as a long term vocation. Even those who came more from the education and student support groups in South Africa had never seen this before. One of these participants (SA/SS #1) noted how she had known that the US was further along related to student support generally, but how the specific SPOC role was uniquely new to her.

Connected to this, but mentioned separately, was M-Powered's attractiveness in the way that assessment or intake was done. Although this detail was not initially seen when first contact happened between the sides, it was something that set it apart from similar programs in South Africa. When the M-Powered concept of "selecting for success" was understood it was immediately attractive, especially when contrasted to the idea of assessment as gate-keeping (SA/SS #2). In this way, student intake was viewed as a match of both individual or personality predispositions and also the desire of potential students toward career aspirations.

The final major point of attraction which was mentioned was the linkage that M-Powered had with NIMS. This allowed for an in-house or program specific evaluation, as well as an externally judged certification to be given. When validation of South Africa's "red seal" was lost in the 1990's, those particularly in industry needed to find an

external form of qualification that could be trusted (SA/MI #1). Having a partner like NIMS involved provided an internationally recognized benchmark that went beyond the qualification an FET or TDM lecturer could provide.

What is also of interest here are those things not stated as initially attractive about M-Powered. The specific curriculum components were actually mentioned to be something which required the most adaptation (SA/E #1), and could be taken from anywhere (SA/MI #3) since it is really for a standardized activity (mold-making) that is taught in a fairly uniform way anywhere in the world. Though it was in no way seen as a downside to the M-Powered model, the curriculum was not seen as something that was a positive differentiation. As another participant from the South African industry group stated, "It's not about the curriculum. It's about many, many other things that need to work in synchronicity with what you're [M-Powered is] trying to do" (SA/E #1). Thus, there were pieces of the program that were more attractive than others, and it was not the program in its entirety which was seen as a unique feature or which was thought to have to come as an entire package.

Attraction in Reference to Participant Experiences

Since the idea of attraction in the Phillips and Ochs (2003) conceptual model primarily concerns the perspective of those on the borrowing side, it is interesting to provide a direct comparison with the transfer process participants from the United States at this stage. The findings revealed that those on the US side held at least four specific beliefs as to what made M-Powered attractive. First, the fact that it was industry driven was thought to be important. More than one participant involved in running the program in Minnesota stated how they thought the visitors from South Africa were impressed by

the level of industry involvement. Second, M-Powered had a distinct component geared to viewing the student in a holistic manner. This was one of the over-arching themes found in the US data and included specific mention of the SPOC position. Third, similarities were drawn between M-Powered students and those TDM hoped to serve. Fourth, the international competency based certification granted through NIMS was thought to attract those from South Africa. As seen in these examples, two of the components (NIMS credentialing and a holistic view of the student as seen in the role of the SPOC) expressed by those on the US side were found to be true in the experience of those from South Africa who first found M-Powered attractive as a potential model to borrow.

Attraction in Reference to the Literature

In reference to the existing literature there are four principle points for discussion. First, TASA and the NTI experienced the previously identified manufacturing skills gap in South Africa (Allais, 2012; Wallace, 2009). They did not see it as an isolated issue only to be addressed by education, but something that also played into how companies were managed. Further, they did not believe this need could be filled given the existing flaws found in learnerships ((Kraak, 2008), or the current FET educational system (Kraak, 2005; McGrath, 2010). For example, they gave specific illustrations to point out defects in South African pathways such as the huge amount of paperwork found in learnerships (SA/E #3) and lecturers who were only able to give theory and not practical, workplace oriented applications (SA/E #1).

Second, several study participants noted that the German dual model of high skill development through a combination of apprenticeships and traditional educational tracks

was originally attractive. This supports the TVET literature that points out the allure of the results achieved in Germany particularly in the area of manufacturing (Bennell & Segerstrom, 1998; Turbin, 2001). However, as they considered the depth of the skills gap and who their target population of students would be, a more basic entry point into manufacturing competencies was needed. The experiences of this study's South African participants, both those from education and industry, had confirmed to them the need for a different model. As one participant stated when reflecting on how he was first approached to be involved in TDM, "If it was a learnership I can honestly tell you I would not have embarked onto this program" (SA/E #2). Either due to a perceived credibility coming from another country's TVET system, or because of the unique characteristics found in M-Powered, founding TDM on a transferred model was seen as a valid intervention at the appropriate level. The NTI would look to build upon it configure their National Skills Development pyramid model (Appendix D), but they saw a fit for M-Powered as the starting point toward more advanced manufacturing skill development.

Third, the narrative of how the process unfolded points to how it was led at a grass roots level where those who saw a need and found a model to address it then participated in how the program was transferred and eventually organized in South Africa. Although they could not provide full funding for the transfer process themselves and had to look to outside donors (mostly through South African government departments) for finances, at no time were the terms of what would be borrowed or how it would be implemented dictated to them. Therefore, the Intsimbi Partnership provides an example where the context of the borrowing side was of supreme importance instead of the more typical circumstances found in borrowing cases where the priorities of those

who fund initiatives is a primary driver (Silova & Steiner-Khamsi, 2008). In finding funders to add to what they in the manufacturing industry were contributing, the priorities of South Africa's government agencies, like the Departments of Labour and Education, had to meet up with what TASA and the NTI deemed as important.

Finally, this case provides evidence of the unique factors that create a need for education based solutions in a given country. Phillips's (2004) theory contends that "cross-national policy attraction," often resulting in specific policy borrowing, is typically preceded by events that serve as a facilitator for change. Specifically from the South African side this was the critical nature of a manufacturing skills gap. Phillips and Ochs (2004) note this under "knowledge/skills innovation" in listing the possible internal issues happening within a country that could be causes to look abroad. However, they do not conceive of industry as playing a role or contributing to the "impulse phenomenon" of attraction. In addition, unlike other examples of educational program borrowing cited in the literature where attraction is introduced through NGO's (Messerlia, et.al., 2006) or government entities (Phillips, 2000), this TVET program reform was undertaken through this industry led partnership. TASA developed the NTI to initiate the process and they continue to run TDM.

For these reasons, a case of this type where a coalition from industry first recognized a need and looked abroad for a solution is very unique. Although Bailey (1993) noted a role for governmental organization of industry such as found in the UK's training and enterprise councils (TECs), a similar set of circumstances, where any type of privately organized industry association initiated a process of attraction, was not previously found. This absence of any similar situation was underscored by its absence

in the exemplars of TVET educational borrowing provided in Chapter II. It therefore highlights a previously unsearched example of how attraction takes place and adds to the policy borrowing literature in a specific way.

Analytic Category #2: Decision

The second question to be analyzed is with regard to the motivating factors that led to a decision to participate cross-nationally. This was of interest based on the perspectives from those on both sides of the process. In other words, what motivated those from South Africa to decide on M-Powered, and what motivated those from the US side to get involved in porting it?

In forming the partnership that would lead to borrowing this program, an agreement was made to establish the Intsimbi Partnership between the NTI in South Africa and U.S. based stakeholders including MnSCU. However, as was uncovered in the narrative portion of this study's findings, the program that they originally focused on was not M-Powered, but one at another MnSCU school. The actual opportunity for those on either side to decide to connect first came when a group from South Africa, including Mr. Van Dyk, Mr. Barbosa, and Mr. Skidow visited the Twin Cities in November 2007, and were put in touch with the principle drivers behind M-Powered. These included Mr. Kelly, Mr. Fredkove, and Ms. Montognese from HTC, Ms. James and Ms. Swanson from HIRED, and Mr. Mandes who was the Executive Director of NIMS at that time (Mr. Wall was also employed by NIMS, but wasn't included yet). In some sense a "decision" had already been made to borrow a model from Minnesota, even before these individuals were involved or M-Powered was considered. As it was outside the scope of this investigation to research the creation of the original connection between South Africa and

Minnesota came to be, it is valuable to note the decision being consideration here is forward from the point that HTC, HIRED, and NIMS joined the Intsimbi Partnership.

This section will begin with a justification for how this particular case best exemplifies one of the primary types of transnational education policy borrowing decisions outlined by Phillips & Ochs (2003). Next, the idea will be presented that this stage is best not viewed as an event, but an ongoing practice of involvement. Following this will be an analysis of this category in reference to each standpoint of the decision (how those on both sides came to engage) through comparisons of the participants and in reference to the existing literature.

A “Realistic/Practical” Decision

Of the four types of decisions (theoretical, phony, realistic/practical, and quick fix) outlined by the Phillips and Ochs (2003) model, this case best fits the definition of the third. They define a realistic/practical type of decision as being based on the ability to “isolate measures which have clearly proved successful in a particular location without their being the essential product of a variety of contextual factors which would make them not susceptible to introduction elsewhere” (Phillips & Ochs, 2003, p. 455). This is to say that the pre-existing conditions that would make a TVET program successful in one country are not needed to be identical elsewhere as factors for it to be successful in the country where it is transferred.

This part of the decision framework comes primarily from the standpoint of those in South Africa who intended to borrow a model. Of the other decision types maintained by Phillips and Ochs (2003), each can be rejected for this case based on the following facts. The individuals who put TDM together did not have illusions of a “quick fix” but a

long term approach which contrasts with how Phillips and Ochs (2003) labeled the South African government's decision to incorporate OBE as a panacea for the ills of the apartheid era. It was further shown that those interviewed did not come to a "phony" decision, since it was through deep convictions of national and industry pride that M-Powered was seen as a first step toward uplifting manufacturing skill levels. Finally, they were not motivated to partner based on "theoretical" but practical grounds which would require specific parts to be reimagined in their context.

Though some of the contextual factors seen in Minnesota and South Africa were noted to be similar, and some basic structures can be seen in TDM, M-Powered was not borrowed in its entirety or from a premise that it should simply be replicated. The comparable needs and standards found in developing manufacturing skill competencies were seen as a common link between the two countries (SA/MI #2). However, many different types of modifications were shown to have taken place to reach this place. The structure of the OJT process (SA/MI #1), factors included in student intake (SA/SS #1), and even NIMS testing procedures (SA/E #1) were all given as examples of how TDM differentiated itself. They wanted to learn from the experience of those in M-Powered, but were well aware of how the conditions in South Africa would dictate changes to be made (SA/MI #3). This identification that those from South Africa based their decision to be involved on realistic or practical factors is immediately apparent when considering that TDM was seen by the NTI as only one piece of their larger plan of skill development.

Involvement as Practice versus Event

Though my research sub-question for this category was based on a pre-condition to see “decision” as a specific event in time (forming the Intsimbi Partnership), the findings of this case would indicate that it is more akin to a “practice of involvement”. There become multiple ways to look at what this includes, not only from the side of those who first reached out. For example, it was discovered that those from HTC joined Intsimbi after it was already established. They chose to align themselves with the individuals from industry in South Africa who were looking for a foundation level manufacturing skills development program even though it was noted that those higher up in the College’s administration were not as highly supportive (SA/MI #3). Further, any decisions to be involved was stretched out through markers such as putting together a formal statement of work or additional back and forth trips taking place, and these decisions were highly influenced by funding issues which put things on hold for almost a year between July, 2008 and May, 2009. This then impedes the notion that any decision comes as a one-time event.

One way to view the first step of a decision from the side of those in the US came when the five from Minnesota went over to South Africa in March, 2009 to explain M-Powered more fully and meet those from education and industry at the regional level. Several participants noted these two weeks of explaining the M-Powered model and meeting individuals including business leaders and campus managers in the FET system helped to establish a trust on both sides which cemented their motivation to be involved (US/E #1 & US/SS #1). It was important for them not try portray themselves as “experts from an American program” (US/B #1) in order to both get buy in from principle TDM

individuals as well as the wider audience of potential South African stakeholders they were meeting.

The lessons learned here are two fold. First, any decision cannot be seen to happen as one event at a given time. In this case study this can be illustrated in the following question: Would the decision to participate be best viewed when the Intsimbi Partnership was first established, when those from M-Powered got on board and went to South Africa, or when a detailed work plan was agreed to in Spring 2008? Although each point included decision, the later date is actually when a formal memorandum of understanding outlining the three primary areas of support that would be provided by those in the United States was finalized. It followed the visits that had taken place on both sides, but didn't actually begin to be carried out until the following year. An instructive piece here is Powell's (2001) observation that the lifecycle of the TVET projects he investigated in Jamaica and Gambia can be seen as beginning at many different points along a process. This study of the case of M-Powered to TDM shows that it was through a series of involvement practices by those on *both* sides, and not a one-time decision, that the Intsimbi Partnership truly came to life.

Second, any decisions to be involved in the practice of this transfer program were facilitated in part through relationship development at the individual level. This was true when those from the United States made their first tour of the educational and manufacturing business environment in South Africa, but it progressed from this point forward. It was noted on both sides (US/SS #1 and SA/MI #1) that those two weeks allowed them to make connections with leaders, such as FET college administrators, outside of TASA or the NTI, who would be important stakeholders if TDM got off the

ground. In this way, it was more than those intricately involved in porting the program to South Africa who had to decide to participate. Decisions to be involved were also made by additional institutions and individuals regarding their personal involvement and support. These points further clarify an understanding of the Phillips and Ochs (2003) decision stage by clarifying how it unfolds over time and expanding the view of who is involved in it.

Decision in Reference to Participants Experiences

As has been illustrated, this view of decision being primarily in reference to those on the borrowing side is the common starting point. The participants who developed TDM were shown to hold what Phillips and Ochs (2003) termed a “realistic/practical” type of decision. The findings from those in the United States follow this typology in several ways. The process was viewed as something that would be negotiated, not as a dictated prescription for what would work best in South Africa based on M-Powered’s design (US/E #2). Also, it was well documented through the US side’s theme of “ground hog day” how a great deal of time had to be spent laying things out and then reconfiguring them into TDM. In addition, it was noted by several how they wished to be involved in some type of evaluation of the program now that it has been running for a number of years (US/B #1, US/E #2, US/SS #1). These aspects all speak to the realistic expectations, practical side, and length of commitment that those from the US made conscious choices about getting themselves into.

Contrastingly, the collective experiences of those from the US point to several distinctive reasons as to what motivated them to decide to be involved. The first of these is the idea of relational trust that came out as one of the central themes found in the data

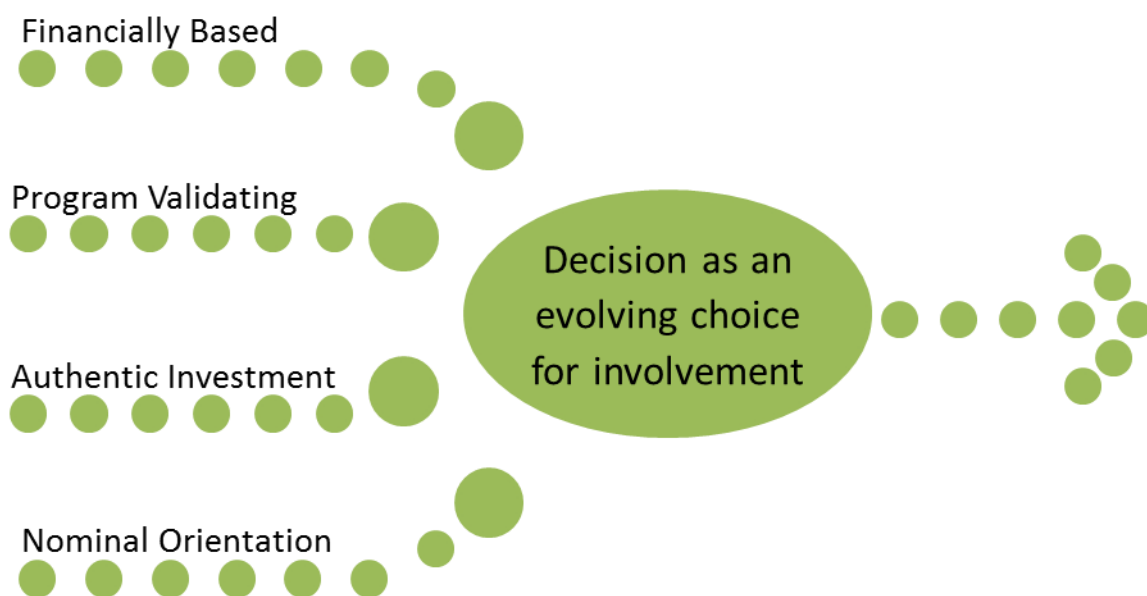
from the US side. A typical summary of their collective motivation was a quote by one of their members who said, “We always sat around in a circle and were never divided. It’s like we were on the same level. But, it was even more. I could tell that they really respected us. There was a lot of respect” (US/E #1). This level of professionalism and acknowledgement of expertise shown to those who were involved in M-Powered cannot be overstated as a motivating factor for their involvement. This is due in part to the circumstances that followed the US based participants. Although two of them were promoted to different jobs during the timeframe being reviewed, none were found to have directly profited monetarily from their involvement in the transfer process. Involvement in the process was not part of their job description, but was entered into due to reasons of personal or authentic investment

Therefore, it was the establishment of these working and as well as personal relationships, special interest in TDM’s impact, and the validation of their own contributions made to M-Powered that stand out as factors which influenced the decisions by those in the US to continue their practice of involvement. Mr. Van Dyk and Ms. Seymore were each mentioned by several as individuals who they felt a strong connection to. One participant stated the M-Powered to TDM project was a crowning career achievement to be involved in (US/E #2). Another spoke of the great satisfaction in looking back on what was accomplished (US/SS #2). Further evidence of this was the idea of feeling like a team with something important to share (US/SS #1), and how they believed those from the manufacturing industry that they met in South Africa validated this by viewing them as a passionate, cohesive unit (US/E #1).

Decision in Reference to the Literature

What emerged in analyzing the findings with regard to the decision category supplements the existing literature on the subject which more strongly reflects the so called “borrowing side” of the equation. Taken together there were four lender decision types found which add to the current understanding of important factors by considering that side of the education model transfer equation. They are presented graphically as part of a model in Figure 4 which provides an alternative, and more holistic view to the decision labels (theoretical, phony, realistic/practical, and quick fix) given to those from the borrowing side by Phillips and Ochs (2003). The four “lender” type labels further expound on the view of decision not as a one-time event, but as an evolving practice of involvement. In the same way that it is difficult to judge the motivations of those on the borrowing side of the equation, the type or types of decisions being made may not be self-evident. Also they are not thought to be distinct, stand-alone categories since one or more may at times be employed or overlap.

Figure 4: “Lender” Decision Types Model



The first of the four decision labels from this model recognizes the fact that finances and funding payments are deeply imbedded into the decision process (Powell, 2001). To some extent any educational borrowing process could be at least partially thought of as *financially based*, because funding naturally plays such a crucial role. Though NGO's and government aid from lending countries often fund TVET program transfer (Green & Holloway, 2007), this was a case where compensation was provided from abroad to the US side (South African money paid for their involvement). While none of the direct M-Powered participants may have financially benefited, TDM's compensation to the institutions they worked for was the primary entry for them to be involved.

Thinking about the second lender decision type seen above, interest from abroad in M-Powered gave US participants a sense of personal and program endorsement.

I always wanted to prove this model could work, even though I think it's great and it's successful, I needed to see it in a different environment. We convinced ourselves that you know we're successful; the students are successful but let's really test it outside of our environment and say can this really be applied. (SA/E #1)

This is an example noted in the literature whereby policy lenders gain legitimacy (Steiner-Khamsi, 2004). The descriptor I use for this type of decision is *program validating*. It mirrors what was found by Steiner-Khamsi and Quist (2000) in the classic case of borrowing to Africa where they identified an external validation of the "adaptive education" model being an important factor that caused those from the US to export it.

There was a third way found to think about the subject of lenders making decisions of involvement. Each of the eight US based participants in this study spoke about the respect and trust that motivated their participation, and how they were

genuinely invested in the outcomes of what they were under-taking including the eventual impact that TDM would have on skill development in South Africa. This adds to the experience of relational development noted by Green and Holloway (2007) in the case of the UK TVET program that was transferred to Russia. This *authentic investment* type of decision may be lacking in the existing literature either because the experiences of those who lend educational models were found to be seldom incorporated into research design, or simply due to the fact that they are less commonly involved at the grass roots of these processes and thus not as accessible.

A final idea that adds to the known literature is the concept of lenders who make decisions of involvement in name only. This can be labeled as a *nominal orientation* type. In the case of the M-Powered to TDM decision this happened in various ways. For example, MnSCU was an overarching structure when first contact was made but what they actually contributed at the system level was minimal to the process. Although DCTC was the original Intsimbi partner on the US side, their manufacturing programs ended up being disbanded (US/E #2) and it was HTC who actually carried through with the decision.

The more holistic perspective conceptualized in Figure 4 thus adds to the original types of decisions that Phillips and Ochs (2003) addressed. It is also presented while keeping in mind an important caveat. This case involved a unique set of participants from the lending side of the education policy transfer equation. Specifically, the individuals who were intimately involved in setting up and running the model seen to be attractive (M-Powered), were also the implementers on the ground level helping to port it over into another context. Therefore, it is not valid for every type of transfer situation

such as where those on the lending side are simply initial decision makers representing funding or government entities, but far removed from the actual practicalities of the process. However, it does posit an important angle seen from those who lend educational models across national borders which was not found to be either conceptualized or articulated in the current body of literature.

Analytic Category #3: Implementation

Having already discussed the internal state of South Africa and the factors that made M-Powered appealing to borrow (Attraction), and then interpreting the motivations from each side to participate (Decision), this section will focus on Implementation. The analysis in this category focusses on the specific key ingredients that went into the process of transitioning M-Powered in Minnesota, USA to TDM-Powered in South Africa.

Although it was shown to be difficult to pinpoint the timeframes of the previous categorical areas, the logistics of when this process took place are clearer. A memorandum of understanding outlining what those involved in M-Powered would provide had been in place for over a year when the work of transferring, or “porting” as it was termed by this study’s participants, took place. In a little over six months, from July, 2009 to January of the following year structures were put together and details were worked out that allowed TDM to run starting in February of 2010.

This section will analyze what was learned about this period of time where changes were implemented whereby the program in South Africa could stand on its own. Initially consideration will be given to the logistics involved in the porting process. Next, I will interpret ways in which TDM was differentiated from M-Powered through steps to

adapt and Africanize it, pointing out how TDM actually became a unique entity based on the features of the local environment. The analysis in this category will also include a discussion on the issues surrounding the topic of skill development, and how both the rhetoric and substance of this key curriculum-based feature played out. Finally, comparisons will be made with reference to the experiences of those on both sides of the implementation process, and with regard to ways this follows or expounds on the literature.

Two Logistical Steps

The process of putting TDM in place is best understood as happening through two logistical steps taken with intentionality. First, separate management structures were identified and then established. TDM's Curriculum Column and Student Support Column were distinct with regard to mission and make up. Ms. Seymore was hired early on to run the Student Support side which would be aimed to provide learner outreach, assessment, and life skills assistance. What was termed the Curriculum Column was headed by someone from the manufacturing industry (Mr. Dommissie) who oversaw setting up the industry connections and the responsibilities undertaken by TDM's lecturers. This structure was not copied from M-Powered but originated in South Africa and played out as a natural fit for Ms. James from HIRED to interact with those in the Student Support Column, while Mr. Kelly (HTC) was mostly responsible to assist with the Curriculum Column.

The second logistical step in the implementation process was hiring individuals from South Africa to fill key roles that matched up with particular needs found in porting M-Powered over. For example, under the Student Support Column, some had experience

working in education, but mostly came with profession specific credentials (i.e. marketing) or backgrounds in counseling such those who filled the role of SPOC. As they were hired, these individuals would be paired with a direct counterpart in the US who had experience with a particular component of the M-Powered program (US/E #2). These component areas included diverse fields such as marketing, student assessment, support services, curriculum/instruction, and industry partnerships. Throughout the six month implementation process, the individuals responsible for these areas on both sides traveled back and forth, communicated through email and Skype, and shared documents to put together what became TDM-Powered in South Africa.

These two logistical steps were intentionally taken to facilitate the M-Powered to TDM porting process. Those from the South African side saw these steps as very important to their program's overall implementation. They can further be seen as emerging from one of the major themes found in data from the borrowing side which was summarized under the heading "the right people" in the previous chapter.

Adaption and Customization

By way of these two intentional actions major components from the model employed at HTC were borrowed, but further customized or adapted to fit the new context. There was recognition from participants on both sides of the implementation process that TDM evolved from M-Powered but became a unique program: "What we did was not the same as opening a Hennepin Tech campus in South Africa - teaching HTC curriculum, with HTC instructors just in a different location. No, it was completely different" (US/E #2). As a South African participant from the education group stated when talking about a specific component he customized: "Look, I imported it from

America, but I had to embellish upon it for South Africa...it's a NIMS document, but I Africanized it" (SA/E #3). This happened in many different ways, and though other examples could be given, Table 8 below highlights four in detail. It shows how a specific policy or component of M-Powered (Column A) was differentiated in the South African context through adaptation and customization (Column B) leading to several instances where a completely new TDM component resulted (Column C).

TABLE 8: EXAMPLES OF COMPONENT MODIFICATION

Borrowed Policy or Component of M-Powered	Adaptation and Customization for South African Context	New Development of TDM
Student support philosophy and SPOC position	<ul style="list-style-type: none"> • Training programs & structured processes put in place for multiple geographic locations • 2 Column Structure (Student Support & Curriculum) 	<ul style="list-style-type: none"> • Housing student support (SPOC) office next to TDM classrooms on FET campus
Curriculum for foundational skill development & NIMS credentialing	<ul style="list-style-type: none"> • Metric conversion of all measurements and updates of drawings • Formatting and standardizing curriculum into binders • Having NIMS hands-on test come before the written exam 	<ul style="list-style-type: none"> • Additional curriculum levels up to engineer level • Use of central company to certify all student pieces • Becoming NIMS' partner representative for Africa
Career guidance and promotion of the manufacturing vocation	<ul style="list-style-type: none"> • TDM logo design and motto • Gearing materials to post-secondary school students and not incumbent worker 	<ul style="list-style-type: none"> • Multimedia marketing products • Interactive kiosks
Accuplacer assessment employed to set students up for vocational success	<ul style="list-style-type: none"> • Using stratified scores to accept low, mid, and high scores as a pilot program • Applying culturally 	

	appropriate intake to accept students expressing family support vs. personal motivation	
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The four examples of component modification in this table can be further interpreted to show that changes and adaptations to TDM happened for a number of reasons and in several ways. In some instances it was a pre-existing condition that differentiated TDM from M-Powered such as the fact that in South Africa the manufacturing industry was the initiator and had to find education partners whereas in Minnesota it had been just the opposite. Other times changes that had to be made in customizing a component of M-Powered came as the result of conditions outside the control of TDM or due to unique factors operating in the South African context. Examples here include the lack of incumbent workers available to the program which dictated that the marketing and promotional materials would be geared to a younger demographic, alternative cut scores being used to accept students over a wider range in order to show the impact of TDM as a pilot program. Even the racial make-up of staff and students being more diverse when compared to M-Powered is a significant example of differentiation that took place.

Regardless of the reason for why adaptation was required and eventually showed up as TDM's differentiation, actions had to be taken to customize components of M-Powered for the new context. Sometimes this was through partnership with those on the US side as in the case of putting together lecturer training programs and SPOC procedural manuals, neither of which existed in Minnesota. Other times adaptations were implemented solely on their own as was the case when TDM updated blueprint drawings

and converted measurements to metric by way of standardizing the curriculum into binders for the lecturers.

Another thing illustrated by this case study is that the end result of implementation may be a component that is completely new. The concept of manufacturing career guidance and promotion employed in M-Powered was something that individuals from both sides updated through a logo design, slogan, and marketing materials aimed at younger potential students than those found in M-Powered which typically took workers who were already employed. This was a change based on the South African environment which dictated that TDM learners would generally have just matriculated from secondary school and have little vocational experience. What TDM's marketing staff eventually put together was a high end multi-media strategy to educate prospective students about the manufacturing industry which was much further advanced than anything used by M-Powered. It included interactive video kiosks touting facts about manufacturing in South Africa, and how the TDM program aimed to give practical skills and industry experience leading to available jobs. More than one interviewee from the US side mentioned how impressive these materials were and US/SS #1 likened them to "marketing gold" wishing the Minnesota side could have something comparable.

Other examples of a new component coming out the implementation process can be seen related to the M-Powered curriculum and NIMS. This includes the significant expense of TDM hiring a metrology company for the following purpose:

...to sort of have a central inspection location for the whole country on parts consent and they all get checked [student pieces] eliminating the possibility of any kind of corruption and to ensure that system-wide they had no issues at all. So they went the extra step. (US/B #2).

In a related development, TDM has also partnered with NIMS to promote international credentialing on the entire continent of Africa and in the Middle East. Additional instances of new developments resulting from the implementation process can be found in three of the four component examples listed in Column C of Table 8.

Skill Development as Rhetoric and Substance

One major piece stemming from the impotence to look abroad and then in implementing TDM was the issue of manufacturing skill development. As the process of educational policy implementation takes place, it is valuable to discriminate between what results: a perpetuation of the rhetoric or something of substance. Members of TASA believed their companies would not survive if the status quo of training and education practice was maintained (SA/MI #2). Terms such as “competency-based”, “outcomes based education”, and “skill development” were often quoted by participants on both sides of the implementation process to describe components of M-Powered and TDM. It is also reasonable to believe that these labels were used to describe the programs when looking to bring credibility and funding sources, both within South Africa and internationally, to the implementation process. This can be seen as evidence of the rhetoric associated with language which often accompanies TVET, whereby the use of terms carry weight, though a shared meaning may not be present and may even be disassociated from practice (Spreen, 2004). More specifically, this has been pointed out in reference to the topics of skill development and competencies (Clarke & Winch, 2006; Lum, 2004). These concepts were found to be important to participants on both sides, but particularly those within the manufacturing industry in South Africa.

Though the rhetoric of skill development can be seen in the implementation process, there were also examples of substance provided in the findings of this TVET transfer case. To be sure there were behavioral aspects of this such as NIMS' 100% standards on work pieces. The more socially constructed skill development frameworks can be seen in the desire to have artisans as lecturers and the value placed on orientating learners to the actual manufacturing environment. This also stood out in the two interviews with TDM students where they specifically mentioned ways that the program was preparing them in a more comprehensive way for entry into the workplace when compared to those they knew in the traditional FET manufacturing programs. This delineates a way in which they viewed their own competence. Another example of this was how impressed businesses were with the learners they signed up to take for the OJT experience (SA/MI #1). Though it is still too early to see if or how TDM's emphasis on skill development will impact the greater South African manufacturing industry, these are early merits of accomplishment that point to something of value having taken place.

Implementation in Reference to Participants Experiences

In analyzing the collective experiences of participants on each side of the implementation process different orientations were noted as to what each attributed to the success of the process. In collecting data from participants in South Africa, the theme that emerged was having "the right people" particularly on their side involved in the process. Those on the US side attributed implementation success to South African "leadership in the manufacturing industry", and a "relational trust" that developed between the principle individuals involved in the process. Though these can potentially be seen as different sides of the same coin, it is quite telling to realize that this analysis of

the implementation process did not turn up any examples where the participant experiences on either side were directly opposed to each other. In other words, there was nothing contradictory in how each side viewed this primary porting stage.

However, there were several instances of similarity, and a unifying component that both sides pointed out. Although the examples used to define it were not the same, one obvious example of this was that there was a common recognition that the process was made difficult either by the fact that what was done in M-Powered lived more in the heads of those who ran it and had to be codified (US/SS #2), or because of the scaling of TDM as a pilot project at seven initial locations and logistical hurdles that presented (SA/SS #2). Another similarity, as highlighted in participant quotations referenced as examples of adaptation and customization, is that those on both sides noted that it was not a process whereby M-Powered was duplicated or set up to run as an extension of how it was in Minnesota. TDM was a similar but different program from the very start, even before it ran past the first year and continued to evolve.

Beyond these similarities, a strongly unifying component was the context of the manufacturing environment. Both sides used it as a point of reference to highlight similarities between themselves and as a conduit of the implementation process. For example, in South Africa it was stated that those from HTC had the same difficult issues that they had, but which were also common even in German manufacturing (SA/MI #3); while someone from the US said, “There are global requirements so it isn’t like you think something is totally different in South Africa than you need in the US or you need in Canada or anywhere because manufacturing is a global endeavor” (US/B #2). At least in part, this similarity was believed to be strong enough that it could override any of the

cultural or structural differences that made transferring M-Powered challenging. This was particularly true related to how TDM implemented NIMS credentialing to give their students an internationally recognized credential, and points out that programs in both countries would view their graduates as having identical, standardized skills regardless of the fact that their programs are not the same.

Implementation in Reference to the Literature

One area where the case of the M-Powered to TDM implementation followed the literature is in reference to TVET instructor practices. Lecturers were primarily sought from within the manufacturing industry as opposed to current FET instructors who lacked practical experience. Papier (2010) noted numerous challenges influencing these incumbent lecturers currently employed in the FET system while also pointing to ways in which alternative pathways for teaching certification are being explored. As such, one issue that has yet to be fully resolved is how to strengthen TDM lecturers who have a wealth of practical experience to pass on to learners and from which to draw upon, but who may lack a theoretical foundation or an understanding of adult education principles (SA/E #1). The need for this balance is confirmed in the germane case of a tool, die, and mold-making program in China, where students' vocational understanding was shown to grow by having "dual qualification instructors" or those with both theoretical and practical experience (An & Su, 2011).

Another point that follows the literature is with regard to the topic of global standardization. As noted by Burde (2004) the level of discourse often does not match the actions found in specific change. However, in this implementation process, there was both rhetoric and substance found around the universal topic of skill development, and

the standardization of the manufacturing environment at large was something that participants on both sides saw as a unifying factor for the transfer process. These global phenomena were acting to form TDM, while participants also noted ways in which differentiation evolved between the programs because of the local context and through steps to “Africanize” it. This underscores a tension but also a semblance of balance between a world culture and an allowance for native modification. According to Waldow (2012), although the two sides are often juxtaposed against one another, there is a space for both the influence of globalized standards and local differentiation. Finally, the role of Mr. Ellis as a cultural broker between the two sides was noted by both the US and South African sides as a key ingredient. He was uniquely positioned to provide insider information and connections in either direction follows a suggestion from the literature (Steiner-Khamsi, 2004) and makes it reasonable to believe that without his influence implementation would not have been possible.

Beyond confirming the literature, there are two ways this case adds to or expounds upon it. First, the analysis of this implementation process provides a practical illustration of how stakeholders from a borrowing country might go about setting up a transferred TVET program. TDM went about this by breaking down the logistics found in M-Powered into structural columns and then hiring their initial staff members to directly interface with a US counterpart specifically running some aspect of what was to be transferred. One of the five major themes collected from those on the South Africa side was the idea of having staff who were both passionate about TDM’s mission and capable in their jobs. This adds to the literature by highlighting the value of having people on the ground floor placed to make implementation happen in a relatively short period of time.

It could be especially important in instances where those from the borrowing country are in control of implementation and not dictated to by outside funders. Second, a new term was found to be used internally with those involved on both sides of the implementation process: “porting”. They spoke of taking something in one context and porting it over through a technical process using the same rules (technical components), but applied within new context (US/E #2). Neither this conceptualization nor the term itself was found in the education policy borrowing literature. Coming from the practitioners of implementation, they thus help expand the frameworks of transfer, borrowing, and lending that are commonly used.

Analytic Category #4: Internalization

Whereas, the process of implementation was focused on the six months leading up to TDM first running in February of 2010, the category of internalization is concerned with that point in time forward. Now well into a fourth year, the TDM program continues to develop. An analysis of the promise and challenges they have experienced will be followed by a discussion of the relationship dynamics that have since transpired between the two sides and how the period of separation has been viewed since the more intense time of implementation. Finally, as in the previous analytic categories interpretations will be drawn through references to the participants experience on either side as well as what was found in the current bodies of literature in HRD, TVET, and education policy borrowing.

Promise and Challenge

The internalization of TDM shows joint areas of promise and challenge. Looking at the program from a quantitative view, their size and reach have grown. The number of

accepted students has increased, the quantity of lecturers has more than doubled, and the program sites have gone from seven to twelve in diverse geographical regions of the country ranging from the Gauteng province (Johannesburg and Pretoria) to the northern rural location of Lephalale, Limpopo. Also, there are reasons to believe that the overall quality of the program is strong according to different TVET measures. In 2011, one of TDM's lecturers, Mr. Darryl Ebraim, was recognized by NIMS as one of their global top ten instructors for his credentialing achievements. TDM was also chosen as a "developing quality partner" for the tool maker career path through the Quality Council for Trades and Occupations (see Appendix H) which was noted as a major achievement (SA/E #1).

Of primary importance to those on the South African side TDM is viewed as a positive skill development pathway by both learners and the manufacturing industry which are thought to be the two primary customers of the program (SA/MI #1). This is attributed in part to the structure of having an equal rotation of three phases: the teaching of theory (classroom based learning), hands-on application (workshop or lab), and vocational contextualization (OJT experience as local companies). TDM's format is thus behaviorally oriented through the use of NIMS standards, but also makes room for cognitive and socialization aspects of competence, such as advocated for by Delamare-Le Deist and Winterton (2005). The three phased structure allows for constructed performance incorporating both domain specific and generic skills, confirming ways in which competence cannot be extrapolated from the context, situation, person, activity, or field that employs it (Hinchliffe, 2002). This type of skill development, linked to contextualized vocalization, was also cite by the Department of Higher Education and

Training's green paper where they acknowledged drawbacks in the current FET system (RSA, 2012), and noted by the Minister of Education (SA/MI #3).

Of course there remain ongoing issues such as the process and associated costs of checking the student work pieces (SA/E #3), and getting those from the South African TVET system fully on board with what they are said to view as "an American model" (SA/MI #3). Another concern is that at the different sites TDM is housed mostly within the existing FET Colleges, but runs as a completely separate program. This brings competition with FET manufacturing programs both in terms of students and for limited workshop space or resources. A final area of challenge concerns TDM lecturers. The fact that the twelve sites are so geographically diverse means that those who lead the Curriculum Column from the central office in Pretoria have less direct lecturer contact than they would prefer. As the curriculum levels and skill areas continue to grow, there is added difficulty in finding lecturers with specialized manufacturing experience. Also, turn-over and training of lecturers continue to be hurdles for TDM (SA/E #1), and partly to address this fact a staff member with a background in adult education was recently hired (SA/SS #2).

Financial struggle and funding issues was a consistent theme right through internalization as the TDM pilot experienced promise and challenge. From the very start of NTI's existence the goal was to get TDM funded through the South African Qualifications Authority (SAQA) which administers NQF's and apprenticeship training. For this reason the pilot had to be as large as possible to show maximum results. It also explains in part how the manufacturing industry was the main driver of porting M-Powered over and the reason why they did not initially go through education:

“The Holy Grail from the moment we first went over there has been this fund that is literally billions and billions of Rand for apprenticeship training through SAQA in these organizations in trade and industry and if you have an approved apprenticeship program, you tap this funding...which TASA guys have been paying into and want to get their money back” (US/E #2).

The Department of Trade and Industry (DTI) has had these discretionary funds which were collected from associated manufacturing businesses to be used as training resources and if the TDM pilot proves successful they will be able to tap into this line item in the DTI’s budget. Although a full partnership has only been established with Gauteng provincial government and the “holy grail” of funding mechanisms has yet to be fully realized, those in South Africa believe they have a successful education model that can be used beyond tool, die, and mold making. It is actually their intention to now modify components of TDM “to work for welding, for boiler making, for anything. We can run the country’s manufacturing strategy on a larger scale if we just put more resources here” (SA/MI #3). Therefore these features, the influence of being a large scale pilot project and the need to access additional funding, point to the nature of TDM’s internalization being both promising but also a challenge.

Period of Separation & Role Change

As TDM’s internalization has taken shape, there has also been a period of separation between the two sides. Starting in the early stages of attraction there was a dependence on the M-Powered program as a model and those who ran it as authorities providing information and expertise. This has now shifted. Although those from TDM brought a group of business and government leaders to Minnesota in 2012, and lecturer training was provided through HTC in 2013, regular communication between study

participants from either side can now be seen more as personal connection than professional consultation. Value was espoused in using the leaders of M-Powered as a “sounding board” (SA/SS #2), but internalization has brought a change in the balance of power and directional flow of knowledge.

Those on both sides spoke to the ways in which those in the US had learned something through this shift and how the roles have shifted. For example someone said, “Every time we’ve looked at M-Powered in a different environment, we’ve learned more about M-Powered. We learned a lot about how to do that on this side and how to make this work” (US/E #2). Their involvement in South Africa was even noted as helping them structurally to get additional US Department of Labor (DOL) grants for their program. This acknowledgement of what they learned was noticed by their South African counterparts and was said to give them confidence in their personal abilities and in the program. An example given here was when Mr. Kelly told them how impressed he was by the ratio of student placement in industry and that he wanted to learn how they did it (SA/MI #1). This development of learning happening in the opposite direction was also noted as a revelation of sorts: “I was actually also very surprised about it because I think in South Africa we perceive the Americans as the ones that never make a mistake. They are the ones that always do every task right” (SA/E #2). It was also seen as something that could happen even more often as TDM grows and is scaled at such a bigger size than M-Powered (SA/MI #3).

Currently, only two study participants from the United States are even nominally involved in TDM on a regular basis due to ongoing relationships with the College Board’s Accuplacer exam and NIMS credentialing. However, in numerous ways,

participants from the US side spoke of wanting to be included as external evaluators of the TDM pilot. It was even noted that this had been part of the original plan (US/SS #1). However, no one in South Africa brought this up or theorized how they would benefit from an assessment by the M-Powered team. Thus, it appears that there are different understandings between the two sides of how those in the US can continue to be involved during TDM's ongoing internalization, or what is actually needed and wanted by them from the South Africans.

Internalization in Reference to the Participants Experience

Though these examples show how roles shifted during this phase and the current differences in terms of expectations on each side, internalization is a category similar to attraction where the main point of reference is most naturally seen through the experience of the South African participants. They have been the ones heavily invested in TDM and are in the position to speak to this aspect most clearly.

The ongoing tensions found in getting those from FET colleges and stakeholders within South African TVET education on board was the foremost reference that study participants from there used to describe the internalization of TDM. Part of this problem was linked to the disconnect that existed between what was taught in FETs and what the industry standards mandated (SA/E #3). It also came out as a result of not having many pre-established relationships between the two sides at the local level. However, another major part of this tension was due to the involvement of those from the United States and how the model that was being internalized had been borrowed from there. A quotation from one South African participant sums this up well:

It [TDM] was immediately threatening to the educational environment. They rebelled saying "this US stuff, the US always wants to tell us what to do and they

think they're smarter" and all the rest of it. And we said, yeah, we hear you but it's not about the US or anyone telling us what to do. We looked for ingredients that fitted our specification. We found them and we are working with those things so it's not the US telling us what to do. It's us begging the US to say can we borrow that from you because we like it and we believe we can make it work in our environment and so on" (SA/MI #3).

Due to these negative connotations, individuals on both sides noted how TDM is no longer referenced as an American TVET model or as being based off of M-Powered in the United States.

However, where links with FETs have been established there has been progress made during TDM's internalization phase to better align education with the manufacturing industry. The management groups at FET sites where TDM is housed were mentioned to have welcomed new ideas, allowed workshop alterations to be made and invited industry leaders from TASA to their meetings. In many instances TDM is no longer viewed as a renter of FET space, but a contributor to best practices, "where in the beginning of this huge problem where they [FET management] don't want assistance, they don't want to help us. They were going one way, we were going the other" (SA/MI #1). Some FET department heads are even open to being audited by NIMS so that they can have their college be an accredited site.

Internalization in Reference to the Literature

There are two means by which the internalization of TDM can be viewed in light of the existing literature. Pilot scaling and evaluation is the first point of reference. As a pilot program, TDM gives a tangible example of scaling TVET models on a national level and raises questions surrounding how evaluation can best be done. During the internalization process, TDM appears to have avoided the pitfalls experienced by South

African learnership pilots where not getting local stakeholders on board (industry partners) and a lack of structured oversight were cited by Davies and Farquharson (2004). In early 2013 the final level of TDM was rolled out meaning those who started in the first foundational level cohort back in 2010 will now be matriculating into full time employment options or into the “master artisan” qualification phase through articulation agreements with Institutes of Advanced Tooling referenced in Appendix D. The way TDM stratified these students and took in a wide range according to their Accuplacer scores will help to truly determine the pilot’s impact on skill development according to the findings of Laur-Ernst (2008). Although it wasn’t convenient and made the piloting more difficult, now that there are twelve diverse sites and hundreds of students from which to draw data, the results of any type of evaluation will be more useful to those being asked to fund it going forward. However, though it was alluded to as a goal (SA/SS #2), those in TDM have not as yet undertaken evaluation of the full program in a systematic way. This is indicative of most TVET pilot projects where time and money make this prohibitive (Fretwell, 2003).

The way TDM is structured is the second area to reference in regard to the existing literature. As was detailed in the internalization category, the manufacturing industry, represented by the NTI and TASA, continue to be the leaders even as they try to reach out for more buy-in from those in education. Though a complete evaluation won’t be suitable until the end of 2013, there were reasons given that point to the successful impact TDM is having on manufacturing skill development. This overt action taken by those who run companies to educate a workforce harkens back to the early 20th Century when General Electric organized corporate schools “stemming from a perceived shortage

of skilled workers in the country” (Nelson-Rowe, 1991, p. 33). It also provides an unfolding example of how South African private-public partnerships (PPPs) are influencing the field of TVET. Though there are reasons to be wary of the influence of these PPPs in terms of their impact in outsourcing education, and how they are often funded by actors from outside South Africa (Pampallis, 2004), TDM continues to provide a unique service which is internally resourced by those with a stake in its immediate impact on learners and the manufacturing industry.

Summary

This study has brought together the fields of HRD, comparative and developmental education, and TVET to look at how a manufacturing skills program was transferred from the United States to South Africa. The primary question, “What features were important in the successful transfer of M-Powered to TDM-Powered?” was investigated through a case study approach using a constructionist paradigm. In addition to document collection, a total of fifteen participants were sampled in both countries through one on one interviews and in two separate focus groups on each side. I, as the researcher, was interested in applying these findings through an oft-cited model of educational policy borrowing developed by Phillips and Ochs (2003). This model’s four stages, specifically Attraction, Decision, Implementation, and Internalization, were used to guide the construction of four sub-questions. In this chapter, these category areas were analyzed with special reference to the similarities and differences of the participants’ experiences and in light of the existing literature. Several implications for practice and research, and my conclusions will close this section.

Implications for Practice & Research

In distilling the discussion items found in the four analytic categories of this chapter there are two primary implications that point to future research and practice. Through these examples, practitioners may find supports for carrying out similar efforts from either side of the transfer process, as borrowers or lenders. The implications below are also valid for researchers looking either to document or evaluate TVET program transfer, pilot structuring, and impact.

Intersections between fields. First, practitioners in the fields of HRD and TVET can benefit from areas of intersection between their traditions such as demonstrated in this case study. If a skills crisis exists in South Africa (Kraak, 2005), and human capital theory is indeed an underlying motivation for human resource development (McGrath, 2002), the TDM Program might be an employer-led, business initiated model for addressing competence development in other industries beyond manufacturing. This case study lays out the specifics of how an industry association took it upon themselves to look abroad, transfer, and then establish a program to meet specific needs in both technical training (TVET) and employee development (HRD). The US and South African based participants on both sides in this investigation, whether from industry or education, consistently brought up the value in having the manufacturing industry involved as key drivers of any technical skill training system. Although in this case it contributed to additional difficulties particularly in terms of funding and getting those from government and FETs on board, it provides detailed information on an alternative to setting up a TVET program either by way of being initiated through overseas interests or solely from the impetus of a federal government agency.

Though TDM was implemented at a national level, when the economic needs of South Africa are viewed from the widest angle, any positive impact it has on the larger skills gap are minimal when considered quantitatively. However, this should in no one diminish what was undertaken and the differences it has already brought to bear on learners and businesses. Though at times I had to clarify that my role was only in investigating the factors around how TDM was transferred, and in spite of the fact that those who set up M-Powered expressed interest in being involved as external evaluators, a large scale evaluation of the program's impact may be premature until after the full pilot is completed at the end of 2013. It seems that the prime way to carry this out would be through an impartial party, but questions of who this might be or how it might be funded remain unanswered. Irrespective of how this is done, it appears that TDM's internalization is poised to provide fertile learning both in terms of TVET pilot structuring and then concerning the impact of a uniquely structured, industry led model for manufacturing skill development undertaken at a national level.

Educational program transfer. The second implication of this study that influences both practice and research, concerns educational program transfer and the four stage model proposed by Phillips and Ochs (2003). The documentation of how and why M-Powered became TDM in South Africa provides an exceptional example in the literature because it was initiated by a private industry association using partial public funding. The NTI and TASA were not dictated to by international NGOs or government agencies. This lack of influence from these types of stakeholders is rarely seen and points out that educational transfer can take place when initiated by those who most closely know the conditions that lead to reasons for foreign models to be employed.

An understanding of the timeline involved in this process underscores that educational program transfer does not happen in distinct phases or as a completely linear format. Overlaps can be seen between the stages of Attraction and Decision or Decision and Implementation. As one of the most widely referenced models for education and policy borrowing, more studies that directly apply a program transfer between countries is useful to contextualize the various phases that Phillips and Ochs (2003) conceptualized particularly through the experiences of those on both sides of the process. A case study such as this provides an example not often considered where those traditionally thought of as lenders bring a unique perspective which influences the borrowing process. The implications of seeing how specific components in M-Powered were distinctly adapted and then become entirely new features in TDM, is a model that can be further explored by researchers. This goes beyond an understanding that programs can be transferred internationally with a few changes to contextualize them to the local environment. In this investigation it was documented that those on the lending half of the equation undertake a decision to be involved for different reasons than those on the borrowing side. Four types were categorized and then labeled as financially based, program validating, authentic investment, and nominally oriented. Future researchers may find these useful when conducting studies focused on the experiences of those in both countries of educational program transfer sides and their decisions and motivations for involvement.

Conclusion

This case study has shown the factors that went into the successful transfer of M-Powered to TDM. Those conditions that caused the manufacturing industry in South Africa to look abroad long before they formed the Intsimbi Partnership were extremely

important and point out the unique history South Africa has gone through since the end of the apartheid era. Specifically, the manufacturing skills gap and limitations of the TVET approaches, be they in the FET system, NQFs, or learnerships, used to address it made components of M-Powered's model attractive. These included the Minnesota program's attitude toward viewing assessment as part of vocational success, the SPOC role in holistic student support, industry instructors with an OJT work phase, and finally an international credential (NIMS).

The barriers found in applying the M-Powered model to a new context and also the intentional steps taken to overcome these obstacles was analyzed from the collective views of the borrowers in South Africa and lenders in the United States. Since the process was not initiated through macro government oversight or international NGO funding, a lack of financial resources limited how the two sides carried out their roles and continues to be a challenge to TDM's further internalization. Nevertheless, a structure of two columns was put in place whereby individuals were hired in South Africa to have direct contact with a counterpart who had carried out one or more aspects of setting up and running M-Powered. Having key people on both sides involved and the deepening of trust in their relationships through years of interaction was said to contribute both to the decisions of these individuals to be involved in the process and their success in ultimately making it happen. The perspectives provided by those on the ground level of this porting process was a distinctive of this study not often captured in similar cases.

Because of the unique environmental factors in both countries and the context surrounding how and why this educational program transfer took place, this case should not be seen as a blueprint to be copied. Rather, it can best be viewed as adding a record

that incorporates the perspectives of both sides of an educational program transfer between countries. My goal has been to try and fill in gaps found within each of the three distinct fields that this study brought together, and also highlight the linkages between them. As such the qualitative findings of this study point out empty spaces (Pratt, 2007) that can be filled where current literature has been largely silent.

By applying a constructionist paradigm that recognizes the lens that I as the researcher bring with me, this investigation mirrors my background in developing customized training interventions for business and industry, through the mission of a technical college to develop vocational skills. Though knowledge skills are often touted as important advantages in the modernized, information oriented economy, technical aptitudes, and thus the means to grow them remain vitally important. As stakeholders at organizational, industry-wide, and national levels look for alternative pathways for competency development, it is hoped that the case of how TDM-Powered was set up in South Africa will be instructive. Though the ultimate impact of the program on South Africa's manufacturing industry has yet to be evaluated, this case study has provided a record of what was involved in the process of porting it from the United States and establishing it as an alternative model at a national level.

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Appendix A: IRB Notification

From: irb@umn.edu
To: stua0042@umn.edu
Date: Mon, Dec 19, 2012 at 1:41 PM
Subject: IRB Review Not Required

PI: Jonathan Stuart

IRB HSC: 1212E25523

Title:

Investigating Technical Education Program Transfer Between Countries

From: Institutional Review Board (IRB) The IRB determined your planned activities described in this application do not meet the regulatory definition of research with human subjects and do not fall under the IRB's purview for one or both of the following reasons:

1) The proposed activities are a) not a systematic investigation and/or b) not designed to develop or contribute to generalizable knowledge [45CFR46.102(d)].

Quality assurance activities and evaluation projects designed for self-improvement or program evaluation, not meant to contribute to "generalizable" knowledge, do not meet the threshold of research with human subjects.

Although IRB review may not be required for case studies, you still may have HIPAA obligations. Please contact the Privacy Office at [612-624-7447](tel:612-624-7447) for their requirements.

and/or

2) You will not obtain private identifiable information from living individuals [45 CFR 46.102(f)].

Interviews of individuals where questions focus on things not people (eg. questions about policies) do not require IRB review.

You will be analyzing aggregate data that cannot be linked to a living individual.

The above referenced IRB Human Subjects Code (HSC) will be inactivated in the database and you will have no further obligations for this project. Please do not hesitate to contact the IRB office at [612-626-5654](tel:612-626-5654) if you have any questions. Thank you for allowing the IRB to make the determination about whether or not review is required.

HRPP Staff

Appendix B: Participant Consent Form

PARTICIPANT CONSENT FORM

Ph. D. Dissertation Topic: Investigating Technical Education Program Transfer between Countries

You are invited to participate in a research study on your experience participating in helping to set up the Tool, Die, and Mold Making (TDM) Programme in South Africa. You were selected as a possible participant because of your involvement in this process between the years 2008-2010. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Background Information:

This study is being conducted by: Jonathan Stuart, PhD Candidate in the Work, and Human Resource Development at the University of Minnesota. The purpose of this study is to understand the process of how the M-Powered Program was transferred and changed to become the TDM Programme.

Procedures:

If you agree to be in this study, you will be asked you to do the following things: Participate in a 60 to 90 minute interview with the investigator, and also a 60-90 minute focus group with those who you worked with in your home country. The interviews and focus groups will be recorded. However, they will be immediately transcribed to remove personal identifying information and then deleted.

Risks and Benefits of being in the Study

I am not aware of any risks to you in participation in the study. The benefit of the study is to better understand how (technical) education programs can be “borrowed” between countries from the experience of those who are involved in the specific details of transferring and changing the program.

Compensation:

There is no compensation associated with participating in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Study data will be encrypted according to current University policy for protection of confidentiality. I will be the only person with access to the recordings. I will immediately transcribe the recording. Your file will be identified by a number rather than your name. Once the transcription is complete, the recording will be deleted.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide

to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Jonathan Stuart. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Jonathan at (612)998-3128 or stua0042@umn.edu. You may also contact my Ph.D. advisor, Dr. Alexandre Ardichvili, ardic001@umn.edu.

In order to participate in this study, please scan back this form with your signature and the date below. You may also choose to simply send a reply email stating your interest, and then a hard copy of this form will be provided in person.

Name of Participant

Signature of Participant

Date

Please keep a copy of this information for your records.

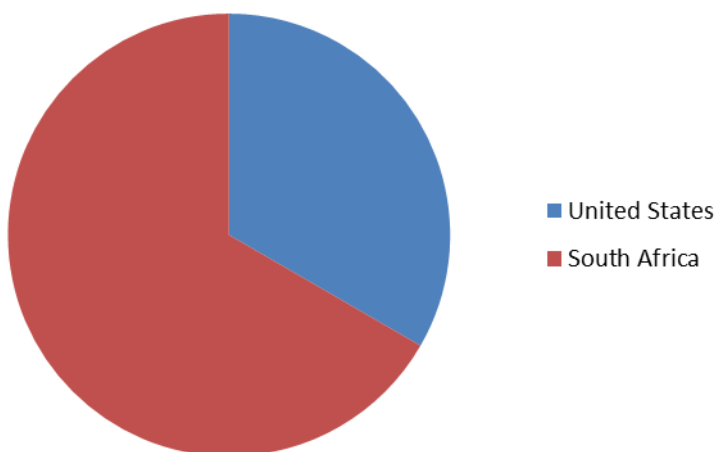
Appendix C: Participant Introductory Survey with Compiled Results

– Introductory Survey –

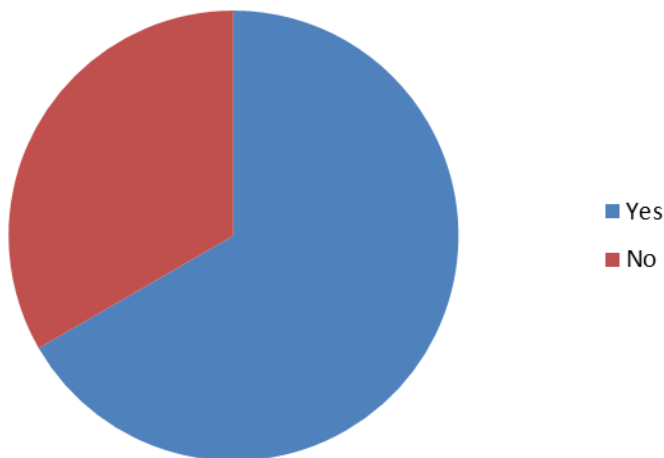
“The M-Powered to TDM-Powered Process”

The following questions provide your background and experience working to help transfer the M-Powered model and customize it as the TDM-Powered program in South Africa. Please answer them as completely as possible and return this document either as an attached email or hard copy to the address below. This survey should take you no longer than fifteen minutes to complete. Your responses will be useful to ask follow questions when we meet in person. Thanks.

8. Which side of the process did you primarily work from?



9. Are you still in the job you had during the “transfer” process?



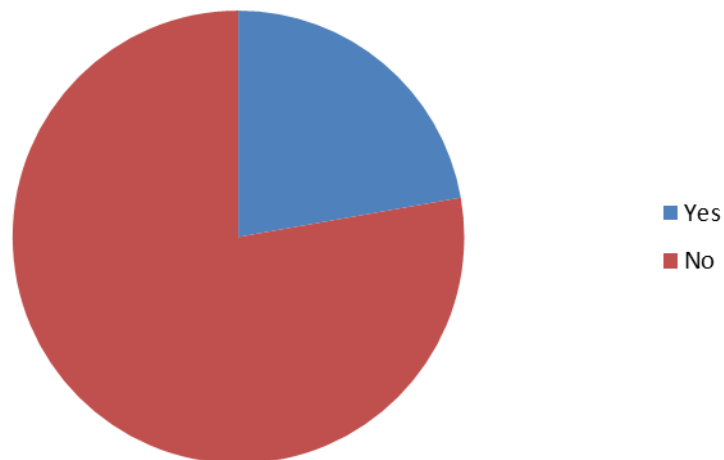
If “yes”, how long have been in your current role?

If “no”, how has your job changed or what is your current role?

- *I have been in my current role 16 years.*

- *Yes.*
- *Yes, since first conversations winter 2008.*
- *Yes, Involved since July 2009*
- *No, changed from being part of the think tank to just project managing all coastal sites ie; mentoring lecturers, career days, classroom observations, metech issues, conflict resolution, site management issues etc...*
- *No, my role is Program Manager (Curriculum Manager) since January 2010*
- *Yes, 6 years and am currently in the same job*
- *No, my job has changed from Project Manager to lecturer.*
- *Yes, 4 years*

10. Had you previously been involved with a similar project before participating in the Intsimbi Partnership? If “yes”, please describe below:



- *Not in education*
- *Yes, writing of curriculum and procedures, training of team members for similar roles in US.*
- *Yes, set up the interim toolmaking division at Wingfield and ran the first ever toolmaking learnership up to NQF level 4*
- *No, I was involved with AIDC and Tshwane University of Technology in the development of a state of the art CNC/CAD/CAM training centre.*

- *No, I come from the Manufacturing sector*

11. Is there anything that stands out to you about what was significant in making the process happen?

- *The enthusiasm on the South Africa side was wonderful. The employers were deeply committed to the project and invested in the process. We don't necessarily see that commitment on the US side.*
- *Proven process from USA. Strong and tenacious team in SA that were able to localize the process/content.*
- *Communication was critical, clarification of expectations needed on ongoing basis, cultural and logistical differences needed much discussion.*
- *COMMUNICATION ACCEPTANCE OF DIFFERENCES ADOPTION TO REACH UNIVERSAL GOAL*
- *at the start it was teamwork, enthusiasm, commitment and hard work.*
- *It was a group effort by self-driven individual specialists, supported and guided by industry and USA Partners with the goal to train people to international standards.*
- *OJT, as well as the back ground support the student gets from the SPOC. Outcome base apprenticeship is great.*
- *Hard work, commitment and dedication.*
- *Passion of the team, need of the project for the country*

12. What suggestions would you have for those undertaking similar types of educational transfer projects?

- *Some processes and definitions were more lengthy than expected. Formal work statements are suggested for future initiatives that makes the work easier for transferring.*
- *Increased ongoing involvement to evaluate outcomes.*

- *Have thorough discussions on regular intervals. Set critical milestones. Check for understanding on each step. Plan well before moving into implementation. Anticipate the unexpected. Document as you go. Allow for flexible timelines. Over-anticipate potential barriers. Establish strong relationships to develop trust. Include variety of interactions: written, verbal-conference calls, Skype, face to face. Support all team members.*
- *COMMUNICATE DO NOT ASSUME*
- *Do not number crunch. value the staff. ensure transparent and consistent communication*
- *Ensure your main staff are self-driven, motivated and talented to start the program, willing to steer and adjust and also to remain focused during difficulties and stumbling blocks.*
- *do not re-event the wheel, work with us TDM Program.*
- *Run the project as a pilot but make necessary changes as quickly as possible to create stability.*
- *Ensure that everybody understand how processes work in the various countries.*

13. For the following questions, please rate your opinion as follows:

- 1 = Strongly Agree
 2 = Agree
 3 = Neutral
 4 = Disagree
 5 = Strongly Disagree

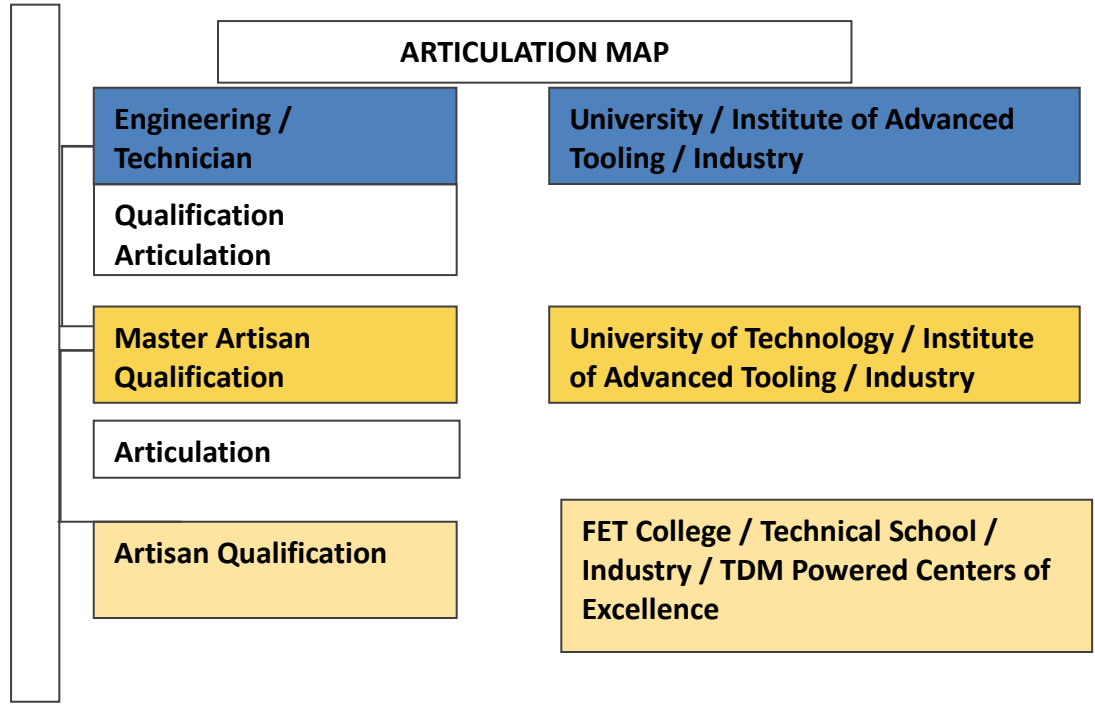
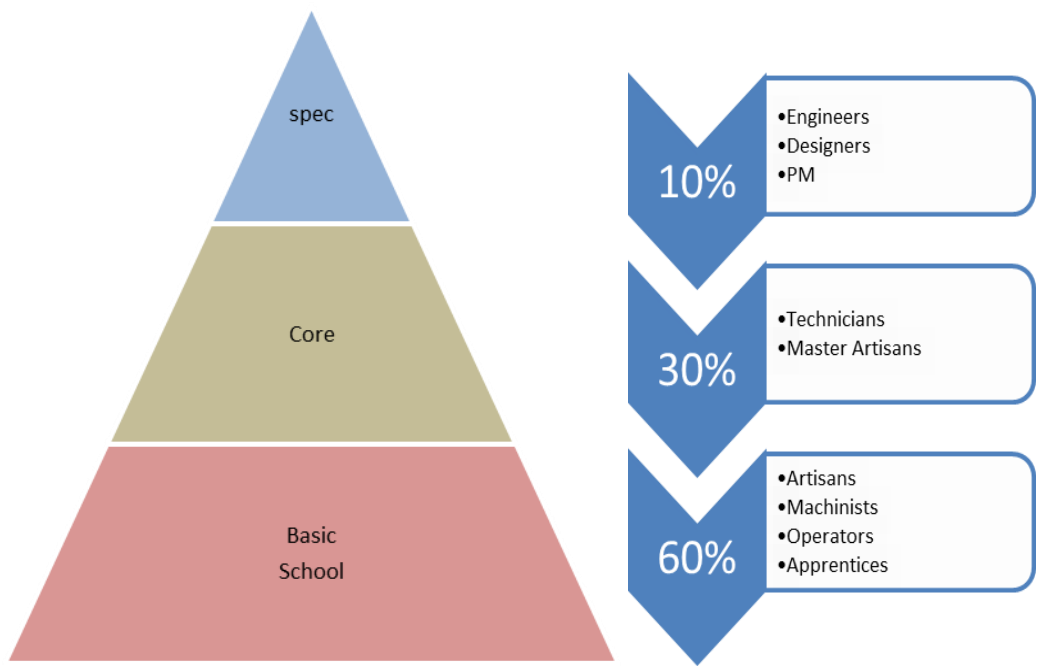
Based on my experience....	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I think the Intsimbi Partnership was successful.	3/6				
I enjoyed my participation in the transfer process.	3/4	2			
I appreciated the personal relationships that developed though the process.	3/4	2			
I remember challenging aspects of the process.	2/5	1/1			
I witnessed cultural differences or misunderstandings during the process.	2/3	1/3			

I would be interested to participate in a similar transfer process.	3/5	1			
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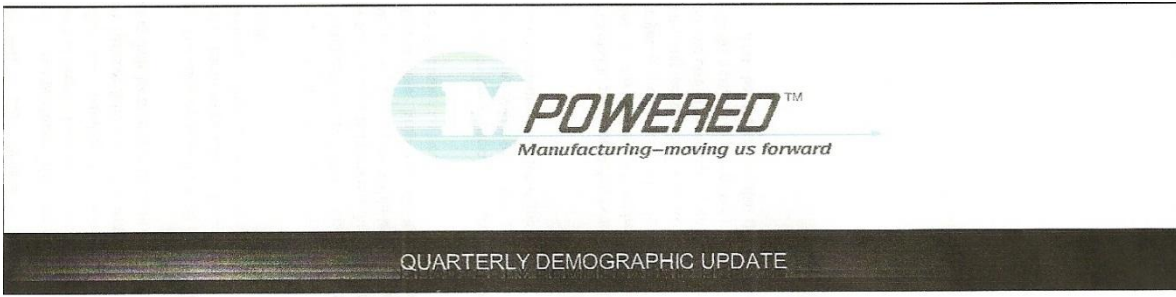
14. If there are any other comments you would like to make about your experience of the process, please do so below.

- *With all our experience, looking for future possibilities would be ideal!*
- *This is a fantastic program but it needs to be remembered that it is the staff on the ground that ultimately determine the success of the program. it is therefore imperative that senior management staff are carefully selected. They must have a caring nature and have concern for the staff. care should be take not to make the program heavily administrative. Concerns from staff and sites must be acknowledged and attended to in a reasonable time. Staff become disillusioned when their concerns go unanswered.*
- *"Make it happen"*
- *Industry support is over whelming and this program is just what SA needed and we are very proud of what has been achieved thus far.*
- *It was a great experience having interaction with colleagues internationally*
- *none*

Appendix D: NTI's National Skills Development Model

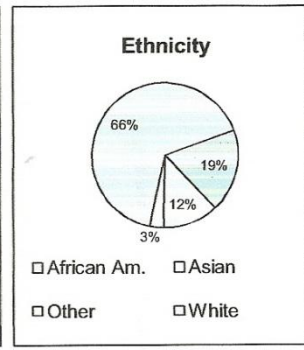
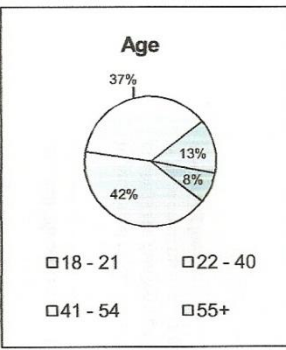


Appendix E: M-Powered Quarterly Demographic Update

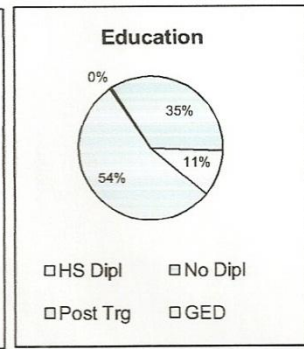
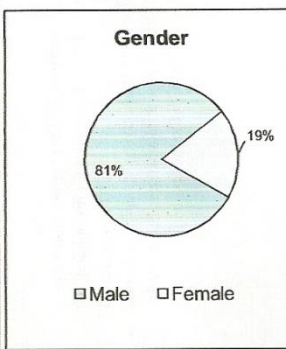


3/31/2013

Overall Performance Summary	
Participation Rates	
Current Pre-enrollment	0
Total Enrolled in Grant	389 of 385
Current Enrollment Level 1	0
Total Completed Level 1	277 of 350
Current Enrollment Level 2	49
Total Completed Level 2	214 of 300
Current Enrollment Level 3 / OJT	7
Total Completed Level 3 / OJT	18 of 240
Total Students Passed Credential	270 of 300



Placements	
M-Powered Incumbents	81
Manufacturing Placements	114
Non Manufacturing Placements	32
Total Unsubsidized Employment	227 of 240
Pre-M-Powered Wage (hr. avg.)	\$15.28
Incumbent Wage (hr. avg.)	\$14.17
Manufacturing Wage (hr. avg.)	\$13.95
Overall Mfg Wage Replacement Rate	92%
Mfg Job Retention Rate (180 days)	78%
Soldering- seeking OJT placements	5
CNC Lathe- seeking OJT placements	2
CNC Milling- seeking OJT placements	3
Quality Control- seeking OJT placements	3
Stamping -seeking OJT placements	0
R&D- seeking OJT placements	0
Total seeking OJT placements	13



Appendix F: Intsimbi Partnership Agreement

THE INTSIMBI PARTNERSHIP

The parties to this agreement are the National Tooling Initiative Programme of South Africa and Dakota County Technical College-Customized Training (DCTC-CT).

The parties agree to form a partnership to assist the development of technical skills as part of the National Tooling Initiative of South Africa.

Projects will be implemented through a Project Office to be established under the auspices of DCTC-CT. Resources will be drawn from DCTC, Hennepin Technical Colleges, Bemidji State University, other learning institutions and persons in the USA.

The areas of service under this agreement are:

- Trainer development
- Curriculum development
- Student assessment
- Math & science re-orientation
- M-Powered (fast-track entry-level skills)
- Training standards and guidelines (NIMS)
- Faculty and student exchange
- Mentoring/coaching
- Expertise in facility layout and equipment procurement

The objectives of this partnership are:

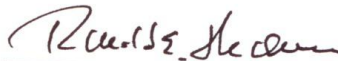
- Mobilize resources
- Plan and scope of projects
- Funding model development
- Presentation to SA governance structure
- Presentation to US stakeholders
- Resource development
- Launch projects to specific target sites of Northlink FET and CPUT, Coastal College and others

The parties agree to enter into a formal partnership agreement defining The Intsimbi Partnership terms, conditions and work processes.

Signed this day, November 29, 2007.



DIRK VAN DYK
National Program Manager
National Tooling Initiative Programme (Pty) Ltd.



RONALD E. THOMAS, PH.D.
President
Dakota County Technical College

Witnessed by:



CONSUL GENERAL YUSUF OMAR
South Africa Consulate-Chicago

Appendix G: Balanced Scorecard – Targets through Summer 2010

Balanced Scorecard: INTSIMBI PROJECT P1, P2, P3

National Scorecard

(Targets to be measured Quarterly through summer 2010)

Stakeholder Perspective

Objective	Measure	Target
Create successful Cluster Based Cooperative (CBC) hubs in regions of South Africa	# Created and functioning regional CBC hubs, integrating current government structure	6 regional CBC
Develop memorandums of agreements (MOA) with committed employers.	# Employers committed to the project within each regional CBC	5 - 8 committed employers
Interview and select innovative NGO's within each CBC	# NGO's interviewed and selected to provide referrals and supportive services	3 - 5 NGO's

Operational Perspective

Objective	Measure	Target
Refine current M-powered assessment and selection framework and processes	# Successful candidates selected for training	50-75 students/regional CBC hub are assessed to produce 25 successful candidates for training
Successfully complete Level I.	#of learners successfully complete Level I	>80% of learners
Graduates from Level I successfully continue to Level II/OJT	# Learners progressing to Level II/OJT	> 90% of learners

Financial Perspective

Objective	Measure	Target
Report on considerations, based on per student expenditures within the CBC hub	Develop a cost model based on the report, using US-MN tuition models.	Documented cost model
Project sustainability	Identify funding resources and leverage current resources to support long-term goals.	1-2 funding resources identified and action plan agreed

Growth/Innovation Perspective

Objective	Measure	Target
Tool, Die, Mold Making – focused Level I program implemented.	# of CBC hubs that implement program	6 CBC hubs implemented program
Document student achievement	Develop a career portfolio based on work throughout the program	Each student have a career portfolio
Document student status and outcomes	Develop candidate/student tracking model and reporting format	Candidate/student tracking model and reporting format functioning

Appendix H: QCTO Approval for TASA to be Development Quality Partner



The **QCTO** hereby delegates

Under the powers vested in it in section 261 of Skills Development Act (1998 as amended 2008) and section 32 of the NQF Act, 2008.

the functions of a **Development Quality Partner**

contained in section 2 of its policy on 'Delegation of Qualification Design and Assessment to Development Quality Partners and Assessment Quality Partners' as adopted by its Council on 22 June 2011

to

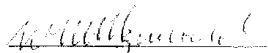
**TOOLMAKING ASSOCIATION OF
SOUTH AFRICA**

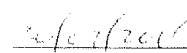
for the

Occupation(s)/ specialisation(s):

Master Toolmaker : 652205

- Plastic die & mouldmaker : 652205001
- Metal forming die maker : 652205002
- Casting & die-casting mouldmaker : 652205003
- Gauge, Jig & fixture maker : 652205004
- Specialised machine builder (Purpose-Built Machinery) : 652205005
- Specialised tooling machinist (With its own specialisations) : 652205006


Chairperson: QCTO


Date