Chapter 6 Conclusion

6.1 Introduction: the value of the study in terms of its coverage

This brief chapter serves in the capacity as summarising recombinator; a necessary pull to the knot in order to secure the package in one coherent and complete whole.[1] The study opened with an introduction decrying with fervour the thesis of lapsed concern for the fundamental issues striking at the very heart of the matter of assessment within the broader scope in which psychology itself is lodged as competitor science. In support for the rationale for the study, an overview of the crises within the field of dynamic assessment was depicted and an in-depth look at why such a tentative and exploratory study is warranted was argued. Although this study is "contextless" in terms of its arguments being applicable in the broadest sense, the country of origin, South Africa, from which the author was writing cannot be said to have played no role at all and it was with this in mind that further spurred the need for this exploration to be undertaken. In essence, the method of dynamic assessment holds much potential of its own and if it is to be worthy of utilisation within educational contexts hoping to aid in the identification of potential of previously disadvantaged students, then a case for it can be made on the basis of a renewed look at its own core of method and philosophy. South Africa is sorely in need of some means of "attuned assessment". Attuned to this country's specificities in as broad a sense as possible.

In an initial and precursory attempt to aid dynamic assessment's future, which at times does not bode well, the idea of a revamp was tackled from the point of view of meta-theory even though dynamic assessment consists of varied models and not always varied theories. In order to put in place an infrastructure from which to view and assess the plight of this manner of assessment the building blocks had to be layered first. This took the study to the next chapter which concerned itself with epistemological and ontological issues of philosophical import.

6.2 Fundamentals

This exploratory theoretical undertaking covered issues ranging from epistemological and ontological concerns surrounding personal philosophical affiliations and how they may or may not have impinged on the study at hand and viewed the following issues in turn:

- The socio-geo-political and educational contexts in which the study is located and how this has influenced the area under investigation as well as how this has influenced the researcher's orientations
- Personal experiences within psychological assessment and various implicit assumptions made manifest in the study which were subsequently informally viewed in terms of the psycho-epistemological profile as delineated by Joseph Royce and included the following dimensions:

    o Rationalistic ; Intuitive (metaphorism); Empirical; Realistic; Idealistic and Authoritarian

- The study's main focus and area of concern in terms of the underpinnings of what was discussed, was the fundamental core of epistemology and ontology, which had important (perhaps imperative) ties with the following linked issues:

    o The mind-body "problem"; consciousness; G - dominated vs. multiple intelligence (MI) - dominated leanings towards the understanding of intelligence; emergence (irreducibility) vs. reductionism; realist vs. relativist approaches towards research; nature/nurture and static - dynamic assessment of intelligence and potential. These issues are considered pivotal within the assessment realm precisely due to their often implicit status permeating studies dealing with intelligence and assessment and in particular dynamic assessment. The main intention with this section was to make consistent the author's qualms about certain issues which in turn would be necessitated in the subsequent discussions. Plainly, if the author was to critique implicit assumptions in others, her own assumptions would by the very same token need to included

The case for unappealing dichotomies was made in terms of the aforementioned dimensions of concern to the area of psychological assessment. The conviction for the need for an assessment calling itself dynamic is made alongside the at-times seemingly opposed notions of the very basic outlook towards human beings that the author posited. Although the core of dynamic assessment philosophy emanates from an implicit and explicit notion of change and innate potential recognition and one which is shared by the author, one cannot turn a blind eye to issues with which the method of assessment grapples and one also cannot stay quiet on certain very prominent yet often implicitly stated issues in terms of how the functioning human being is

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[1] As such no new information will be referred to.

viewed from various angles. These angles were highlighted above. To mention one aspect in this concluding chapter: the conclusions drawn in chapter 2 illustrated the view of the biological human being within the socio-cultural context and not the other way round. Taking cognisance of the important role of context is secondary to the notion of biological innate predispositions; a view perhaps at odds with the notions considered as paramount within dynamic assessment. It is this and other reasons why the field finds itself in the situation it currently does. This is of course a thesis only; but one which is propounded and defended throughout.

Dynamic assessment within intelligence, its fundamental concerns, its historical narrative, Soviet influences in the future course of this method and lastly current trends were highlighted in the next major section of chapter 2. The methodological concerns within this approach were discussed as they pertained to their entrenchment within the larger domain of intelligence assessment. Constant reminders about the method's placement within psychology served to underlie the importance attributed to the method's awareness of the biological basis of functioning. All its notable predecessors are acknowledged supporters of the need to understand physiological underpinnings of human behaviour and how therapeutic interventions take place within such a context. Stalwarts in the domain received a critical overview in terms of their major contributions to the method and how their histories coloured their future work, being contextualised in both time and place. Points of emphases included in this discussion looked at the suitability of construct definition within both intelligence and dynamic assessment arenas. This discussion also investigated the disparate and overlapping concerns in dynamic assessment as 'helping discipline' and dynamic assessment as progressive science each viewed from their own vantage point and specific mandated platform of expertise. The reason for having chosen to briefly highlight the climate within which Vygotsky worked was due to the particular nature of ideology practised within the Soviet Union at the time of his theorising. Nowhere it is more evidenced that prevailing climate dictates science to a large degree and this aspect features in chapter 3 during the discussion of the deployment of Madsen's framework which is premised upon reigning meta concerns. Sociological approaches towards the study of human beings included Marxist views of the nature of existence and humankind's place within the larger system. Added to this ideology was a central preoccupation of all members of society as equally endowed intellectually which of course had a resultant effect on the construal of g-based research. This forms a link to intelligence research in the early twentieth century in the Soviet Union. To further contextualise Vygotsky's work, an even briefer overview of Soviet psychology was given so as to allow for a more refined take on the history of this discipline in a country considered as alien to the West for much of its history.

Intelligence assessment has become very much a franchise enterprise with a past and future which seems to have forever existed and will seemingly continue to exist in the future. Retracing the historical roots of intelligence and understanding the climate in which current researchers work is sobering for studies such as this one which are attempting to spur the field to re-look its reason for existence. Not only is the assessment field riddled with construct definition fuzziness but it has also reached a stalemate of sorts in its regard for the individual as static being. Which is where dynamic assessment enters the picture. Displaying what at times seem to be contrary notions of the understanding of the governing forces in human development, both intelligence and dynamic assessment as coalescent whole have much to offer the larger assessment machine. Many progressive avenues are being pursued in intelligence research particularly in the domain of physiological basis of intelligence. Quantitative trait loci is a case in point but is perhaps still far too distant a realm with which dynamic assessment can align. Although this can be debated. Intelligence research and its preoccupation in many instances with g-based research surfaces in many dynamic assessment batteries. The argument here is that if dynamic assessment is to follow in the wake of intelligence research then it should guard against the as yet unresolved issues and pursue a novel avenue towards assessment in terms of intelligence fundamentals. The chapter ended with an overview on cognition and its place within intelligence assessment as it is cognitive functions which are most often assessed for in intelligence and dynamic assessment batteries as well as the increasingly important role accorded non-intellective factors in assessment which play a crucial role in many dynamic assessment models. Once the fundamentals were firmly in place the next issue of ensconced framework was discussed in chapter 3.

6.3 Theory, meta-theory, science, the social sciences, psychology and assessment

Chapter 3 emphasised the importance attributed to the discussion of theory, meta-theory, theory appraisal, science, the social sciences and psychological assessment in this exploratory study. The necessary preliminaries were discussed and viewed in terms of psychology's placement within the greater realm of science; an issue which is prominent within the philosophy of the social sciences and one which impinges heavily on the placement of assessment within a designated area entitled "science". This subject has yet a long road to travel before it reaches anywhere near a limit of exhaustion. The at times moot area concerning the consilience of both the natural and social sciences was discussed and, as with almost every subject within academia, certain viewpoints are considered worth many volumes' discussion whilst others will view these same issues as a waste of time. A stance is taken and defended throughout; which is, if the social sciences and in particular psychological intelligence assessment is to continue in a progression of greater knowledge acquisition then it will have to consider a greater propensity to merge with the methodology and ideas engrossed within the natural sciences.

The notion of science in general was discussed along with its preferred tried-and-tested methods which were not always successful and when taken as benchmark, leave the social sciences pitifully behind. This discussion was almost always leveraged on a philosophy of science vantage point. Explanatory mechanisms within science were discussed next followed by an exposition on scientific theories, which, throughout the discussions were tied up to certain key issues highlighted in chapter 2. The social sciences were then overviewed but was done so with the constant hovering of natural science philosophy overhead. Explanatory mechanisms within the social sciences were the next to receive attention followed by the coverage of psychology as discipline within science in general and its explanatory mechanisms and theory development. Theory appraisal is perhaps one of the most contentious issues within the philosophy of science and much hinges around the need to develop for science and the social sciences a workable framework from which to base and compare various theories in varied domains. However the natural sciences might proceed with debates on this aspect, one can be assured that the debates in the social sciences camp are more heated, voluminous and fractured. The over-reliance of psychology on natural science models of how science should and does progress was discussed with the intention of initiating for psychology some alternative path which to forge for itself. There is no such theory appraisal framework set in stone but only guidelines which, it is hoped, will aid in the navigation towards an end goal for social science theory and in particular psychological assessment theory. A considerable number of issues are far from resolution yet many disciplines are expected to make headway in as efficient a manner as possible. This mandate is one with which the disciplines are struggling to cope, assessment being one such subsidiary area of research.

Once various elements such as concepts, definitions and propositions within theory development and theory appraisal were discussed, attention was turned towards the development and deployment of a meta-theoretical framework from which to contextualise the study. The chosen framework was based heavily on the ideas of the late K.B. Madsen, a Danish meta-psychologist, whose framework, although dated in approach towards the study of overarching meta-theory development, was deemed a suitable choice for utilisation. Meta-theory is not a developed subject area within psychology and in some quarters it is considered an enterprise lacking in stable foundations and certainty in criteria. Moreover, detractors claim that deployment of just such a framework is far too early an attempt to bring to the field of psychology a limiting or delimiting framework; psychological theory simply is not as evolved as it should be for such an endeavour to proceed. The author has taken an alternative view and whilst acknowledging inherent limitations in any framework utilised to bring the field some semblance of coherence, decided to proceed along the lines of comparative theory/model analysis of dynamic assessment within intelligence assessment. Although psychology literature was available which dealt with issues concerning meta-theory, no single coherent framework was located or known to the author at the time of writing other than the framework developed by Madsen and lest this seem to be the sole reason for making use of the framework, a claim to the contrary can be made as there are many aspects discussed within Madsen's framework that are of importance and that linked up elsewhere with various epistemological and ontological dynamic assessment issues. The choice of Madsen only came after the initial discussions in chapter 2. The framework was timely and applicable yet had to undergo revision and attenuation if it was to serve a more apt purpose within this study.

Madsen's framework was discussed in terms of how he viewed psychology during the 1950's, specifically motivational psychology and the numerous theories then pervading the field. Entrenched in the language of stimulus-response, Madsen's framework might appear dated but his strategic emphasis on core philosophical issues is pertinent to any discussion concerning theory comparison and evaluation. His unique[2] method of calculating the empirical nature of theories and thus turning towards accountability within theories was particularly incisive even in its simplicity. In order to attenuate his framework, however, further deliberation of psychology's prime considerations were necessary for an all-inclusive meta-theory framework.

6.4 Prime considerations: quantification as imperative

At what might at first glance have appeared to be a rather disparate area of concern within this study, following so closely after chapter 3. Chapter 4 focused on prime considerations within assessment as posited within this thesis. A major thesis within this study was the lack of acknowledgement of the role that the philosophy of mathematics and more importantly the foundations of mathematics play within assessment. In order to understand the almost obsessive need to measure, analyse and in turn reify constructs within psychology, an evaluation of what it means to count, measure, manipulate and statistically analyse constructs was necessitated as paramount. In order to understand psychological measurement, merely viewing measurement theory is not enough because this view is already a view predicated on a number of implicit assumptions and it is these implicit assumptions which form the backbone of measurement. If one does not question the fundamentals preceding measurement per se, one is likely to forever traverse in a circle. An analogy might be of some service here: in the attempt to alleviate poverty by dumping stocks of food at food stations and kitchens in poverty-struck areas is one teaching the necessary and requisite skills to people in order to aid them in their own betterment? In order to alleviate such poverty the first course of action would be to get people to help themselves as opposed to donating yet more food that they could be harvesting. The root then of measurement issues

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[2] As far as this author is currently aware, Madsen's HQ calculation is the only one of its kind. The author could very well be in error.

within psychology will not be found with the techniques (many of which are sound) but with the fundamental underlying philosophies and principles governing what it means to measure in the first place and to decide whether the area of assessment truly is amenable to such measurement in the first place. The omnipresent quantitative imperative concern within psychological assessment served as introduction to the sub-sections to follow. In order for psychology to remain on a supposedly equal footing with the natural sciences, the need to quantify and subsequently measure psychological attributes has been and still is deemed of the utmost importance. Yet, the foundational concerns within quantified measures are debateable. The prevailing logic of the need to quantify then measure and lastly to conclude scientifically utilising this method as base has resulted in the erroneous use of measurement especially in areas such as dynamic assessment which could quite easily avoid the trap that has already befallen mainstream assessment. The notion of a valid construct which could be measured was flawed in two ways: there was no construct that was proved valid and secondly quantification of the construct has not helped in the measurement process. This state of affairs is compounded by the illogical silence on the part of the research community which, through its silence, practically endorses the view.

In an attempt to evaluate the predicates of measurement, mathematical philosophy and history were briefly sketched and it can clearly be seen that the very pure objective science of mathematics is itself merely another discipline bogged down in its own theoretical and philosophical issues. Far from a clear-cut understanding of the enterprise of mathematics, one is confronted with predicates in need of discussion and although the enterprise carries on in an almost unconcerned fashion (the need to establish its philosophical foundations is more of an issue to this study than it would perhaps be to applied mathematicians; this much is conceded) one has to question its roots too if clarity is to be sought concerning the just-as-vast enterprise of psychological measurement. Attention was next turned to statistics within psychology and assessment. Psychology's misplaced allegiance to null hypothesis significance testing is telling of its absurd rationalisation of working within a framework which is not even a correct one, at least historically. The miscegenation of Fisherian and Neyman-Pearson statistics and the ignorance of Bayesian statistics has had profound and detrimental effects within psychology and especially within assessment.

The remaining area of concern was the measurement arena. Measurement presupposes a quantified structure which assumes an additive structure, axiomatic representation and analysis which translates directly from object to number. Unfortunately, much of psychology's measurement history has been a concerted effort at inadequate substantiation in terms of assuming such a relation to exist in the first place. Initial efforts called for a controlling process of error detection, reliability considerations and inferred true scores from a reality that did not yield such true scores. Techniques attempting to control for as many extraneous factors as possible resulted in a theory of mental tests that was virtually unrivalled for many decades in term of noticeable competition. Modern attempts to derive for psychological measurement techniques more in keeping with axioms of representation and measurement have begun to permeate the larger core of work within the measurement arena but still have a way to go before it can be considered the main contender in the field of mental test theory.

6.5 The exploration of dynamic assessment within a meta-theoretical framework

Dynamic assessments are still not translatable into models or theories that are detailed and defined, which is hardly surprising as the intelligence field (under which dynamic assessment is situated) is still saddled with basic premise issues and confusion about definitions of fundamental concepts. From what grand theory does dynamic assessment emanate? Dynamic assessment models are often based on tenuous sentiments as opposed to solid theories of cognition and if a closer look was given to theory or sets of theories within cognitive psychology particular issues could be partially solved, as Deary (2001) states, "as psychology progressed through the twentieth century the attempts to relate the psychometric intelligence differences to cognitive elements were desultory until the rise of cognitive psychology in the 1970's" (p.129). Dynamic assessment has a base but it is very loose and is premised more so on initially intuitive ideas and concepts from which it has grown, without first having worked out the smaller problems which have now become contentious issues (such as change scores and how to assess and interpret them). A possible preface to this study may well have contextualised the author's predilection for favouring dynamic assessment's rationale and could possibly have been titled "A chain of proofs to the contrary[3] - dynamic assessment as evidencing hidden potential". An ironic title indeed given the origin of the cited quote. However, preferring to delve into deeper issues beyond that which is usually evidenced in favour of dynamic assessment's efficacy, the study highlighted areas of concern within each model or application analysed within the Madsenian framework. Dynamic assessment is by nature educationally-bound, in other words, this field more often than not finds applicability within the broader field of education and is firmly lodged within the sub-field of educational assessment (although by no means exclusively so). When Aldridge, Kuby and Strevy (1992) lamented the lack of meta-theory within education, similar sentiments were found to be echoed within the field of dynamic assessment years later. The authors acknowledged the differences between psychology and education as separate disciplines but the need for a metatheory in education as opposed to reigning psychological meta-theories was highlighted. The broad field of application

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[3] "A chain of proofs to the contrary" was taken from Francis Galton's 1869 text "Hereditary Genius" (extract in Sahakian, 1981, p.224) in which Galton made clear his understanding of the overpowering role and influence of heredity over-and-above environmental influences regarding intelligence and that 'natural equality' was a misnomer in every sense.

within which dynamic assessment finds itself would make for easier development if "a unifying whole or world view [were] proposed first in order to move from molar to molecular ideas in describing [dynamic assessment]" (p.686). It would be more feasible if dynamic assessment practitioners were to agree on certain core assumptions and issues within the assessment arena.

Working from test batteries and extrapolating back to what this author considers each models' premises and philosophical underpinnings, each model-analysis proceeded along exactly the same lines in order for a base measure of sorts to manifest. Thirteen such batteries were explored in this manner and each was quantitatively defined through its HQ score; a partial determiner of testability and falsifiability. A highlighted concern within each model was delineated and unpacked as it pertained to major discussions throughout the thesis and included issues such as construct definition, statistical and clinical decision-making, transfer issues, the nature of change and its construal as both novel and old construct, intelligence and dynamic assessment as two divergent entities not necessarily inhabiting the same level of description as well as *a priori* concerns within assessment. Concerns raised in chapters 2, 3 and 4 found fertile ground in each model, although it is ceded that such prior judgements were made at the outset of this study. Once highlighted, these chapters merely served to emphasise what can be considered to be perennial issues within dynamic assessment and intelligence. There was nothing surprising about each highlighted concern encountered within each model – it was expected. Although only very superficial, the HQ scores were tabulated from lowest to highest (most testable to least testable) and an average HQ score was calculated. The meta-model utilised to explore each model in turn is founded upon tenets of natural science dictates and practices. The HQ score as culmination or end-point of this meta-model makes sense within the ambit of its nomological-deductive framework. Utilising a quantified score in a study criticising the unthinking use of numbers can be considered ironic but the case for the utilisation of this has been discussed. Jensen's (2000) Mindladder model evidences the lowest HQ score of the models assessed in this study with Karpov and Gindis's (2000) model evidencing the highest HQ score. Is the goal of dynamic assessment as expressed through its varied models and approaches, to be testable, verifiable and reliable? The goals of CTT within psychological assessment would proffer this as good science within the discipline. And indeed, which model would not wish to have as its underpinning solid reliable bases from which to develop? The question posed within this study is the unquestioning pandering to CTT-like approaches within a sub-domain that does not necessarily have to rise to these tasks in the first place.

The tabulation of lowest to highest HQ score denotes nothing more than one framework's deployment of method of accounting for testability. Nothing more. It brings to light numerous other issues too without which the discipline would perhaps be the poorer but in no way can it be said to be a final answer on the question of dynamic assessment's ill-fit within intelligence assessment and the broader psychological assessment domain. Dynamic assessment as methodology as opposed to dynamic assessment as model (as manifested in batteries) are two approaches with two very different ideas about assessment. The one does not necessarily give to the discipline something the other does not but the differences between construct innovator and construct poacher is particularly significant to the debate surrounding dynamic assessment's place within intelligence assessment. Being a construct innovator pushes dynamic assessment into an area filled with novel meanings and novel methodologies (IRT change-based assessments) whereas dynamic assessment as construct poacher remains lodged within the traditional realm of intelligence assessment unable to escape a noose too constrictive for it to burgeon into a more fully developed domain. One solution is tantalisingly within reach: remain as construct poacher within the traditional realm of assessment but acquiesce to the tenets as specified for this domain and in so doing enrich an already fertile area of intelligence assessment or move away to newer grounds as construct innovator and lay the foundations for an entirely new domain which can develop alongside its traditional counterpart. Neither is wrong or correct as such; this is not a competition in which victory is sought over one or other domain; it is all about practising a science within a new science-framework or existing in an already carved out science framework. But as it currently stands the situation does not look promising.

6.6 Limitations of the study

All studies have their limitations and this is particularly the case with this study. Although strong contentions are made and firmly entrenched arguments are offered in defence of the numerous theses housed within this study, there are yet a number of limits within the conclusions. Firstly, as with most studies time and resources were of prime concern and no more will be said of these. Secondly, many arguments within the study, although cognisance was given to opposing views, were supported as if they presented themselves on a dichotomous continuum. This is not the case in most instances of philosophical debate and less often the case with psychology. Yet, in order to firmly establish at the outset certain key positions held within the study, such strategic placements had to made in order for a consistent case to be maintained throughout. Thirdly, the main research source utilised within this study was the literature. Apart from the meta-analysis of dynamic assessment studies in South Africa and the content analysis of returned questionnaires, no statistical or practical methodology was used in support of any of the contentions made herein. Fourthly, philosophical issues are perhaps the most debated issues in any area of concern and are thus prone to attack in many guises. The thesis, of course, might be wholly incorrect from certain vantage points and no finality will ever come from these debates when conducted on paper. Fifthly, the statistical robustness of the meta-analytic results is tentative as it is based on the initial small number of studies included which is not a fault of this thesis but is an indication of the quantity and

quality of dynamic assessment research in South Africa. The low response rate to the questionnaire also does not bode well for those interested in keeping the area alive although the reasons behind the lack of responses were detailed in appendix 2.

The true litmus test, will undoubtedly be the future historical record. There is thus a looming danger of being hopelessly incorrect in any or all of the manifest assumptions argued for in this study. In this manner then, it should be regarded as precursory and tentative and in keeping with its title: a mere exploratory study into the at-times unchartered territory of dynamic assessment and intelligence. Given ten years, this study might well look completely different and early attempts might come across as quite tentative. The need to read was halted at a point in the study as there was always the tendency to obtain yet more sources. It is lamentable that there are numerous books and articles that could have been cited but a demarcating line had to be drawn and this line was drawn toward the end of 2005. The choice of models and theories assessed in chapter 5 was chosen due to their availability of signifiable constructs which allowed for the calculation of Madsen's HQ and due to their history within the field of assessment as existing models and applications with at least some research results to their name. This can be considered a limitation as *a priori* characteristics were conceived of beforehand in order to effect an HQ and newer models (since 2000) may well have been left out. Inclusion of 'dynamic assessment as method' would nullify the need for an HQ and thus would not allow for it to be placed on the HQ spectrum and this also resulted in the non-inclusion of dynamic assessment as clinical tool only (where the process of engagement is emphasised over-and-above demonstrable dependent and independent variables). This limits the nature of the dynamic assessment model or theory included in the study and in so doing the highlighted models were not necessarily representative of dynamic assessment per se.

As was evident from chapter 5 and the analysis taking place within one specific meta-framework, certain themes continually arose across models making manifest the perceived notion at the outset of the study that certain issues were in need of attention at least at an exploratory level. The mandate of taking assessment back to its measurement roots resulted in comments initially lodged at dynamic assessment in particular but was found to be applicable at a level presiding over this small area of concern within psychology. The issues did not stop there and progressed beyond the 'narrow' confines of psychology as scientific discipline and found its way to the pinnacle of the hierarchy: the governing social sciences. Comments, criticisms and thoughts were thus not limited to dynamic assessment as such. Placing dynamic assessment as this study saw fit results in a singular view of anticipating what the next step will be in its development as method, model and theory. As some comments have shown in both the literature and in the returned questionnaires, the feasibility of situating the study within a meta-theory is itself open to debate. But this latter assertion is precisely the point within a progressive discipline's evolution. Due to the context of the study, the varying emphases throughout on measurement, philosophy, science, meta-theory, meta-analysis, content analysis, item response theory (as it pertained to change scores) and analysis of models in a very specified fashion results in limited inferences that can be drawn if at all. The thesis has endeavoured to stay close to its initial intent: to explore a meta-theoretical framework for dynamic assessment and intelligence.