

Welcome
to

THE DOUBLE HEURISTIC METHOD (DHM)

**PERSPECTIVES ON HOW TEACHERS DEAL
WITH AN ALTERNATIVE MODEL FOR
TEACHING
IN THE VET SECTOR**

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14/05/2010 1

The paper provides:

- A summary of the literature review,
- Methodology,
- Data collection and analysis, as well as
- Findings of the research so far.

14/05/2010 2

**A summary of the literature
review**

- Training Packages (TP) are regarded, as Gonczi (2004) has noted, as a culmination of a way of thinking that has been evident within new reforms in Australia, that of ensuring that what a VET system delivers is what industry actually demands.

14/05/2010 3

Prior to TP's

Prior to TP's there was agreement that all VET delivery would be competency based and there would be an industry led system (Schofield & McDonald, 2003:2).

14/05/2010 4

Training Packages

- “Require pedagogical approaches and strategies that vary from those traditionally used in the VET sector” (Chappell 2003b: viii).
- These pedagogical strategies require a new theoretical framework that is based on the concept of competence.

14/05/2010 5

The term Competence

At the outset, it was important to establish a clear definition of competence as the foundation stone upon which the theoretical framework can be constructed.

14/05/2010 6

Initially, in 1990, the National Training Board (NTB) defined competency as:

“the ability to perform the activities within an occupation or function to the level expected in employment”

14/05/2010 7

Given that competence is broader than ‘ability to perform’ (ANTA 2004), the existing definition is deemed to be too narrow.

14/05/2010 8

In 1991, NTB redefined competency as:

“specification of knowledge and skills and application of that knowledge and skills within an occupation or industry level to the standard of performance required in employment” .

14/05/2010 9

In 1992, the definition of competency was even further broadened by the Mayer Committee, (1992, p 4) as:

“performance is underpinned not only by skill but also by knowledge and understanding, and that competence involves both the ability to perform in a given context and the capacity to transfer knowledge and skills to new tasks and situations.”

14/05/2010 10

Given that, in 2004, High Level Review (HLR) concluded that

competency is a broader concept than the ability to perform workplace tasks and

In defining competence it is necessary to clearly distinguish between work performance, as the physical component, as well as the constituents of competence, as the conceptual component

A new definition was required.

14/05/2010 11

In 2005 Competence was redefined on this basis as:

- **“a quality that needs to be developed by the learners both conceptually and physically.**
- **It needs to be conceptually developed in the minds of the learner based on the constituents of competence (underpinnings and attributes), and**
- **physically developed and perfected by performance (based on performance criteria)**
- **resulting in a balanced hands-and-minds equilibrium.”**

14/05/2010 12

Double Heuristic Method

- The linking of the conceptual development, or intellectual development, the (Mind) to physical development, the (Hands) are utilised and illustrated in the Double Heuristic Method (DHM).

14/05/2010 13

DHM was constructed on the basis of HLR findings

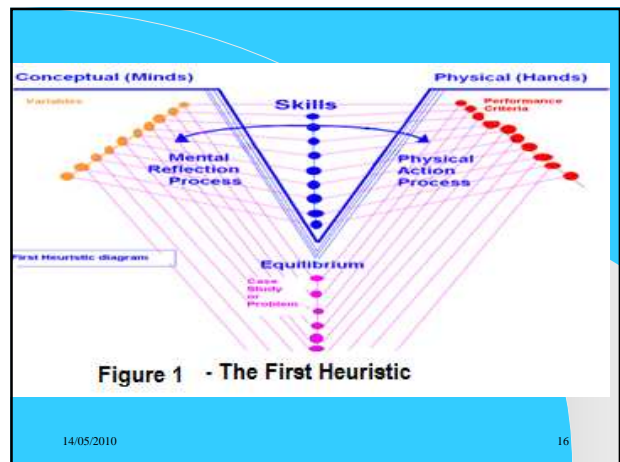
- DHM is an approach designed to aid teachers in session and assessment planning in their teaching programs.
- DHM diagram unlocks the structure of knowledge embedded in the competency events (activities, tests, tasks, assessments etc).

14/05/2010 14

The Double Heuristic Method (DHM) is comprised of two heuristics:

- The First Heuristic
- The Second Heuristic

14/05/2010 15



FNSACCT407B - Set up and operate a computerised accounting system

Variable/Concepts	Employability Skills	Required Skills	Performance Criteria
purchase invoices	PL4, PL1	RS1, RS2, RS3, RS7	2.1 - Input data is collated, coded and classified before processing
purchase orders	PL4	RS1, RS2, RS3, RS7	2.2 - A wide range of cash and credit transactions are in both service and trading environment
purchase and sale of stock	PS2	RS4, RS3	2.4 - The system output is reviewed to verify the accuracy of data input
Adjustments	PS5	RS5, RS3	2.5 - Adjustments are made for any detected processing errors
accounts receivable	PL1, PL3	RS1, RS2, RS7	3.1 - Any new general ledger accounts, customer, supplier, inventory and fixed asset records are maintained and updated
accounts payable	PL2, PL3	RS1, RS2, RS7	3.2 - Any existing chart of accounts, customer, supplier, inventory and fixed asset records are maintained and updated
inventory			
fixed assets			
other reports	Com1	RS1, RS2, RS5	4.1 - Reports to indicate the financial performance and financial position of the organisation are generated
profit and loss	Com1, Com2	RS4	4.2 - Reports to meet GST reporting requirements of the organisation are generated
other reports			
profit and loss			
security	PL3, PS2	RS7, RS2, RS1	4.3 - Reports to ensure that subsidiary ledger accounts reconcile with the general ledger are generated
on screen help	PL2, TE2	RS2	5.1 - Regular Back ups of the system are made to ensure against loss or corruption of data

Competency Test 1 - Part C

First Heuristic of DHM for FNSACCT407B

14/05/2010 17

FNSACCT407B - Set up and operate a computerised accounting system

Variables/Concepts	Employability Skills	Required Skills	Performance Criteria
9 - purchase invoices	PL4, PL1	RS1, RS2, RS3, RS7	2.1 - Input data is collated, coded and classified before processing
10 - purchase orders	PL4	RS1, RS2, RS3, RS7	2.2 - A wide range of cash and credit transactions are processed in both a service and trading environment
19 - purchase and sale of stock	PS2	RS4, RS3	2.4 - The system outputs is reviewed to verify the accuracy of data input
T22 - Adjustments	PS5	RS5, RS3	2.5 - Adjustments are made for any detected processing errors
S14 - accounts receivable	PL1, PL3	RS1, RS2, RS7	3.1 - Any new general ledger accounts, customer, supplier, inventory and fixed asset records are added as required
S13 - inventory	PL2, PL3	RS1, RS2, RS7	3.2 - Any existing chart of accounts, customer, supplier, inventory and fixed asset records are maintained and updated
S14 - fixed assets			
R11 - Other reports	com1	RS1, RS2, RS5	4.1 - Reports to indicate the financial performance and financial position of the organisation are generated
R1 - profit and loss	com1, com2	RS4	4.2 - Reports to meet the GST reporting requirements of the organisation are generated
R11 - Other reports			
R1 - profit and loss			
07 - security	PL3, PS2	RS7, RS2, RS1	4.3 - Reports to ensure that subsidiary ledgers/accounts reconcile with the general ledger are generated
T11 - on screen help	PL2, TE2	RS2	5.1 - Regular back-ups of the system are made to ensure against loss or corruption of data

Competency test 1 - Part C

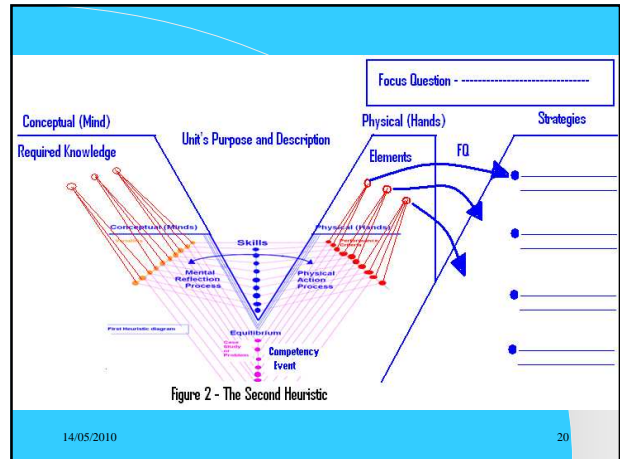
Attributes

14/05/2010 17

Second Heuristic

The work on second heuristic commences by embedding the first heuristic at the foot of the 'W' diagram (Figure 2).

14/05/2010 19



Double Heuristic form
Participant's Name: _____

Focus Question: _____

Conceptual (Mind)	Physical (Hands)	Strategies
Required Knowledge: Unit Code/ Title: _____ Description: _____ Employability Skills Required Skills	Elements: Performance Criteria: Evidence	FQ Critical Aspects: Assessment Strategies Assessment Instruments
Variables/Concepts:	Performance Criteria:	Assessment Strategies:
Competency Test No: _____		

14/05/2010 21

FNSACCT407B - Set up and operate a computerised accounting system

Focus Question: How purchases are integrated in computerised accounting

Conceptual (Mind)	Physical (Hands)	Strategies
Required Knowledge: GST legislation Double entry accounting Principles and practice of accrual accounting Organisational procedures and policies relating to maintaining financial records	Description: This unit covers the competency to establish and operate under supervision, a computerised accounting system Elements: 1. Maintain the system 2. Process the transactions within the system 3. Produce reports 4. Produce reports 5. Ensure system integrity Performance Criteria: 2-1. Input data to software, coded and classified before processing 2-2. A wide range of cash and credit transactions are in both service and trading environment 2-3. The system output is reviewed to verify the accuracy of data input 2-4. Adjustments are made for any detected processing errors 2-5. Any new general ledger accounts, customer, supplier, inventory and fixed asset records are maintained and updated 2-6. Any existing chart of accounts, customer, supplier, inventory and fixed asset records are maintained and updated 2-7. Reports to indicate the financial performance and financial positions of the organisation are generated 2-8. Reports to meet GST reporting requirements of the organisation are generated 2-9. Reports to ensure that subsidiary ledger accounts reconcile with the general ledger are generated 2-10. Regular back ups of the system are made to ensure against loss or corruption of data	FQ Critical Aspects: Knowledge of chart of accounts Knowledge of Org. policy and procedures Ability to implement an integrated accounting system Ability to process transactions within the system Ability to maintain the system Ability to produce reports Ability to ensure system integrity Assessment Strategies: Competency test - unscripted/ simulated case using computerised accounting software Assessment Instrument: Printed case study assignment in the assessment booklet Evidence: Students are required to produce the required reports as the evidence of their competency. Printout 29 - purchase order 3 Printout 20 - Electronic payment report Printout 28 - Profit and Loss

14/05/2010 22

Focus of the research

- The focus of the research, principally, is on the competency development process managed by practitioners
- to identify how they benefit from application of the Double Heuristic Method (DHM) to their practice and how their learners are assessed on this basis.

14/05/2010 23

Formulating the required heuristics

- They then formulate the required heuristics for each session and assessment to facilitate the learning process.
- In developing session plans and assessment tools, they are guided by DHM.

14/05/2010 24

If competency event is an assessment the following are listed under strategies:

- **Assessment strategies,**
- **Assessment instruments,**
- **Critical aspects and**
- **Expected evidence**

14/05/2010 25

Methodology

- **Epistemology – Constructionism**
- **Theoretical Perspective – Interpretivism**
- **Methodology – Grounded Theory**
- **Methods - Semi-structured interviews**

14/05/2010 26

Constructionism Epistemology

- **Constructionism rejects objectivism view of human knowledge**
- **Meaning comes into existence in and out of our engagement with realities**
- **Meaning is not discovered, but constructed**
- **Different people may construct meaning of the same phenomenon in different ways**

14/05/2010 27

Theoretical Framework

- **As this thesis is centred on the perspectives of VET practitioners on the application of DHM for the teaching of the Units of Competency of the Training Packages, a qualitative approach within the Interpretivism Paradigm was the most appropriate.**

14/05/2010 28

Methodology - Grounded Theory

- **The focus on how VET teachers deal with DHM necessitated the use of Grounded Theory as the Methodology**
- **that is shaped by the conceptual framework of Symbolic Interactionism.**
- **Based on Herbert Blumer's three premises within the Symbolic Interactionist tradition:**

14/05/2010 29

- **The first premise** is that, “human beings act towards things on the basis of the meanings that the things have for them.”
- **The second premise** is that, “the meanings of such things is derived from, or arises out of, the social interaction that one has with one’s fellows”.
- **The third premise** is that, “these meanings are handled in and modified through an interpretive process used by the person in dealing with the things he encounters”.

14/05/2010 30

Methods

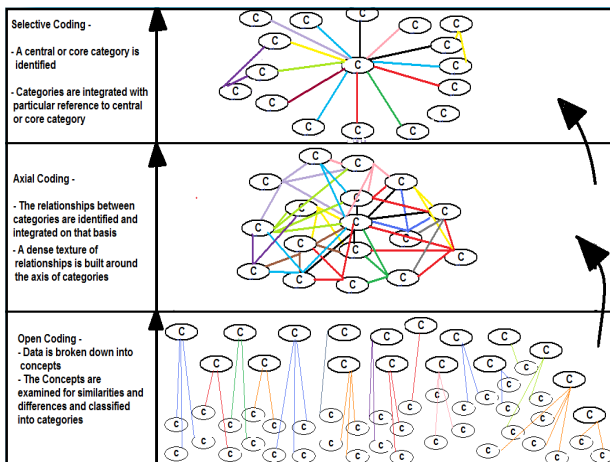
- **Semi-structured interviewing has been used to collect data.**
- **These methods are consistent with symbolic Interactionism**
- **involve three major types of coding.**

14/05/2010 31

Three major types of coding

- **Open coding** - a process in which the collected raw data will be broken down, compared, and conceptualised, resulting in categorised data
- **Axial coding** - to connect each of the identified categories in an attempt to build a dense texture of relationships around the axis
- **Selective coding** - a central or core category is identified

14/05/2010 32



The final stage of data analysis

- **The final stage is planned to take place during the second half of 2010**
- **The categories that were generated and developed will be integrated into a theory about how teachers deal with DHM**

14/05/2010 34

Emerging Concepts

- **Improving Performance** – DHM improves teaching strategies
- **Communicate effectively** – DHM allows teachers to communicate knowledge more effectively
- **Confirmatory** - "DHM allows me to check that what I have been doing is correct"
- **Guiding** - "using DHM the learners as well as the teachers have got the guidelines".
- **Defining Relationships** – "it is the connectedness of the components that make sense in DHM".
- **Managing** – DHM is a useful approach to manage the delivery
- **Clarifying** – DHM removes 'Fuzziness' in VET teaching practices
- **Validity** – "using DHM, what I am doing here, in actual fact is 'valid'"
- **Precision** – "putting more 'precision' to the whole process."
- **Appropriateness** – DHM maintains an appropriate balance between practical and theoretical
- **Seeing the Picture** - "DHM gives us a clear picture".
- **Constructiveness** - "In VET so many 'bits and pieces' are provided, but there is no structure to it."
- **Articulating** - "DHM allowed me to articulate better".

14/05/2010 35

Conclusion –

- **There has been a need for a centring device to clarify the relationships of the many and varied components in training packages approach**
- **The data collected, so far, confirms that DHM is a robust framework that fulfils this need.**
- **A majority of the participants have emphasized the importance of inclusion of DHM framework in Certificate IV for Training and Assessment.**

14/05/2010 36

Conclusion

- In Vocational Education and Training (VET), there are lots of 'bits and pieces' to do and/or comply with, but there is no structure to facilitate the process of compliance.
- They see that DHM framework fulfils this role because it has a process, it has a structure, and it has relevant templates, and it is based on sound pedagogical underpinnings.

14/05/2010

37

Question Time



**Thank YOU for
Listening, any
questions??**



14/05/2010

38