

An Analysis of the Clinical  
Reasoning of Experienced and  
Novice Physiotherapists  
Using the Dreyfus Model of Skills  
Acquisition



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The Dreyfus Model of Skills Acquisition

- A situational model of skills acquisition
- Valuable to study and articulate knowledge embedded in complex practices (nursing, medicine, teaching)
- In the acquisition and development of a skill a student passes through 5 levels of proficiency

(1) Novice (2) Advanced Beginner (3) Competent  
(4) Proficient (5) Expert

The Dreyfus Model of Skills Acquisition

Level	Stage	Characteristics
1	Novice	No background understanding /experience Rule governed behaviour
2	Advanced Beginner	Marginally acceptable performance Recognises aspects of a situation - beginning to see recurrent patterns May need instruction from a mentor

Level	Stage	Characteristics
3	Competent	Conscious deliberate planning Decides which aspects to accept or ignore. Unsure of outcome
4	Proficient	Perceives situation as whole Performance guided by maxims Deep background understanding
5	Expert	Immediate intuitive response No longer relies on rules Background understanding based upon many past cases

Aims

- To analyse the clinical reasoning of undergraduate students and experienced physiotherapists using the Dreyfus Model of Skills Acquisition

Subjects

- 7 experienced musculoskeletal physiotherapists (15+ years experience, and PG education)
- 7 Year 4 BSc Physiotherapy students
- 7 Year 3 BSc Physiotherapy students

### Method

- Qualitative multiple case studies design (Yin 1994)
- Subjects observed and audiotaped assessing and treating a patient
- Audiotapes reviewed with subjects using semi-structured interview (Ericsson and Simon 1984)
- This review also audiotaped

### Analysis

- Audiotaped interviews transcribed
- Dreyfus model of Skills Acquisition as a framework to guide the analysis
- Transcriptions coded using 5 levels (Miles and Huberman, 1994)

### Results

#### Level 1 Novice

- Insufficient experience of situation in which expected to perform  
Unsure what to expect  
Insufficient experience performing tests/ techniques  
Apprehensive of causing damage  
Problems with interpretation of multiple aspects

*"I'm not too sure if I was too sure what I was going to find"* S33

*"Everything was coming from different angles the whole time and it was throwing me off"* S32

#### Level 1 Novice

- Insufficient background knowledge /understanding  
Unable to recognise patterns in context
- Ignore or forget aspects

*"I had osteoporosis, I was on steroids you see for the bowel"* S31 (patient)

#### Level 2 Advanced Beginner

- Need for confirmation from supervisor (Year 3)
- Recognition of aspects based on previous experience
- Identification of normal patterns
- Aspects contemplated but decision not made

*"I was still quering arthritis, I wasn't saying whether it was or it wasn't"* S47

#### Level 2 Advanced Beginner

- Formulate principles of treatment in terms of aspects rather than a coherent plan

Year 3 treatment loosely based on aspects

Year 4 treatment linked to aspects

*"I am not 100% sure where the problem is coming from and I went with the idea to treat the problems that I find...and see how it goes"* S31

*"When I had done her flexibility and seen that they were tight I thought she is definitely going to have to do stretches for those"* S44

Level 3 Competent

- Deliberate Planning  
Short term goals/plans  
In relation to
  - assessment
  - treatment*"I go write up my notes and I look at everything and I decide on a treatment plan" S46*
- May be unsure of outcome

Level 3 Competent

- Clinical world more organised
- Aspects of the situation considered and decision made  
*"None of the active movements brought on the pain she was experiencing... so I felt the back wasn't really the main problem at the moment" S47*

Level 4 Proficient

- Normal response known based on background knowledge
- Short term and long term goals
- Modification of plans
- Options considered as part of whole  
*"I'd say it is like putting all the information together ...so as you put all the signs and symptoms together then you see what is more relevant or not" E3*

Level 4 Proficient

Performance guided by maxims

- In relation to treatment  
*"I have gone off doing PAs I do APs because in that was you are bringing them into a better position" E1*
- In relation to assessment  
*"I always do all my movements standing posterior to the patient, I never observe from the front" E7*

Level 5 Expert

- Intuitive response  
Immediate response, no explanation  
*"Just from the way I watched him as I brought him into the cubicle just the way he walked in and just kind of his whole stature it (OA) was just going through my mind" E6*
- Anticipation and planning  
Preconceived ideas  
Examination directed at testing of ideas to confirm/rule out hypotheses

Level 5 Expert

- Not necessary to consider alternatives
- Present cases compared to similar past cases
- Holistic  
*"I would say he has cervical spondylosis made worse by the injury...plus poor posture over the years when he was working as a lab technician" E1*

### Summary

Stage	Characteristics
Novice Yr3>Yr4	Insufficient knowledge of clinical situation. Identify aspects without reference to context. Apprehensive.
Advanced beginner Yr 3, Yr4	Identify aspects / patterns in context. Treatment linked to aspects rather than coherent plan. Lack of confidence in decision making.

Stage	Characteristics
Competent Yr 4	Deliberate <i>short</i> term planning. Unsure of outcome. Some confidence in decision making
Proficient Experienced Therapists	Normal responses identified. Short and long term plans. Use of maxims. Confident decision making based on wide overview
Expert Experienced Therapists	Intuitive response. Anticipation and planning with testing of preconceived ideas. Holistic view based on depth of clinical experience

### Conclusion

- Dreyfus Model provides a descriptive language to define characteristics at different levels of professional development in physiotherapy
- Dreyfus model offers a framework to identify teaching and learning needs in relation to practice based knowledge for each stage of the Model



Thank you