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The relationship between a student's ability to critically self-reflect and their work-readiness as a physiotherapist: A retrospective cohort study

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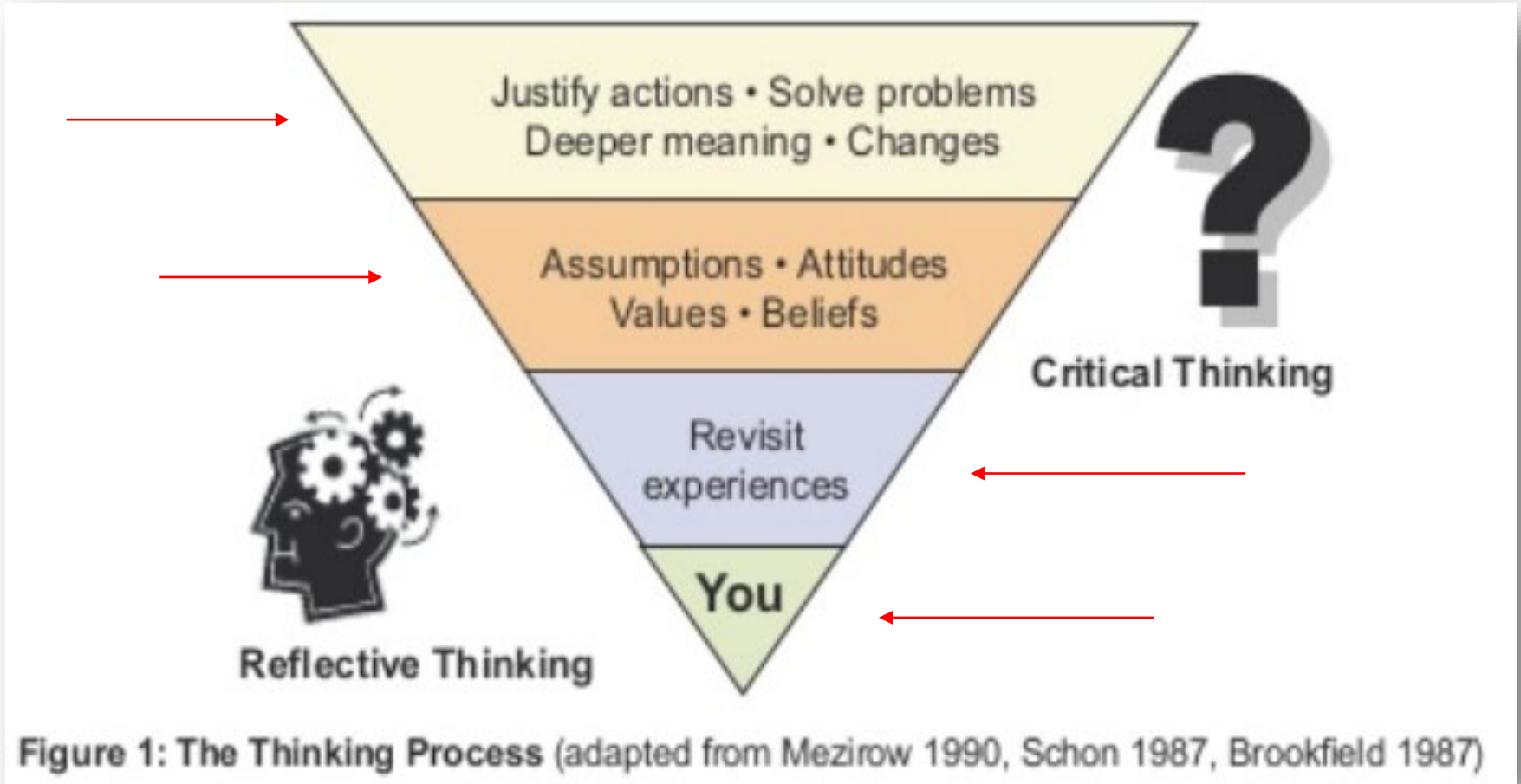
Introduction



- The Australian Physiotherapy Council (APC) examines entry level physiotherapy programs in Australia to ensure key practice thresholds are fulfilled.
- The Physiotherapy Board of Australia (PhysioBA) & The Physiotherapy Board of New Zealand (PBNZ) have established self-directed learning & reflective practice as threshold competencies to ensure life long learning⁶.
- An overarching focus of clinical education for health professional students is practical learning.
- However, practical learning alone is inadequate for producing health professionals that are flexible, self-aware & understanding of alternate perspectives⁴.
- Critical self-appraisal is widely recognised as a method of analysing practical performance and reinforcing perishable skills^{1,4}.
- Critical reflective practice promotes complex thought processing to assist individuals with effective management of dynamic situations and environments².



How To Critically Self Reflect

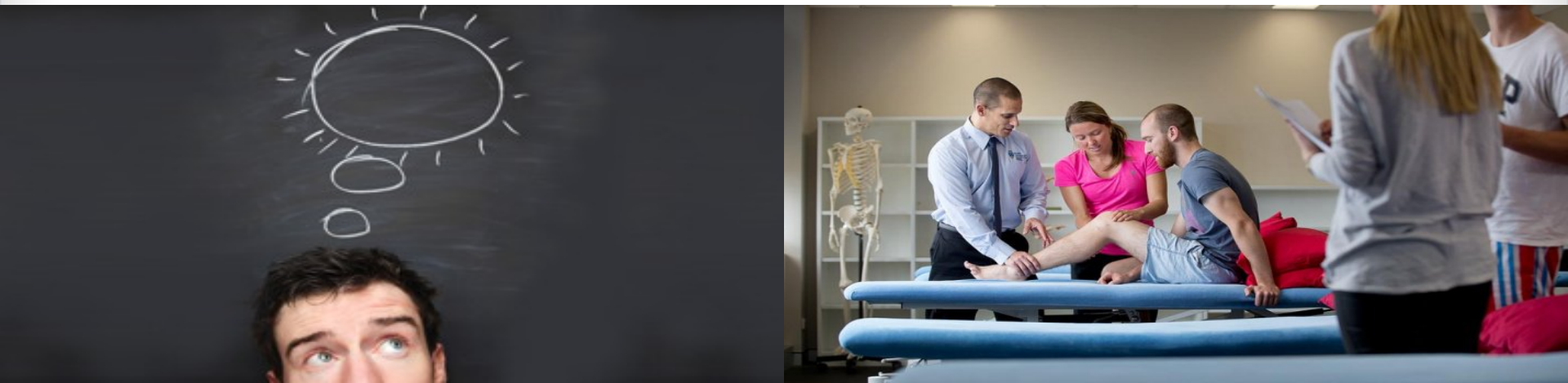




Research Aims



- i) To investigate the relationship between a student's ability to critically self-reflect and their work readiness as a physiotherapist;
- ii) Determine if these relationships differed for males compared to females





Methods



Design:

- Retrospective Cohort study

Recruitment process based on inclusion criteria:

- Students enrolled in an Australian Doctor of Physiotherapy program from 2011-2015
- Students must have completed core clinical placements and the Clinical Internship

Objective measures analysed:

- Critical reflective Task (CRT) marks (during 5-week clinical placements)
- Assessment of Physiotherapy Practice - Clinical Internship (CI_APP) scores



Methods: Analysis



- Critical Reflection Task (CRT) marks (from 5 week clinical placements) and Assessment of Physiotherapy Practice scores during the final Clinical Internship (CI_APP) from 122 physiotherapy students (F = 57, M = 65) were analysed.

Analyses:

- Independent samples t-tests – to explore gender differences in CRT marks and CI_APP scores
- One way ANOVA with Bonferroni post-hoc analysis of cohort data
- Linear regression analysis of total combined cohort data
- Pearson's correlations of combined cohort data
- Multiple regressions of combined cohort data



Results:

Critical reflection task (CRT) marks and Assessment of Physiotherapy Practice (APP_CI) scores for total group and by gender.



| Core Clinical Subject | Total Group | | | Female | | | Male | | |
|--|-------------|--------------------|--------------------|--------|--------------------|--------------------|------|--------------------|--------------------|
| | n | CRT Mean % (SD) | APP Mean % (SD) | n | CRT Mean % (SD) | APP Mean % (SD) | n | CRT Mean % (SD) | APP mean % (SD) |
| Cardiorespiratory | 95 | 73.88 (11.40) | - | 42 | 75.18 (11.58) | - | 53 | 72.85 (11.27) | - |
| Musculoskeletal Inpatients (Orthopaedics) | 95 | 77.55 (13.08) | - | 42 | 78.99 (11.86) | - | 53 | 76.14 (13.98) | - |
| Neurological | 122 | 76.20 (13.05) | - | 57 | 75.91 (12.73) | - | 65 | 76.46 (13.41) | - |
| Musculoskeletal Outpatients | 122 | 79.85 (12.45) | - | 57 | 81.34 (11.07) | - | 65 | 78.54 (13.50) | - |
| Community or Chronic Rehabilitation | 122 | 89.75 (10.00) | - | 57 | 91.74 (10.03) | - | 65 | 88.00 (16.46) | - |
| Final Elective | 122 | 76.22† (14.61) | - | 57 | 78.52 (13.59) | - | 65 | 74.20 (15.26) | - |
| Clinical Internship | 122 | - | 87.18 (11.65) | 57 | - | 80.20* (9.13) | 65 | - | 84.44 (12.93) |

* Significant difference when compared to other gender (significance level $p < 0.05$) †Significant differences between cohorts on ANOVA (significance level $p < 0.05$).



Results:

Relationships between Critical Reflective Task (CRT) marks and Assessment of Physiotherapy Practice (APP) scores on the Clinical Internship (an indicator of work-readiness).



| | Assessment of Physiotherapy Practice on Clinical Internship (Work-readiness indicator) | | | | | | | | |
|---|--|-----------------|----------------|--------|------------------|----------------|------|------------------|----------------|
| | Total Group | | | Female | | | Male | | |
| Critical Reflective Task (by clinical subject) | n | r (p-value) | r ² | n | r (p-value) | r ² | n | r (p-value) | r ² |
| Cardiorespiratory CRT | 95 | .129 (0.212) | .016 | 42 | -.075 (0.637) | .006 | 53 | .224 (0.107) | .050 |
| Musculoskeletal Inpatients (Orthopaedics) CRT | 95 | .147 (0.154) | .021 | 42 | -.237 (0.130) | .056 | 53 | .312* (0.023) | .097 |
| Neurological CRT | 122 | .159 (0.079) | .025 | 57 | .088 (0.513) | .008 | 65 | .221 (0.077) | .049 |
| Musculoskeletal Outpatients CRT | 122 | .233 (0.010) | .054 | 57 | .030 (0.824) | .001 | 65 | .307* (0.013) | .094 |
| Community or Chronic Rehabilitation CRT | 122 | .166 (0.068) | .027 | 57 | -.004 (0.978) | .000 | 65 | .191 (0.127) | .036 |

n= number of participants

r = Pearson's Correlation

r²= Squared correlation coefficient (linear regression)

* Significant relationship with APP scores (significance level p<0.05)



Results:

Predictive models for male students: Critical Reflective Task Marks to predict work-readiness using Assessment of Physiotherapy Practice (APP) scores in the Clinical Internship



| | Assessment of Physiotherapy Practice during Clinical Internship | | | | |
|---|---|-------|-------|---------------------------------|-----------|
| Predictive Model of Critical Reflective Tasks | R ² | SEE | F | DF (Regression, Residual) | (p-value) |
| Model 1: Musculoskeletal Inpatients (Orthopaedics) + Cardiorespiratory + Musculoskeletal Outpatients + Neurological | .158 | 12.94 | 2.252 | 4,48 | 0.077 |
| Model 2: Musculoskeletal Inpatients (Orthopaedics) + Cardiorespiratory + Musculoskeletal Outpatients | .158 | 12.81 | 3.057 | 3,49 | 0.037* |
| Model 3: Musculoskeletal Inpatients (Orthopaedics) + Musculoskeletal Outpatients | .155 | 12.70 | 4.587 | 2,50 | 0.015* |
| Model 4: Musculoskeletal Outpatients | .121 | 12.83 | 7.003 | 1,51 | 0.011* |

Degrees of Freedom (DF): Regression followed by residual.

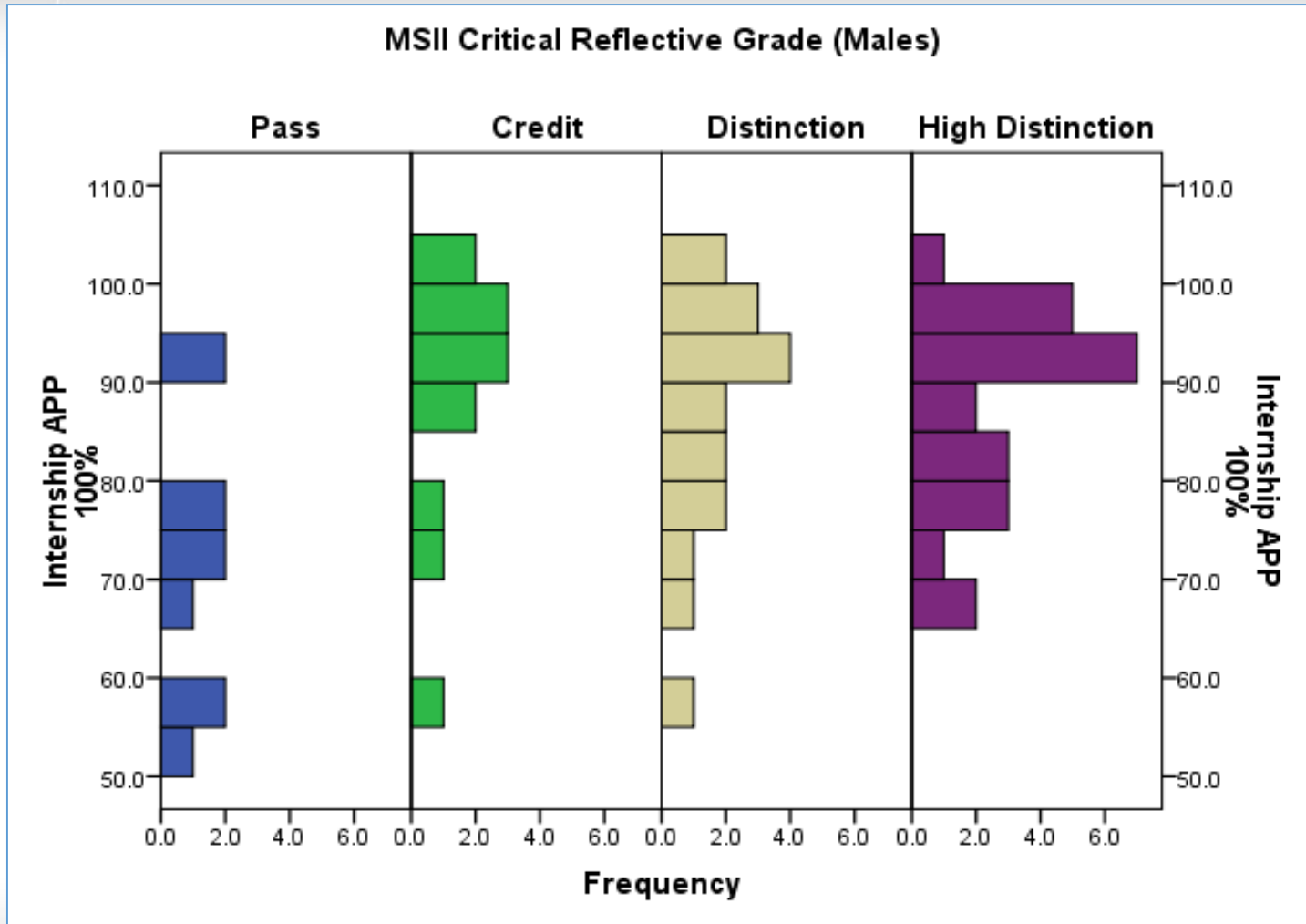
R²= Squared correlation coefficient

* Significant relationship with APP scores (significance level p<0.05)



Results:

Musculoskeletal Outpatients Critical Reflective Tasks Grades and Clinical Internship APP scores (%) for Male students





Discussion



- A weak, however significant positive predictive relationship exists between male students' critical reflective ability (represented by CRT marks) and their work-readiness in the physiotherapy profession (represented by Clinical Internship APP scores).
- This relationship is considered educationally important as the ability to critically reflect (determined by CRT marks) could essentially account for an entire grade change in male students Clinical Internship APP scores.
- These findings promote the use of critical reflective tasks as a predictive tool which identifies critical reflective ability in students to provide insight into one's strengths/weaknesses and advance their understanding of clinical concepts.
- Past studies revealed relationships of critical reflective ability on the same experience/subject, whereas the current study demonstrated a predictive relationship enabling the CRT at a point in time (musculoskeletal outpatients) to identify male students who may benefit from additional support to enhance their work-readiness by completion of their program.



Implications



Early
pedagogical
practices

Early
identification
of poorer
reflectors

Future
research to
address
limitations





Strengths & Limitations



Valid performance assessment tool used (APP).

Able to control variables used in analyses

Similar gender ratio explored



Single Critical Reflective task used

Study did not account for confounding factors in analyses (e.g. student variables, external variables and timing of CRT)

Determining cause and effect

Data unavailable for one analyses



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Questions

