MEASURING CHANGE IN PhD CANDIDATE ATTRIBUTES DURING CANDIDATURE

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DOCTORAL STUDY

- Difficult and complex
- High stakes for the candidate & the nation
- Candidates are an elite group, but …
- Individual candidate characteristics and dispositions require study
- Has 3 components: a curriculum, development of the candidate & learner activity in constructing knowledge and understanding

RESEARCH QUESTIONS

- What changes in affective, intellectual and contingency responses occur over a 12 month period of PhD candidature?
- Do changes relate to stage of candidature, age of candidate, whether English was the candidate's native language, and discipline area?
- Are the changes related to cluster membership of the candidates?

DOCTORAL CANDIDATE ATTRIBUTES EXAMINED ON 3 DIMENSIONS

- AFFECTIVE: coping measures (4 scales), doctoral efficacy (1)
  (Greenglass et al, 1999; Bandura, 2006)

- INTELLECTUAL: metacognitive awareness (2), epistemological beliefs (2), need for cognition (1)
  (Schraw & Denison, 1994; Schommer, 1993; Cacioppo, 1984)

- CONTINGENCY RESPONSE: doctoral responsibility (2), volitional control (3), procrastination (3)
  (Kleuver & Green, 1998; McCann & Garcia, 1999; Muszynski & Akamatsu, 1991)

THE CANDIDATE SAMPLE

- Responses to an online survey repeated after 1 year:
  a sub-sample of 1142 candidates from 33 of Australia's 39 universities
- Respondents were self-selected: no claim of randomness is made, but the sample matches what is known about PhD enrolments, except for gender (74 % of the sample was female compared with about 50 % nationally).
- Some details

  Native English speakers: 82 %

  Age: 38% in 20s, 24% in 30s, 38% 40s+

  Stage of candidature: Early 30%, Mid 37%, Late 34%

  Disciplines: Arts/Human 30%, Sc/Engin 23%, Health 29%

WHICH MEASURES CHANGED SIGNIFICANTLY OVER TIME FOR THE TOTAL SAMPLE?

Measures reducing over time

- Proactive Coping ($p < 0.001$)
- Reflective Coping ($p = 0.047$)
- Support seeking Coping ($p < 0.001$)
- Volitional Self-enhancing strategies ($p = 0.016$)
- Volitional Stress-reducing strategies ($p = 0.001$)

Measures increasing over time

- Accepting greater responsibility ($p = 0.006$)
- Pragmatic goal reduction ($p = 0.017$)

CANDIDATE CLUSTERS

- Three clusters were created from the 18 measures, with cluster quality in the ‘fair’ range
- Cluster 1: 39% of the sub-sample – Generally positive, not focussed on coping
- Cluster 2: 23% of the sub-sample – Strongly focussed on coping, had less positive views about their studies
- Cluster 3: 39% of the sub-sample – took less responsibility, were clearly having difficulties but not really attempting to resolve them

WHAT ELSE AFFECTS MEASURES THAT CHANGED?

DEPENDENT T2	R2 %	T1	Clust OK	Clust Giv Up	BFOE Health	Gender	Age	Aust /OS	Cand Time
Reducing									
Coping Proactive	53.3	.688	.041	-.061					
Coping Reflective	40.3	.600		-.075	-.051				
Coping Supp Seeking	40.2	.624				.053			
VolCon Self Enhancing	45.1	.624		-.083			.039		
VolCon Stres Reducing	50.9	.173							.046
Increasing									
Responsib IS mine	14.1	.375							
Pragm Goal Reduction	28.1	.502	-.057			-.063	-.058		.052

SIGNIFICANT CHANGES OVER TIME (1)

CLUSTER OK: N = 403 (39%)

REDUCING

Volitional control: use of Negative incentives

Metacognitive awareness: Knowledge of cognition

Epistemological beliefs: Structure of knowledge (complex)

INCREASING

Coping: Preventative

Procrastination: Response to pressure

CLUSTER GIVING-UP: N = 237 (23%)

REDUCING

Procrastination: Perceived inadequacy

INCREASING

Metacognitive awareness: Knowledge of cognition

Metacognitive awareness: Regulation of cognition

Epistemological beliefs: Acquisition of knowledge

SIGNIFICANT CHANGES OVER TIME (2)

CANDIDATE CLUSTER TRYING: N = 404 (39%)

REDUCING
Coping: Proactive
Coping: Reflective
Coping: Preventative
Coping: Support seeking
Volitional control: Self enhancing
Volitional control: Stress reduction
Metacognitive awareness: Knowledge of cognition
Metacognitive awareness: Regulation of cognition
Epistemological beliefs: Acquisition of knowledge

INCREASING
Volitional control: Negative incentives
Epistemological beliefs: structure of knowledge (complex)
Responsibility is mine
Procrastination: Pragmatic goal reduction

OTHER VARIABLES RELATED TO CANDIDATE MEASURES IN THE REGRESSION ANALYSES

BFOE:
Health was negatively related to both Coping: Reflective & Doctoral Efficacy

STAGE OF CANDIDATURE:
Candidacy time was positively related to Doctoral Efficacy, Volitional Control: Stress reduction & Procrastination: Pragmatic goal reduction

Australian or overseas candidate:
Being an Overseas candidate positively related to Doctoral efficacy, Use of negative incentives, Belief that knowledge is not simple, that PhD responsibility should be the candidate's & having a Need for cognition

AGE OF CANDIDATE:
Being an older candidate was positively related to Volitional control: Self-enhancing, use of Negative incentives, Regulation of cognition & having a Need for cognition.
Being older was also negatively related to all 3 Procrastination scales: Perceived inadequacy, Response to pressure & Pragmatic goal reduction

GENDER:
Female candidates were higher on Coping: Support seeking, belief that knowledge was complex and they knew how to acquire it & Procrastination: Perceived inadequacy.
Females also were less likely to engage in Pragmatic goal reduction

IN SUMMARY

1. The measures tended to be stable over time. Even the significant differences found over the 1-year period were not large.

2. Variance explained at Time 2 was highest for Need for cognition, use of Negative incentives & Proactive coping. Variance explained was lowest for responsibility & Pragmatic goal reduction (both increasing)

3. Candidates in both the **OK** and the **Giving-up** clusters exhibited far fewer and smaller changes than those in the **Trying** cluster.

4. Other variables found to be important (in descending order) were: candidate age and gender, whether an overseas candidate, stage of candidature & BFOE.

5. When all other factors were taken into consideration, Health was the only BFOE related to any of the measures.

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THANK YOU … QUESTIONS?

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