BlogPost #5 Calibration = Confidence? It this 'academic equivalency'? - Part 1

Klassen, R., 2002, A question of calibration: A review of the self-efficacy beliefs of students with learning disabilities, LEARNING DISABILITY QUARTERLY, 25(2) pp. 88-102.

Summary of Reading:

This latest reading has been the paper by Klassen (2002) where the idea of 'calibration' is introduced in the context of self-efficacy beliefs and in particular referring to students with 'learning disabilities' (LD), taken to be broadly the americanism of 'learning differences' (SpLD / dyslexia).

The focus of the article is a review of scholarly papers reporting and discussing the results from research studies into the self-efficacy beliefs of students with LD with a specific emphasis on the idea of 'calibration', which Klassen either defines, or takes from Bandura's (1997) definition, the whichever is unclear, as 'THE DEGREE OF CONGRUENCE BETWEEN EFFICACY BELIEFS AND ACTUAL PERFORMANCE' (op cit, p89). However, further in the paper there is a lengthier exposition on 'calibration' in which Klassmen clarifies it as 'THE ACCURACY OF ONE'S BELIEFS ABOUT POTENTIAL FUNCTIONING' (ibid, p92) and follows this by describing how the measurement of self-efficacy for academic functioning involved querying how CONFIDENT a student feels about undertaking an academic task and the CALIBRATION of beliefs is the gap between (self) confidence rating and absolute performance in the task.

This is interesting as it is contributing to The Researcher's understanding and location of CONFIDENCE in the context of academic tasks. Klassen refers to an earlier study by Butler (1998) who suggests that such assessments of self-efficacy are constructed from an individual's sense of 'self' and that such assessments may be regarded as a FUNCTION OF METACOGNITIVE KNOWLEDGE.

The idea of using a functional description of the connections between constructs is strikes a chord as it can 'MATHEMATICOMORPHIZE' (invented word :-/) the relationships into a domain that is more easily visualized by this project's student (hereafter referred to as The Researcher) and might be analogised to the classic, mathematical relationship between variables, namely: y = f(x), 'VARIABLE Y IS A FUNCTION OF VARIABLE X'. Drawing from The Researcher's academic domain of mathematics, it is interesting to be thinking about this relationship such that self-efficacy is a function of metacognitive knowledge as Butler suggests. What is the nature of this function? Linear? Exponential? Logarithmic? Where Butler speaks of 'assessments of self efficacy' should we assume that in this functional-model analogy, self-efficacy will be the dependent variable (y) and metacognitive

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The idea of 'calibration' is interesting because it is seems relational.

That is, it appears to be conceptualizing the connection between the 'input' variable '(self-beliefs) and a dependent, 'output' variable (self-efficacy) however rather than being 'single-action', the process that is taking place in this connection would seem to be iterative.

This strikes a chord with the iterative process that is suggested in the first literature review map on academic confidence available here, where The Researcher is attempting to create a visual map of the linkages between inter-related components or sub-factors that are the collective ingredients of Academic Confidence.

In this map, The Researcher is considering Academic Output as a function of Academic Confidence as an iterative functional relationship that is 'two-way' rather than unidirectional - a kind of feedback process.

In thinking this through, The Researcher suggests sub-factors of academic confidence based on experiences gained in student learning development in a university context and which seem fundamental to a general sense of students' confidence in approaching study at university.

So far, 6 distinct academic functions are suggested although it is thought that these are unlikely to operate independently or are mutually exclusive to each other as, reflecting intuitively at least, there are surely overlaps:

- research and information sourcing;
- organisation, planning and time management;
- independent thinking and the

knowledge the independent variable (x) so that were we able to plot this relationship graphically, metacognitive knowledge would be represented along the x-axis with self-efficacy up the y-axis? What would the graph of this relationship look like?

Furthermore, and in keeping with The Researcher's Commentary (right ->) about the suggested bi-directional relationship between ACADEMIC CONFIDENCE and ACADEMIC OUTPUT and how this is factored in to efficacy beliefs, we might re-visualize this as a three-function relationship where $Z = f(X,Y)$ so that to have meaning in terms of the double helix analogy suggested in the Commentary (right ->), the dependent variable, Z, will represent efficacy beliefs with the independent variables, X, Y, representing academic confidence and academic output respectively.

The Literature Review Map for Academic Confidence being developed as much as a 'thinking guide' as a summary diagram (available elsewhere in these webpages) provides a visual representation of these ideas and also is enabling The Researcher to reflect on the inter-relationships between the variables tentatively associated with ACADEMIC CONFIDENCE in psycho-educational contexts. This is a helpfully clarifying process!

However, returning to the paper which is after all, the focus of this post, Klassen frames his review of the research so far in terms of questions about how accurately calibrated are the self-efficacy judgments of students with LD, why do these learners tend to over-estimate their beliefs, what is the potential impact of mis-calibration of efficacy beliefs (ALTHOUGH WHETHER THIS REFERS TO *academic* IMPACT IS UNCLEAR) and lastly asks what are the problems with the self-efficacy measurement processes employed in the studies reviewed.

The first section of his review discusses the relationships between motivation, metacognition and LD, briefly citing several studies that suggested that LD students display deficiencies in evaluating their academic skills and the (likely) quality of their academic output due to a less well-developed awareness of their cognitivie processes, not the least these being their sense of their strengths and weaknesses. This caused The Researcher to reflect on whether this may be however, more of a manifestation of LD students' knowledge, or perhaps just perception, that both their own and maybe more significantly, EXTERNAL EXPECTATIONS of the quality of their academic output is reduced, feelings that may be driven by the stigma associated with the

development of ideas;
• competencies in expressing ideas and communicating knowledge;
• exchanging or sharing intermediate learning outcomes;
• ACADEMIC OUTPUT;

Reflecting on ACADEMIC OUTPUT led The Researcher to consider the 'qualities' or perhaps to be more scientific, the process components which are key contributors that lead to a high standard of academic output. So far at least, 11 process components are suggested (in no particular order):

• persistence = responding positively to academic challenges and resisting defeat in the face of difficult or lengthy tasks;

• knowledge acquisition efficiency = developing expediency in gaining understanding of new knowledge;

• resourcefulness = having a variety of innovative and imaginative approaches available for tackling an academic task;

• systematicity = the ability to organize learning processes into a sequence of smaller tasks that have realistic, short-term achievement targets;

• quality of reasoning = demonstrating ability to think clearly and coherently, evidenced by structuring an argument or point of view into a logical progression;

• task comprehension = understanding task demands and scoping out response strategies;

• communication processing skills = gauging the best medium(s) for presenting academic output to others

disability LABEL (Ho, 2004). This is important because if this is the case, this may be indicating a disparity between the aspirations of the Social Model for Disability, which after all has the intention of levelling the academic playing field through a catalogue of reasonable adjustments and the traditional response of bolt-on 'support' in HE institutions, and the reality of the EXTERNAL academic output expectations for the student:

> "I have failed an essay before and I was told that it was because I was careless with my grammer and spelling but the marker was awear that I am dyslexic. She didn't see a problem with her comment but it angered me because I wasn't being careless and I had had friends proof read the essay before hand" (Dykes, 2008, QNR respondent #26)

However, the impact that LD has on the quality of academic output is surely complex. It is beginning to seem clear from the wide body of research supporting similar findings, that many learners face real issues that appear to be directly related to their APPROACHES to their academic challenges. Klassen reports studies by Butler (1998, 1999) who found that LD students struggle with analysing task requirements and that they often focus on lower-skill competencies such as spelling and grammar while not recognizing the need for organizational capabilities or writing in a particular register; and although his review also summarizes that LD students are generally less metacognitively aware, on this point The Researcher reflects on whether a more accurate approach may be to suggest that these learners are more NEGATIVELY metacognitively aware. Klassen further reports work by Borkowski (1992) which tells us (unsurprisingly) that getting a clear sense of task demands is an essential process for successful academic performance. The Researcher reflects positively on this but also considers that for students with LD, gaining this appreciation for 'sizing up the task', as Borkowski describes it, may be more a function of the manner in which the task's academic context is framed as much as any research-reported deficit in megacognitive awareness. In other words, as much an EXTERNAL factor as an INTERNAL one. Does this tie in with earlier reflections on expectation beliefs? Would it be that a student with LD may be EXPECTING a particular assignment brief to be lacking in directional clarity as their prior experiences has shown this to be the case, and whether this be by design, to encourage the development of independent thinking and task management skills or, as in The Researcher's frequent experience, simply by being poorly worded by the assignment setter? In either case, the impact of the expectation must surely be a further contributory determinant of the quality of the student's academic output for the task.

The Researcher needs to further explore the nature and theory of expectation

• resilience = demonstrating ability to 'stand one's ground' and defend an academic argument or point of view in the face of academic criticism;

• external learning development = support from experts and knowledge-holders (tutors, supervisors, academic peers);

• peer group support = gaining confidence from interactions with academic peers and equals;

• peer group competition = facing competitiveness or derogation from academic peers and equals;

These are early ideas and at this stage of the literature review, other studies that may have made similar observations have not been unearthed so it is not known yet if this is a fresh way of looking at the academic confidence <=> academic output inter-relationship.

Let us think of this equivalency relationship using the analogy of the double-helix model where we might think of one strand of the helix as representing efficacy beliefs, the other strand representing academic output and the bridges between the two as academic confidence.

The Researcher needs to think harder about how this analysis might aid understanding of academic confidence and develop this reasoning further.

beliefs and how academic confidence may also be a function of these. The Literature Review Map under construction is considering this, at present through key-word statements drawn from a comprehensive and deeply analytical paper by Pajares (1999) that summarizes the whole self-efficacy field of research to that date. A commentary on this paper will be the subject of another BlogPost coming imminently.

Klassen summarizes his analysis of others' research by concluding that students with LD 'struggle with various aspects of metacognition, one component of which may be an evaluation of the nature of the task' (Klassen, 2002, p90) however The Researcher is suggesting that this appears to be based on assumptions that these 'struggles' are a function of internal student-based factors rather than external task-based factors, or even a variously proportional combination of both.

Klassen on self-efficacy theory

Summary of this coming soon in Part 2 of this BlogPost

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ADDITIONAL COMMENTARY