ABSTRACT

Considerable research evidence has been amassed to suggest that individuals integrate a concept of themselves by utilising any one of a number of processes. The current research investigated two such processes, namely self-enhancement and self-verification, and indicated their significance for the way in which student teachers integrated a concept of themselves as professionals. The design took the form of providing feedback to second year teacher education students who took part in responding to a series of classroom-related vignettes, and then examining their responses against the criteria for self-enhancement and self-verification established from the literature. The integration processes favoured were designated as the dependant variables with independent variables consisting of status (expert/novice), age (mature-age/school leaver), type of feedback presented (favourable/unfavourable), and performance on school-based teaching practice. Data were analysed using X2 and ANOVA and findings are
discussed. Implications for pre-service teacher education courses are considered.

NOTE: This paper represents a study-in-progress for the award of Doctor of Philosophy from the University of Western Australia, with Prof. John Hattie & Dr Graham Douglas as supervisors.

Processes of Self-concept Integration in Student Teachers

Preamble
At the 1993 AARE Conference the findings of the first part of this study were presented (Paper # 93.016). In essence, it was argued there that student teachers could be categorised as proficient (expert) or non-proficient (novice) problem-solvers on the basis of protocol responses which were matched against expert/novice criteria established from relevant literature. The present study used the same research population to investigate the nature of the relationship between expertise and one of two self-concept integration processes, namely self-verification and self-enhancement.

Introduction
The intention of this study is to gain insight into whether student teachers have a preference for one of two major processes of self-concept integration; namely self-verification and self-enhancement. Integration is defined as the end product of the underlying processes “that are used by individuals to achieve a hierarchical notion of conceptions of self” (Hattie, 1992). Integration is seen as the process associated with rebalancing a concept of the self which may have been affected by incoming stimuli. Self-verification theory finds its roots in the work of the early symbolic interactionists such as Cooley (1902) and Mead (1934) and refers to the seeking of confirmation and/or disconfirmation about conceptions about the self. Self-enhancement theory is derived from various personalogical theories (e.g. Horney, 1937; Rogers, 1961) and refers to the wish to be viewed favourably, to do whatever it takes to feel good about oneself, either by maximising positive self-evaluations or by minimising negative ones.

Summarising the research on the dominant characteristics of self-enhancers, Berlach, Hattie & Clinton (1992) reported that in terms of general tendencies it could be said that self-enhancers are more sensitive to affective than cognitive performance evaluations (Moreland & Sweeney, 1984); take greater risks in self-presentation
when they believe that they have a chance of succeeding (Unger, 1980; Ward, 1981); in competitive situations tend to publicly aggrandise, but privately denigrate, the ability of an opponent (Baumeister & Jones, 1978; Gould, Brounstein & Sigall, 1977); do not respond well to threats to self-evaluation (Niedenthal & Mordkoff, 1991); tend to be more intrinsically motivated (Talbot, 1981); and are motivated to confirm hypotheses formulated on the basis of ideal-self standards (Dymkowski, 1988).

Self-verifiers, on the other hand, tend to want control and predictability (Swann, Griffin, Predmore, & Gaines, 1987; Swann, Stein-Seroussi, & Giesler, 1992); seek subjectively accurate feedback and like to have firmly held views supported (Swann, Pelham, & Krull); assess (rather than accept) favourable social feedback (Swann, Hixon, & Stein-Seroussi, & Gilbert, 1990); seek unfavourable feedback regarding negative self-views (Swann, Griffin, Predmore, & Gaines, 1987); want information about others when deprived of control (Swann, Stephenson, & Pittman, 1981); often exaggerate self-estimates of ability (Karabenick & LeBlanc, 1985); and deliberately reduce the role of self-knowledge in the regulation of behaviour (Dymkowski, 1987, 1988).

Typically, in an attempt to determine the integration process being activated, researchers have audio-recorded responses to evaluative feedback and then analysed the protocols, looking for language suggestive of self-enhancing and/or self-verifying behaviour. In a study on group favouritism, Brown, Collins and Schmidt (1988) found that for those who tended to “reflect a motivated desire to enhance self-worth, effects were less evident after subjects had received positive feedback than after they had received negative feedback” (p. 445). Swann, Blair and Pittman (1981) reported that manipulation of feedback in a study dealing with social knowledge revealed a clear “relationship between the motive to maintain control and the processes by which people formulate and sustain images of themselves” (p. 635). Swann, Griffin, Predmore and Gaines (1987) discovered, through the manipulation of feedback, that “people’s cognitive responses conform to self-consistency [self-verification] theory and their affective responses conform to self-enhancement theory” (p. 881). In a later study, Swann and collaborators concluded that “our findings show that such individuals [who show a preference for self-enhancement] actually prefer unfavourable to favourable feedback. That is, people with negative self-views seem to prefer and seek out unfavourable feedback and friends and intimates who think poorly of them” (Swann, 1987, p. 1045). It would appear that negative feedback presented to those who favour self-enhancement especially, has a powerful affect on their self-concept stability.

In this study, as with the studies cited above, feedback is experimentally manipulated in an attempt to access the integration
processes being favoured by subjects.

Purpose Statement
Whereas Study One was concerned with identifying the attributes of domain-specific expertise (in this case, classroom related problem-solving), Study Two addresses the following hypotheses:
(1) There is a positive relationship between self-verification as a dependant variable and expertise as an independent variable (major hypothesis)
(2) There is a positive relationship between self-verification as a dependant variable and age, feedback type, academic ability, and teaching performance, as independent variables.
(3) Those showing a preference for self-verification will score higher on the subscales of the Song and Hattie About Myself test of self-concept than will those who utilise self-enhancement.

Method
Sample
Subjects for this study came from the same sample as that used in Study One. Upon completion of Study One, all of those who had been designated as experts (N=16) as well as an equal number of subjects selected randomly from those identified as novices, were sent a letter asking them to present themselves for the second study. A timetable was established for interviewing each of the subjects on an individual basis.

Phase 1: Identifying the Characteristics of Self-Enhancement and Self-Verification
This phase consisted of identifying, from the literature, the characteristics relating to the two integration processes under consideration. An ERIC (1966-1993) and PsychLIT (1974-1993) database search using the descriptors "self-verification" and "self-enhancement" yielded 141 journal articles. Of these, 84 were found to have direct applicability to the present study. It is appreciated that not all of the relevant articles were netted using this method due to disagreement regarding terminology [e.g. self-verification is also referred to as self-confirmation (Swann, 1990); self-consistency (Aitkenhead, 1980; Moreland & Sweeney, 1984; Swann, Griffin, Predmore & Gaines, 1987); and self-protection (McNicoll, Annamunthodo, McCarrey & Kamal, 1985); while self-enhancement is also known as self-evaluation (Dymkowski, 1987, 1988); positivity theory (Swann, Stein-Seroussi & Giesler, 1992); behavioural confirmation (Swann & Ely, 1984); and acquisitive self-presentation style (Wolfe, Lennox, & Cutler, 1986)]. Nevertheless, it was considered that 84 articles was a sufficient pool from which to create a list of defining characteristics representing each of the two integration processes. Those characteristics which emphasised the need for control and predictability defined
self-verification, while those which emphasised the desire to be viewed favourably defined self-enhancement.

After all of the characteristics had been identified, the top ten, by frequency, were selected as being identifiers of each of the integration processes and as such would be used in the study. These are summarised in Table 6.1 and 6.2. Examples of each characteristic, from the literature, were included to assist with later protocol analysis.

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Phase 2: Presentation of Feedback to Subjects and Coding of Results

Of the thirty-two subjects selected for this phase of the study (16 expert and 16 novice problem-solvers), eight from each group were randomly assigned to receive evaluative feedback of a positive or negative nature. Positive feedback consisted of informing the subjects that they had scored 19 out of a possible 20 points and negative feedback took the form of indicating that they had scored 9 out of a possible 20 points. Nine and 19 were arbitrarily selected as being representative of a low and high score respectively, the numbers per se having no particular significance.

The data were collected on an individual basis with subjects first being given a copy of their transcribed protocols, together with a copy of the vignettes (from Study One) and asked to read through both as a reminder of what they had done on the previous occasion. When they were ready, the tape-recorder was activated and subjects were informed that their responses from Study One had been fed into a software programme. They were further informed that the computer analysis consisted of matching their responses against the criteria found in the programme, namely, degree of systematic approach, desirability of problem-solving solutions, and awareness of unstated factors possibly impinging on the solution. Subjects were then given their “score” and asked to respond to a selection of questions from a predetermined bank. Not all subjects were asked every question. Questions which enhanced the flow of the conversation between researcher and subject were selected during the course of each interview. Each subject was asked between five and eight questions. The questions were formulated by the researcher on the basis of their responses providing sufficient potency for discriminating between the two integration processes under investigation. The bank contained the following questions:

1. Did you expect this result?
2. What are some possible reasons for this result?
3. How accurate do you think this result is?
4. How confident were you of your answers prior to receiving feedback?
5. Do you think that case-studies are a good way of evaluating potential problem-solving performance in the classroom?

6. Would you have performed better using a method other than case-studies?
7. How do you think others performed?
8. What do you think others may have thought of the case-study method?
9. Were the case studies administered in a fair way?
10. Did you feel comfortable participating in this study? Why/why not?

Debriefing was undertaken immediately after the final question had been asked. The tape-recorder was deactivated in order to create a feeling for the subject that the formal part of the session had been concluded. Debriefing began by informing the subject that the study was not, in fact, about problem-solving performance but about how people respond to feedback. Subjects were made to feel as psychologically comfortable as possible and assured that no computer analysis of their protocols had been undertaken and that no “score” had been awarded. They were told that the “score” had been a pure fabrication and was not in any way a reflection of their potential success as a teacher or of problem-solving ability. Prior to allowing them to leave the interview room, the researcher had made certain that subjects were not expressing any anxiety over what had transpired.

Audio-recorded responses were transcribed and analysed. Analysis took the form of matching responses against the criteria established in Tables 6.1 and 6.2. A similar procedure to that used in Study One was adopted, in that the guidelines advocated by Ericsson and Simon (1985) and Strauss and Corbin (1990, 1994) with regard to analysis of qualitative data, were adopted. Protocol analysis consisted scanning the entire transcript pool for significant words and phrases. Open coding was used and consisted of a line-by-line analysis with concept indicators (taken from Tables 6.1 and 6.2) being assigned using code notes on the transcripts. The nomenclature consisted of ascribing coding categories (characteristics) to protocols using the symbols E 1-9 (self-enhancement characteristics 1 to 9) and V 1-9 (self-verification characteristics 1 to 9) to critical incidents. A “critical incident” was defined as any segment of text which displayed one of the 18 characteristics under consideration. All such segments were coded. Characteristic ten identified in Table 6.1 and 6.2 was evaluated by performance on the Song and Hattie (1992) About Myself test of self-concept. Tallies of characteristics were made on individual transcripts and a summary matrix compiled (Table 6.3).
needs to be noted that as transcripts varied in length, the number of
critical incidents varied from subject to subject. In order to be able
to perform the necessary statistical tests on the data, tallies from
critical incidents were converted to percentages. Fifty percent was
designated as the cut-off score for categorising a subject as using
either verification or enhancement. Although a higher cut-off score
would have been desirable, this could only have been achieved by
reducing the sample size. As the sample was already quite small, it
was decided to retain all of the subjects at the expense of
establishing a higher cut-off score.

INSERT TABLE 6.3
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Coding reliability was established by asking two independent experts to
match the characteristics (from Table 6.1 and 6.2) against responses.

"Expert" was defined as an university academic who possessed
considerable experience in coding transcribed protocols. To control
for consistency, experts were provided with precise instructions
regarding the coding procedure. For the purpose of later statistical
analysis, segment highlighting was used to ensure that the independent
raters focused on the same critical incidents as did the researcher.
Experts were advised that only highlighted segments were to be coded.
Coding was to be undertaken by placing E 1-9 or V 1-9 next to a
highlighted passage of text. Subjects for the inter-rater reliability
exercise were randomly selected from the pool; representing one of the
four groups being considered, namely school-leaver/novice,
school-leaver/expert, mature-age/expert, and mature-age/novice. After
the experts had rated the critical incidents relating to the selected
protocols, inter-rater profiles were established for the various
self-verification and self-enhancement sub-categories (Table 6.4).

INSERT TABLE 6.4
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The coefficient of inter-rater agreement for each of the four subjects
was measured using the Kappa statistic (after Cohen, 1950: found in
Siegel and Castellan, 1988). This test was selected because of its
power and efficiency in analysing k related samples containing data
which are categorical. Kappa is a useful statistic when a number of
objects (in this case, numbers 1-9) are assigned to several categories
(in this case, self-verification and self-enhancement). Values of kappa
“greater than .75 have been said to indicate strong agreement; between
.40 and .79 fair to good, and below .40, poor agreement” (Wilkinson,
Results indicated fair to good agreement among raters at a significance level of \( p < .01 \) for all four subjects listed in Table 6.4 (mature age/expert, \( k = .45 \); mature age/novice, \( k = .63 \); school-leaver/expert, \( k = .76 \); school-leaver/novice, \( k = .52 \)). Agreement between raters was fair to perfect and this is presented as a series of four 3x3 tables (Table 6.5).

In an attempt to control for raters unwittingly looking for, and following, a pattern based on the coding of the first few critical incidents (halo effect), it was also decided to randomly select thirteen incidents from among the four individuals and present these in a mixed fashion to the same experts for rating. Such a procedure was undertaken because different ways of viewing the data could lead to different conclusions about the degree of inter-rater agreement. Therefore, a profile for the thirteen randomly selected protocol incidents was created (Table 6.6) and raw data analysed. The resulting value (\( k = .46 \)) indicated significant (\( p < .01 \)) although moderate inter-rater agreement. On the basis of the preceding analysis, it can be stated with a fair degree of confidence that the characteristics as listed in Tables 6.1 and 6.2 are being interpreted in a similar fashion by all raters.

However, even though this Kappa showed that agreement existed between the two processes under consideration (self-enhancement and self-verification), any agreement relating to subcategories (V 1-9 & E 1-9) needs to be viewed with considerable caution. A Kappa analysis of the information contained in Table 6.6 would lead to suspect conclusions because with 198 cells, many would contain zero values, nevertheless, an inspection of this Table clearly indicates that considerable discrepancy exists between raters.

Phase 3: Structuring the Hypotheses

Having determined a significant level of inter-rater agreement for the two major processes, an analysis of the original data (from Table 6.3) was undertaken. As the relationship between self-verification and expertise was the major hypothesis to be tested, and as
self-enhancement is merely a linear function of self-verification, statistical analysis using self-verification as the dependant variable was undertaken. Independent variables consisted of age (school-leaver, mature-age), feedback (favourable, unfavourable) status (novice, expert), academic ability (grade point average), and teaching performance (teaching performance).

The inclusion of age as a variable made it possible to argue for expertise as a function of factors other than merely chronology. The hypothesis that mature-age subjects tend to favour self-verification is premised on the developmental insight that increased chronology is often accompanied by greater commitment to one's preferred position (Peterson, 1989; Rice, 1992).

The power of feedback as a motivator in influencing beliefs, feelings, and actions has been well documented (Bardwell, 1981; Good & Brophy, 1988; Markus & Wurf, 1987; Schmuck & Schmuck, 1988). Feedback was selected as a variable as it was hypothesised that those utilising self-verification would be less affected by negative comments than those favouring self-enhancement.

Academic ability was defined as Grade Point Average (GPA) achieved after three semesters of study and was included among the variables being investigated as it was postulated that those utilising self-verification would record the higher GPA scores.

As successful teaching is the ultimate goal of the course being undertaken by the subjects of this study, the relationship between performance on teaching practice and the dependant variable was investigated. Teaching performance was defined as the grade awarded during a timetabled teaching practice experience. Teaching performance was grouped into two levels (outstanding/excellent and highly competent/competent/fail) Twenty-one supervisors had been assigned to the thirty-two students taking part in the study and all had considerable experience as supervisors ( = 16.43 years). To ensure inter-rater reliability, supervisors were approached individually and interpretation of the assessment categories discussed.

In accordance with the research question stipulated earlier, the Song and Hattie About Myself (Hattie, 1992) test of self-concept was administered with the intention of determining whether or not a relationship existed between the various facets (subcategories) of the self-concept and the dependant variable. Subjects were asked to complete the test on the first occasion that they met with the researcher. This timing was deliberate because it was at this point that subjects were the most ignorant about the nature of the research, thus potential Hawthorne effects were minimised.
The About Myself test was selected because trials have shown it to have a high level of both validity and reliability (Hattie, 1992, p164; Song, 1982). Its major strength, though, as articulated by Hattie (1992) is that contrary to usual procedures for developing self-concept tests, the Song and Hattie scale was derived from a specific theory about the dimensionality of self-concept. The theory was based on the Shavelson et al. model..... (p. 161)

Unlike many other self-concept tests, this one views self-concept as a hierarchical and multifaceted construct; is relatively short (35 items); is easy to administer; and easy to score (Appendix A).

Results

The present data would lend itself to loglinear analysis, however, due to the relatively small sample size, many cells would contain zero values. It was therefore decided to concentrate on investigating the existence of a relationship between the dependant variable and each of the independent variables separately. As the data were dichotomised, X2 was selected as the test of statistical significance. The software programme used (SYSTAT, Wilkinson, Hill, & Vang, 1992) automatically adjusted for the unbalanced 2x2 factorial design in which self-verification accounted for 22 cases and self-enhancement for ten. Results for the Song and Hattie About Myself test of self-concept were examined separately as this variable contained seven sub-categories.

Hypothesis 1

There is a positive relationship between self-verification as a dependant variable and expertise as an independent variable (major hypothesis).

A 2x2 frequency table was generated (Table 6.7) and a X2 analysis undertaken to determine the nature of what appeared to be a highly significant relationship between status and integration process. Such an analysis revealed the existence of a significant relationship between the variables (X2 = 16.04, df = 1, p = <0.001), despite the low frequency count of one of the cells. An inspection of the Table shows that a disproportionate number of self-verifiers were experts as compared to novices. The data thus indicates that expert problem-solvers tend to self-verify whereas novice problem-solvers tend to self-enhance. The hypothesis that a positive relationship exists between self-verification and status is confirmed.

INSERT TABLE 6.7 ABOUT HERE

Hypothesis 2
There is a positive relationship between self-verification as a dependant variable and age, feedback type, academic ability, and teaching performance, as independent variables.

A series of 2x2 frequency tables was generated (Table 6.8) and a X2 analysis undertaken to determine the nature of the relationship between age, feedback type, academic ability, teaching performance, and integration process. Results of X2 analyses are recorded in Table 6.9

As is evident from Table 6.9, no statistically significant relationship exists between self-verification and any of the independent variables under consideration. It may be that although one might conceivably expect self-concept integration preference to be related to the factors examined, this appears not to be the case.

Hypothesis 3
Those showing a preference for self-verification will score higher on the subscales of the Song and Hattie About Myself test of self-concept than will those who utilise self-enhancement.

Raw data for the subscales of the Song and Hattie About Myself test of self-concept were tabulated. As it was anticipated that high intercorrelations would be found, and a 7x7 intercorrelation matrix was generated. Results indicated that 12 out of 21 intercorrelations were significant at p < .05 and a further two at p < .10 (Table 6.10).

In view of these substantial correlations, a one-way MANOVA with seven dependent variables and one independent variable (two levels) was performed. Dependent variables were the self-concept subscales of ability; achievement; classroom; peer; family; social confidence; and physical. The independent variable was the integration process under consideration, namely self-verification or self-enhancement. The software programme used (SYSTAT, Wilkinson, Hill, & Vang, 1992) once again automatically adjusted for the unbalanced design in which self-verification accounted for 22 cases and self-enhancement for ten.
After Multivariate analysis indicated that no significant difference exists between the variances of the two populations (Wilks’ $\lambda < 0.81$; $F(<0.61; 7,24) = 0.79$), Univariate F tests were performed on the seven subscales to see if a clearer picture of the interactions could be obtained. No significant results, however, were noted (Table 6.11). It appears, then, that those who prefer self-verification as an integration process do not have a more positive self-concept than those who favour self-enhancement.

Table 6.11

Discussion

Relating to Hypothesis One (Major Hypothesis)

Based upon evidence from the current study, it can be stated with reasonable confidence that self-verification and self-enhancement are two identifiable integration processes and ones which exhibit a significant degree of polarisation. The degree of such polarisation, however, is open to debate, as it was shown that the vast majority of individuals utilised both processes, each being activated as deemed appropriate, but with one process having a clear preference in the vast majority of subjects (Table 6.3). What constitutes “appropriateness” for each individual is difficult to determine, but an argument based on the level of perceived threat seems compelling; that is, those questions which were perceived as being psychologically more threatening elicited a response which utilised a process with which the individual felt most comfortable, be it verification or enhancement. An example of “process switching” in the face of what may be perceived as a threat is seen in the response given by Subject 8,

Researcher: So do you think the computer was accurate in determining people’s scores or do you think most people got around pretty much the same sort of score? There wouldn’t have been discrimination would there between...

Subject 8: No - oh - computers are pretty accurate.
[categorised in Table 6.1 as E9 - “gain a sense of personal worth from others’ perceptions of them”]

Researcher: So you think it is pretty accurate?

Subject 8: Well, how can a computer judge ideas - is there some sort of system it uses? Does someone put in the ideas - well, how does it work?
[categorised in Table 6.1 as V3 - “assess, rather than accept, favourable feedback”]

It could be argued that Subject 8 (who had a verification score of 8
out of 9 critical incidents) overcame momentary dissonance by not wanting to be seen as arguing with the researcher, who after all, had been responsible for feeding the raw data into the computer. Also, the fact that this subject had been given favourable feedback may have meant that she did not want to be seen as “complaining” about her score. In her second response, however, she may have corrected her processing gyroscope and responded in her preferred mode of self-verification. A somewhat similar explanation could be offered from an examination of part of the protocol of Subject 27, who had a verification score of 6 out of 8 critical incidents.

Researcher: How do you think that other people who were involved in the study may have performed compared to your score? Where would you place your score, average, above average, below average?
Subject 27: I’d say probably about average. I’d say most people probably should have gone along the same way. That would be my thinking.
[categorised in Table 6.1 as V8 - “solicit feedback which confirms their self views”]

Researcher: Right, OK - so you think that most people would have done fairly well?
Subject 27: I think they would have done fairly well at least have got some of the ...perhaps I covered more points but I would have thought that other people probably should have covered at least similar points.
   Maybe not as many, but similar.
[categorised in Table 6.1 as E6 - “motivated to confirm hypotheses formulated on the basis of ideal-self standards”]

Researcher: Why do you think other people would have done as well as...
Subject 27: Because I think it was fairly obvious - what should be done. Anybody that are studying (sic) along these lines should have picked up the obvious signs.
[categorised in Table 6.1 as V5 - “Want predictability and control in their lives”]

Subject 27, who also received favourable feedback, initially responded by seeing others as being “about average” (i.e. as also receiving 19 out of 20). It would appear that what could quite justifiably be considered to be an excellent score could not be accepted as such by this subject. Not wanting to be perceived as being ungrateful, however, she added in the second response “perhaps I covered more points... others [covered] maybe not as many...”. There appears to exist a tension between wanting to acknowledge superior performance (E6) and being unable to do so (V8), hence the “switch” from verification to enhancement and back to verification (V5), the preferred mode of integration, and so to a re-establishment of self-concept stabilisation. Subject 27 may have been motivated not so much by the desire to escape from a perceived threat (as was the
probable case for subject 8), as by the need for overcoming a fleeting sensation of self-concept incongruity. Piaget (Peterson, 1989) used the term “equilibrium” with reference to the balance achieved between assimilation and accommodation when dealing with incoming stimuli. Perhaps a similar term could equally be applied to a rebalancing of the self-concept via the processes of self verification and self-enhancement.

With reference to the relationship between self-verification and self-enhancement, Johnston (1992) found of novices that, individuals initially engaged in self-enhancement behaviour and modified their responses based on their level of self-esteem by engaging in self-verifying behaviour. (p.94)

In the present study, it was likewise found that novices tended to enhance early and verify later in the discourse segment (Table 6.3). This could indeed be a deliberate self-esteem defence strategy as suggested by Johnston, or it may be that novices automatically engage self-enhancing processes based on past experience, irrespective of the present situation being encountered. Once the subject has had sufficient time to assess the present situation, only then does some sort of servo-mechanism (Kulhavy, 1977; Tice, 1990) allow for an alternative integration process to be entertained.

A closer analysis of the protocols revealed another interesting finding, namely, that regardless of feedback type, of those experts who had been categorised as predominantly self-verifiers (15 out of 16, Table 6.3) a majority found it difficult to articulate specific strategies to account for their success. Novices, on the other hand, seemed to attribute success more to luck or ability. Comments such as the following are indicative of typical expert responses: “I think that you need to have flexibility...flexibility in the sense that different strategies work for different people” (S4; SL, U * ); “I think it’s hard to read something and judge what you do” (S8; SL, F); “I know what I am talking about but its just trying to organise it logically...I mean if you know a lot about strategies and that then you can see how a person is thinking...” (S15; SL, U); “I think if you have something practical you can visualise it” (S21; SL, F); “it is basically common sense” (S34; MA, F); “it takes me a really long time to sort of process things through writing because I am always looking at different things while I’m going through it...” (S37; MA, U); “I felt I was being empathetic to the situation whatever it was” (S41; MA, F).

Perhaps phrases such as “hard to judge; trying to organise; can visualise it; looking at different things; empathetic to the situation; it’s commonsense”, provide a clue to what distinguishes expert from novice problem-solvers, namely that of adopting a tacit or intuitive approach; or possess, what Byra and Sherman (1991) referred to as, a
“dense semantic memory network” (p. 3). The inability to express a “gut feeling” more lucidly may suggest that experts “just do it”, even if they can’t articulate the process. This being the case, articulation and production, or what may be called competence and performance respectively (c.f. Cazden, 1966, with regard to this notion in linguistics), clearly needs to be differentiated when expert characteristics are being investigated. An individual can be an expert and one who utilises predominantly self-verification processes and still have problems with articulation, or as Gage and Berliner point out “linguistic competence and intellectual competence are not the same” (1992, p. 135).

Relating to Hypothesis Two
Although the four factors under investigation did not appear to be related to self-verification, it would be premature to dismiss such a possibility. Further study with a larger sample may yield vastly different results.

Relating to Hypothesis Three
On the basis of self-verification theory, the expectation would have been that those who preferred self-verification would have had a higher self-concept score. Such an expectation, however, did not find support in the data. Similar findings were reported by Resnik and Lammers (1985) who wrote that

From a consistency theory [self-verification] view, persons having low self-esteem would have been expected to perform more poorly than those having high self-esteem, but no evidence was found for this stereotype (p. 767).

Further investigation needs to be undertaken on the relationship between self-concept and integration processes.

Conclusion and Implications

The study found that a strong link existed between domain-specific problem-solving strategies and the self-concept integration process identified as self-verification. It is conjectured that individuals who have been designated as experts are more self-confident than those who haven’t been so designated, and as a result find more cognitive consonance in the verification process relating to their personal belief system than in approval from an external source. Such an explanation resonates with locus of control research as well as with numerous studies which have been undertaken in the area of attribution theory. An interesting future direction may be to examine the relationship between self-verification, expertise, locus of control and personal attribution. Undertaking such research while experimentally manipulating feedback variables such as public/private context,
affective/cognitive content, and direct/indirect presentation, may also prove fruitful.

The positive relationship found between self-verification and expertise may have implications for how pre-services teacher education courses are taught. Perhaps a closer match-up, for example, between evaluation techniques and integration processes would result in increased performance on the part of students. Perhaps matching lecturers and students on the basis of integration preference rather than randomly would create a better working relationship between pedagogue and student. Perhaps structuring courses around protecting rather than threatening students' self-concept stabilisation processes may lead to creating future teachers who could show a great deal more empathy for the children in their charge. These and other similar concerns may be a rich field of future research.

Table 6.1
Top Ten Characteristics, from the Literature, Attributed to Individuals Utilising Self-enhancement Integration Processes

1. Are more sensitive to affective rather than cognitive performance evaluations (e.g. “I feel that I scored what I deserved”).

2. Take greater risks in self-presentation when they believe that they have a chance of succeeding (e.g. “your evaluation confirms to me that I’m pretty good at this”; “I don’t know why I did so poorly”; make non-committal statements such as “I guess” or “I suppose so”).

3. In competitive situations tend to publicly aggrandise but privately denigrate the ability of an opponent (e.g. “I wouldn’t normally say this but I feel I’m better than them”).

4. Do not respond well to threats to self-evaluation (e.g. “I wasn’t feeling all that well on the day I attempted this for you”; “I couldn’t have done any better”).

5. Tend to be more intrinsically motivated (e.g. “I sort of enjoy doing these sorts of things, that’s why I volunteered”; “well, here’s an example of what I mean”).

6. Are motivated to confirm hypotheses formulated on the basis of ideal-self standards (e.g. “I’m really not very good at this sort of thing, I never have been”; “I’m the sort of person who messes these sorts of things up badly”).

7. Utilise to a greater extent the strategies of self-handicapping, identification, comparison, and discounting (e.g. “I can’t think fast enough in these situations”; “The others you selected are probably
“smarter than me”; “I wasn’t sure what it was that you were after”; “The
time given was too short”).

8. Solicit feedback which makes them feel good (e.g. “That’s good,
don’t you think so?”; adds an inflection such as “O.K.?/” at the end of
a response).

9. Gain a sense of personal worth from others’ perceptions of them
(e.g. “I hope my good score helped you with your experiment” OR “I
think the procedure is good, I mean, how else could you have done
it?”).

10. Tend to have a lower self-concept.

Table 6.2
Top Ten Characteristics, from the Literature, Attributed to Individuals
Utilising Self-verification Integration Processes

1. Are more sensitive to cognitive rather than affective performance
evaluations (e.g. “I think that the case studies were easy”; “I know
that I should know that”; “I mean, it should be like that”).

2. Pay more attention to feedback that confirms their self-views (i.e.
is subjectively accurate); (e.g. “I really don’t know how to respond to
that”; “I’m a bit dubious about that”; “I wouldn’t change my mind about
it now”).

3. Assess, rather than accept, favourable feedback (e.g. “Are you sure
that that’s what I scored, you’re not just saying that are you?”; “I’m
really surprised by that”; “I really don’t know what to say to that”).

4. Seek unfavourable feedback regarding negative self-views (e.g. “Yea,
that’s probably accurate, I didn’t really expect to do well”; “I would
have hoped some would have done better”).

5. Want predicable and control in their lives (e.g. “It doesn’t
matter that I didn’t do well, this is only hypothetical, I would do
better in the classroom for sure”; “computer grading of the responses
is unsatisfactory”; “It doesn’t matter that I don’t know everything
about teaching”).

6. Want information about others when deprived of control (e.g. “How
did other people in the study perform, better or worse?”; “what’s the
average?”).

7. Deliberately reduce the role of self-knowledge in the regulation of
behaviour (e.g. “I really don’t know”; “I’ve never looked at it that
8. Solicit feedback which confirms their self-views (e.g. “I think it’s a bit hard to be evaluated that way”; “It’s a bit tough to get a mark for this sort of activity”).

9. Often exaggerate self-estimates of ability (e.g. “I’m sure that having taken part in this exercise will help me next time I’m in the classroom”; I think my experience really helped me with the tasks”).

10. Tend to have a higher self-concept.

insert TABLE 6.3
S-E and S-V Profiles

INSERT table 6.4
inter-rater reliability profiles

Table 6.5
Results of Cohen’s k Test of Between Rater Agreement

Mature age/Expert
RESEARCHER EXPERT 1 EXPERT 2
RESEARCHER 1.0
EXPERT 11.01.0
EXPERT 20.620.621.0

Mature age/Novice
RESEARCHER EXPERT 1 EXPERT 2
RESEARCHER 1.0
EXPERT 10.621.0
EXPERT 21.01.01.0

School-leaver/Expert
RESEARCHER EXPERT 1 EXPERT 2
RESEARCHER 1.0
EXPERT 10.621.0
EXPERT 20.400.621.0

School-leaver/Novice
RESEARCHER EXPERT 1 EXPERT 2
RESEARCHER 1.0
EXPERT 10.491.0
Table 6.6
Results of Thirteen Randomly Selected Protocol Incidents

PROTOCOLS
1 2 3 4 5 6 7 8 9 10 11 12 13

Researcher E7E2E1E9V9V4V2V6V6V8V5V8V3
Expert 1E7V4E1V9V6V1V6E9V1V8V3
Expert 2V5E2E1E9V5V4V5V6V8V8V1V8V3

Preference M M V V V V V V
Legend: E = self-enhancement; V = self-verification; M = mixed rating

Table 6.7
Frequency of Status by Integration Process (N = 32)

Expert problem-solver
Novice problem-solver
Self-verification 157
Self-enhancement 19

Table 6.8
Frequency Table of Dependant by Independent Variables (N = 32)

<table>
<thead>
<tr>
<th>INTEGRATIONA</th>
<th>FEEDBACK TYPE</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCESS</td>
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<td>School-leaver</td>
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<tr>
<td>Self-verification 11 11 12 10</td>
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<tr>
<td>Self-enhancement 55 46</td>
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<td></td>
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<table>
<thead>
<tr>
<th>INTEGRATIONA</th>
<th>ACADEMIC ABILITY</th>
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<tr>
<td>TEACHING PERFORMANCE</td>
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<td>PROCESS</td>
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<tr>
<td></td>
<td>&gt; 70% G.P.A.</td>
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<tr>
<td>Self-verification 11 11 19 13</td>
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<tr>
<td>Self-enhancement 55 37</td>
<td></td>
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</tbody>
</table>

Table 6.9
Relationship between Self-verification Process and Independent Variables

X^2 d.f. p
AGE 0.50 < 0.48
FEEDBACK TYPE 0.06 < 0.80
ACADEMIC ABILITY 0.63 < 0.43

TEACHING PERFORM. 2.01 < 0.16

Table 6.10
Correlation Matrix of the Subscales of the Song & Hattie Test of Self-concept

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<thead>
<tr>
<th>ACHIEV CLASSRM</th>
<th>PEERCONFID</th>
<th>PHYSICAL</th>
<th>FAMILY</th>
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</thead>
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<tr>
<td>ABILITY.40 **.56 **.42 **.15.40 **.09</td>
<td>ACHIEV.43 **.21.56 **.39 **.47 **</td>
<td>CLASSRM.32 *.56 **.38 **.14</td>
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<tr>
<td>PEER.48 **.27.06</td>
<td>CONFID.32 *.51 **</td>
<td>PHYSICAL .05</td>
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** Significant at p < .05 alpha level  * Significant at p < .10 alpha level

Table 6.11

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<td>0.16</td>
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INSERT APPENDIX A
S & H TEST INFO
REFERENCES


reports as data. Cambridge, Massachusetts: Massachusetts Institute of Technology Press.


Peterson, C. (1989). Looking forward through the lifespan (2nd ed.).
NY: Prentice Hall.


Swann, W.B., Pelham, B.W., & Krull, D.S. (1989). Agreeable fancy of


* SL = school-leaver; MA = mature-age; U = unfavourable feedback; F = favourable feedback