

THE RELATIONSHIP BETWEEN ANDRAGOGICAL AND PEDAGOGICAL ORIENTATIONS AND THE IMPLICATIONS FOR ADULT LEARNING

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ABSTRACT

Current literature suggests that the relationship between andragogy and pedagogy is based on a continuum. This study found that the relationship of andragogical and pedagogical orientations, measured by the Student's Orientation Questionnaire, is more correctly represented as being orthogonal or at right angles to each other. Such an orthogonal relationship reflects the complexities involved in adult learning. The paper discusses implications for both the learning process and for future research.

The arguments for and against the concept of andragogy have been raging for some time (Cross, 1981; Davenport & Davenport, 1985a; Elias, 1979; Houle, 1972; London, 1973; McKenzie, 1977, 1979; Rachal, 1983). Much of the debate stems from differing philosophical viewpoints, classification of andragogy (whether it is a theory, method, technique or a set of assumptions) and the general utility or value of the term for adult education. Indeed, there is even debate over differing interpretations of the term andragogy as used in North America and Europe (Podeschi, 1987). Cross (1981, p. 225) sums up the situation by claiming that "the current position seems to be that andragogy consists of a different set of assumptions from pedagogy but that it is neither uniquely suited to adults nor superior to more traditional education." (also discussion by Harris, 1989; Knowles, 1984a; Pratt, 1988). Further, Pratt (1988) contends that, while andragogical practice has been seen as particularly appropriate for the teaching of adults, recent debate has abandoned the andragogy-pedagogy dichotomy which claims that teaching adults is significantly different from the teaching of youths.

An extension of these arguments focuses on the relationship between andragogy and pedagogy. As Rachal (1983) comments: "...we oversimplify and

ultimately mislead ourselves if we treat the two approaches as neatly dichotomous and mutually exclusive" (p. 15). Cross (1981) and Rachal (1983) see that the re-phrasing by Knowles of the sub-title of the text "The Modern Practice of Adult Education" from "Andragogy versus Pedagogy" to "Andragogy to Pedagogy" reflects a less dichotomous view. Davenport and Davenport (1985a) see the retitling as emphasizing the continuum perspective and point out that Knowles now perceives andragogy and pedagogy more as poles of a continuum rather than as a dichotomy. Rachal (1983) also considers that the two approaches are on a continuum.

However, such a relationship depicted as being on a continuum "still appears to be somewhat simplistic" (Cross, 1981, p. 225). Indeed, the development of the paradigms of learning strongly parallels the growth of thought on leadership within management education theorists. The original opposing dichotomies of the scientific and behavioral schools of thought on leadership (Dessler, 1985; Robbins, 1988; Stoner, Collins & Yetton, 1985) changed to an acceptance of a continuum (Tannenbaum & Schmidt, 1958) which, in turn, developed into the more complex orthogonal relationship of the two dimensional theories (Blake & Mouton, 1964; Reddin, 1970) until there appeared the even more complex approaches of contingency theory (Blake & Mouton, 1978; Fiedler, 1967; Hersey & Blanchard, 1974; Vroom & Yetton, 1973). The possibility of a relationship between andragogy and pedagogy that is more complex than that of a continuum is explored by Stuart and Holmes (1982) and Grow (1991) who suggest models based on the contingency paradigm of Hersey and Blanchard (1988).

Accordingly, this paper investigated the following question: Is the relationship between andragogy and pedagogy more complex than that depicted by a continuum?

OPERATIONALIZING THE CONCEPT

As Babbie (1973) points out, when designing a research project the richness of the original concept is diminished by the need to operationalize the concept. When discussing the assumptions of andragogy and pedagogy, Knowles frequently refers to the student's "orientation to learning" (1984a, pp. 55-61; 1984b, pp. 8-11). Thus, those favoring pedagogy are seen to have a subject-centered orientation to learning and those preferring andragogy a life-centered, task-centered or problem-centered orientation to learning. Davenport and Davenport (1985b) contend that one of the most successful ways of operationalizing andragogy-pedagogy is through educational orientation, and go on to comment: "Research on student orientation is in even more of a preliminary stage than is the research on adult educators, but the early results merit attention" (p. 7).

Andragogy-pedagogy is operationalized in this study by use of the Student's Orientation Questionnaire.

THE INSTRUMENT

Hadley (1975) developed an instrument with which an adult educator's orientation could be assessed with respect to the constructs of andragogy and pedagogy, the Educational Orientation Questionnaire (EOQ). From a review of the literature, "a pool of over 600 statements illustrating pedagogical or andragogical attitudes and beliefs about education, teaching practices and learning were obtained" (Hadley, 1975, p. 72). These statements were reviewed against several criteria and a preliminary questionnaire containing 100 items was prepared. This was later reduced to 30 andragogical and 30 pedagogical items.

Christian (1982) saw a need to assess the andragogical-pedagogical orientation of the student and developed a questionnaire called the Student's Orientation Questionnaire (SOQ) from Hadley's work. The question statements were similar in arrangement to Hadley's, although containing only 25 andragogical and 25 pedagogical items as compared to Hadley's 60. Ten items were omitted because of validity problems.

A reliability coefficient of .77 was found for the SOQ using the Kuder-Richardson Formula 21 (Christian, 1982, p. 41). Content validity was tested by the jury method of validation and found acceptable.

THE STUDY

The SOQ was completed by three groups of learners in the first lecture of the semester of a business tertiary course. Details of Group 1 and Group 2 are shown in Table 1. Fewer details were collected from Group 3 as these data were intended for a reliability study.

A principle components factor analysis was used to examine the data. Norusis (1988) considers that the rotation phase is one of the most important steps in factor analysis. Ford, MacCallum and Tait (1986) point out that the choice of either orthogonal or oblique rotation affects conclusions drawn from data. They go on to recommend that, since orthogonal rotation is a subset of oblique rotation, it is more sensible to rotate the factors obliquely then determine the tenability of the orthogonal assumption. In addition, oblique rotation allows the factors to be correlated. For this study, confirmation that the constructs of andragogy and pedagogy are indeed orthogonal is important because a result indicates that the relationship between andragogy and pedagogy is more complex than a relationship depicted by a continuum or a dichotomy.

The rationale behind the above strategy is that if the basic constructs shown by the oblique rotation are andragogy and pedagogy then the factor correlations will show the extent to which the two constructs of andragogy and pedagogy are related. If the factor correlation coefficient approaches 0, then the two constructs would appear to be approaching an orthogonal relationship (or at right angles to each other). A second factor analysis, this time using varimax rotation

Table 1.
Characteristics of Group 1 and Group 2

		Group 1	Group 2
Gender	Male	155 (40%)	113 (38%)
	Female	226 (59%)	176 (61%)
	N/A*	3 (1%)	3 (1%)
	Total	384	292
Age	Under 20	134 (35%)	62 (22%)
	20 to 24	129 (34%)	116 (40%)
	25 to 29	40 (10%)	34 (12%)
	30 to 34	33 (9%)	33 (11%)
	35 & above	48 (12%)	47 (15%)
	Total	384	292
Mode of Study			
	Full Time	223 (58%)	142 (49%)
	Part Time	111 (29%)	99 (34%)
	N/A*	50 (13%)	51 (17%)
	Total	384	292
Level of Study			
	Undergrad Yr. 1	133 (35%)	88 (30%)
	Undergrad Yr.3- SDL	146 (38%)	122 (42%)
	Undergrad Yr.3 - Trad.	60 (15%)	53 (18%)
	Postgrad	42 (11%)	23 (8%)
	N/A*	3 (1%)	6 (2%)
	Total	384	292
Full Time Work Experience			
	None	187 (49%)	100 (34%)
	1 year	21 (5%)	17 (6%)
	2 or more years	143 (37%)	113 (39%)
	N/A*	33 (9%)	62 (21%)
	Total	384	292

* Not available

(which maintains the axes of the factors at right angles - see Norusis, 1988) would confirm the orthogonal relationship, if the same items load onto the same factors. This latter result would indicate a relationship more complex than a continuum or dichotomy.

In this study, the data from Group 1 were factor analysed with both oblique and varimax rotation. As there may be some concerns about using both rotations on the same data, the data from the second group were also factor analysed using an oblique rotation to support the results found in the first group.

With factor analyses being conducted on Group 1 (n=384) and Group 2 (n=292), some comment can be made about the ratio of questionnaire items to the number of respondents. A review of the literature suggests that a ratio of at least 5:1 and up to a ratio of 10:1 (Ford, MacCallum & Tait, 1986) are considered highly desirable sample sizes for a study of this nature. Bryman and Cramer (1990) also recommend a minimum ratio of 5:1. In this study, Group 1 had a ratio of 8:1 and Group 2 of 6:1. In addition, prior to the factor analyses, each item of the questionnaire was examined using frequencies to test its ability to differentiate (Aiken, 1988; Zikmund, 1988). In both groups, the responses in Items 4 and 20 bunched significantly towards the end of the five point scales. It was doubtful that these items were discriminating enough. Accordingly, they were dropped from the analyses.

Finally, the data from the third group was used to check the constructs found in the factor analyses to ensure that the questionnaire was reliably measuring those constructs.

The Respondents .

All study respondents (Table 1) were participating in a university business management course. While Brookfield's concerns (1984) about the composition of respondents in self-directed learning research have been noted, there are several mitigating circumstances about the choice of respondents in this study. It was felt, also, that several of these circumstances decreased concerns about systematic bias affecting the outcomes of the investigation, which is discussed below.

An attempt was made to gain a representation across tertiary levels rather than just using first year students as is relatively common in research projects on learning. Accordingly, respondents were taken from first year, third year and post-graduate levels. Among the third year respondents, the opportunity was taken to select respondents who were enrolled in classes based on either self-directed learning or traditional learning. Respondents were selected from a number of universities in Australia: the Queensland University of Technology, University of Queensland, Griffith University (Nathan and Gold Coast campuses), University of Southern Queensland and the Victorian College University. In Australia, university education is heavily subsidized by the Federal and State

governments. This means that university education is available to a wider spectrum of society. Since a very high proportion of management education is conducted in universities via degree programs, the respondents were representative of a large population of adult learners in this field. Further, as can be seen in Table 1, over 50% of both groups had at least one year of full-time work experience and over 30% had two years or more. Therefore, a high proportion of the respondents had experiences away from the formal educational system.

The Analysis

A factor analysis using oblique (oblimin) rotation on the 48 remaining questionnaire items was conducted on the data from Group 1. While the eigenvalues of more than one showed 14 factors, a scree test suggested that a solution with factor numbers of much less than this was indicated. The results are shown in Table 2.

Further investigation proved that the cleanest result was obtained by using two factors. Those nineteen items loading cleanly and strongly onto Factor 1 (2, 5, 9, 11, 16, 21, 23, 24, 25, 26, 27, 32, 33, 36, 41, 42, 45, 47 and 49) were all andragogical items. Examples include Item 2: "I feel the instructor should encourage me to examine my feelings, attitudes and behaviors" and Item 41: "I feel the instructor should allow me to set my own goals". The nineteen loading cleanly and strongly onto Factor 2 (1, 3, 6, 8, 10, 12, 13, 14, 15, 17, 28, 29, 31, 34, 37, 38, 44, 46, 50) were all pedagogical items. For example, Item 15 is "I feel the instructor should act as if s/he is responsible for motivating me to learn what s/he wants me to learn" and Item 37 is "I feel the instructor should tell me what should be learned and how it should be done".

This investigation shows a high number of items loading cleanly and the fact that one factor is clearly andragogy and the other factor is clearly pedagogy indicates that the SOQ is validly measuring these constructs (e.g., Anastasi, 1976; Crocker & Algina, 1986). The factor correlation coefficient between Factor 1 (andragogy) and Factor 2 (pedagogy) was (-ve) 0.10996. This value is approaching zero indicating that the two factors are approaching an orthogonal relationship.

Another factor analysis, this time using a varimax rotation, was conducted on the data from Group 1. Again, the best solution was found with two factors. The results are shown in Table 3.

Not only do the same items load onto the same factors (compare with Table 2), but the factor loading values for each item are nearly identical. This result indicated that the two factors were orthogonal or at right angles to each other rather than lying on the same continuum.

Using the same data for both the varimax and oblique rotations could be criticized as being based on circular logic. Therefore, a factor analysis on the data from Group 2, using oblique rotation, was conducted (Table 4).

ITEM	FACTOR 1	FACTOR 2	ITEM	FACTOR 1	FACTOR 2
01	-.08611	.48940 *	01	-.10884	.49431 *
02	.56262 *	-.05095	02	.56388 *	-.08652
03	-.16769	.54817 *	03	-.19301	.55819 *
05	.52339 *	-.12728	05	.52829 *	-.16028
06	.07076	.46233 *	06	.04898	.45734 *
07	.29519	.17053	07	.28661	.15165
08	.03731	.48698 *	08	.01445	.48408 *
09	.55395 *	.07207	09	.54946 *	.03691
10	.30040	.56224 *	10	.27349	.54260 *
11	.53233 *	.13663	11	.52487 *	.10277
12	.28635	.42097 *	12	.26608	.40238 *
13	-.32863	.42679 *	13	-.34794	.44713 *
14	-.04699	.35775 *	14	-.06364	.36033 *
15	.03393	.46680 *	15	.01202	.46414 *
16	.48127 *	.05971	16	.47751 *	.02917
17	-.39927	.44479 *	17	-.41928	.46959 *
18	-.22872	.16755	18	-.23610	.18185
19	.06345	.25686	19	.05130	.25256
21	.55687 *	.04387	21	.55370 *	.00856
22	-.08976	-.39900	22	-.07091	-.39288
23	.46478 *	.02601	23	.46263 *	-.00346
24	.55947 *	.17316	24	.55024 *	.13754
25	.37486 *	-.11179	25	.37934 *	-.13541
26	.61304 *	.14189	26	.60517 *	.10291
27	.47316 *	-.14619	27	.47906 *	-.17600
28	.05245	.41412 *	28	.03297	.41034 *
29	-.13006	.55659 *	29	-.15585	.56421 *
30	-.16901	.28932	30	-.18221	.29971
31	.31004	.55288 *	31	.28355	.53264 *
32	.53336 *	.05864	32	.52955 *	.02480
33	.57257 *	.05215	33	.56898 *	.01583
34	.06635	.37898 *	34	.04848	.37437 *
35	-.17089	.20142	35	-.17997	.21202
36	.35562 *	.05355	36	.35240 *	.03097
37	-.23771	.54873 *	37	-.26291	.56319 *
38	-.25344	.59927 *	38	-.28098	.61466 *
39	.30743	.27137	39	.29412	.25160
40	.20684	-.05601	40	.20904	-.06905
41	.32762 *	-.11896	41	.33252 *	-.13957
42	.51739 *	-.02624	42	.51758 *	-.05897
43	.02246	.25227	43	.01061	.25057
44	-.27683	.40630 *	44	-.29529	.42339 *
45	.57670 *	-.16475	45	.58326 *	-.20109
46	-.18706	.60786 *	46	-.21513	.61904 *
47	.54033 *	-.14636	47	.54609 *	-.18042
48	-.42075	.18930	48	-.42877	.21574
49	.46842 *	-.00755	49	.46783 *	-.03721
50	-.35745	.58404 *	50	-.38406	.60604 *

Table 4.
Oblique Factor Analysis of Group 2

ITEM	FACTOR 1	FACTOR 2	ITEM	FACTOR 1	FACTOR 2
01	-.02020	.53100 *	27	.53690 *	-.03620
02	.50181 *	.04430	28	-.02996	.48898 *
03	-.01613	.45148 *	29	-.17798	.53428 *
05	.45231 *	-.13950	30	-.22008	.35155 *
06	.01036	.42411 *	31	.14467	.49013 *
07	.15553	-.00822	32	.52351 *	.12753
08	.04475	.52897 *	33	.58635 *	-.13589
09	.48642 *	.11573	34	-.04063	.39264 *
10	.15465	.45098 *	35	.01489	.33687 *
11	.47411 *	-.00207	36	.42096 *	-.02803
12	.25454	.52213 *	37	-.15406	.55537 *
13	-.16185	.44345 *	38	-.15406	.51300 *
14	.05501	.33694 *	39	.39755	.26009
15	.09895	.41857 *	40	.28933	-.08075
16	.39265 *	.00347	41	.38144 *	-.00031
17	-.40908	.46123 *	42	.53712 *	.00336
18	.06691	.20119	43	.14478	.47732 *
19	.01177	.37385 *	44	-.13943	.54368 *
21	.39341 *	.02257	45	.51306 *	-.15675
22	.12063	-.14333	46	-.10162	.55586 *
23	.44824 *	.04793	47	.51272 *	-.08451
24	.59360 *	.08632	48	-.20578	.17216
25	.39922 *	-.01635	49	.42010 *	-.00279
26	.50244 *	.11072	50	-.26511	.52998 *

In this analysis, the same nineteen items load onto Factor 1 (andragogy). While the same nineteen items load onto Factor 2 (pedagogy), four additional items (19, 30, 35 and 43) also load onto Factor 2. Each of these items is pedagogical, and further examination shows that the items do load cleanly onto Factor 2, although the weightings are weaker.

In this factor analysis on the data from Group 2, the Factor Correlation Matrix showed a correlation coefficient of (-ve) 0.12 a value remarkably similar to that found with Group 1. As this result with Group 2 also approaches zero, it was considered that the concepts of andragogy and pedagogy, as measured by the SOQ, were in a relationship more complex than that depicted by a continuum or a dichotomy. The relationship could be more accurately described as orthogonal.

A final check to ensure that the constructs were a reliable measure, an analysis using Cronbach's Alpha, was conducted using the 19 items that loaded onto the andragogical factor and the 23 three items that loaded onto the pedagogical factor. The data for this analysis came from Group 3 (n=109). This group was comprised of students participating in a business management course at a university and 34% (37) were first year students and 66% (73) were third year

students. An alpha value of 0.863 was found for andragogy and 0.855 for pedagogy indicating that both constructs were reliably measured by the SOQ.

DISCUSSION

The finding that the relationship between an andragogical orientation and a pedagogical orientation is not based on a continuum but is orthogonal has important implications for future research and implications for the teacher/learner dynamic. A relationship between andragogy and pedagogy that is based on a continuum implies that the less pedagogical an orientation the more andragogical it becomes. In other words, an individual's location is confined to a one dimensional line. However, once the relationship is considered to be orthogonal, then, an individual can be located within a two dimensional space that is bounded on one side by andragogy and on the adjoining side by pedagogy. For example, a learner could be considered to be high on pedagogy **and** high on andragogy, or low on pedagogy **and** low on andragogy.

The results confirm earlier research by Delahaye (1987). In addition, the findings support the propositions of Stuart and Holmes (1982) whose model was based on the work of Hersey and Blanchard (1972; 1974; 1988) in leadership theory. Hersey and Blanchard suggested that the decision on which of the four leadership styles should be used depended on the job maturity of the employee. Stuart and Holmes assumed an orthogonal relationship between "trainer directive behavior" and "trainer relationship behavior" and then posited a progression of learner development based on the learner's learning maturity.

Injecting the finding of the orthogonal relationship between andragogy and pedagogy into the work of Stuart and Holmes and also Hersey and Blanchard, results in a model (Figure 1) that has interesting implications for adult educators.

Learner Maturity

Stuart and Holmes (1982) suggest that learner maturity consists of the learner's past learning experiences, expectations, attitudes to the forthcoming learning event, and prior knowledge. Smith and Delahaye (1987) describe learner maturity as including the amount of knowledge the learner already has in the subject area, the level of interest in and need to acquire the learning, the degree to which the learner is willing to accept the responsibility to learn, and the degree of skill in learning the learner possesses.

A judgement can be made to place the learner on the Learner Maturity Scale in Figure 1 from low to high maturity. From this position, a perpendicular extension up to the thick curved line indicates the appropriate teaching/learning stage.

Teaching/Learning Stage

As shown in Figure 1 and based on Hersey and Blanchard, there would be four stages:

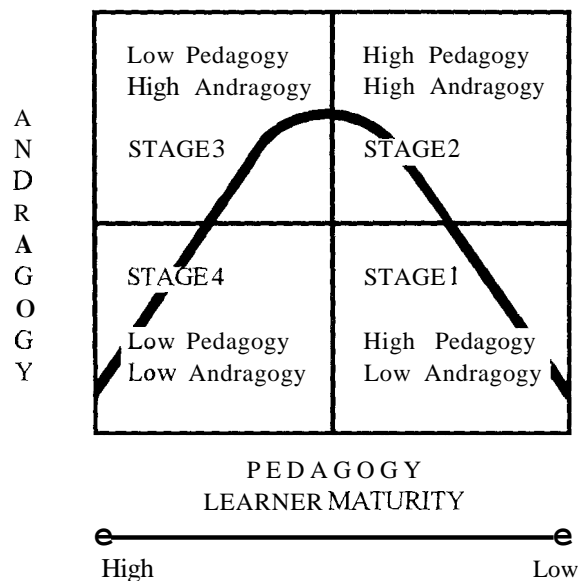
1. Stage 1 - Low Andragogy/High Pedagogy
2. Stage 2 - High Andragogy/High Pedagogy
3. Stage 3 - High Andragogy/Low Pedagogy
4. Stage 4 - Low Andragogy/Low Pedagogy

To describe the teaching/learning interactions that occur at each stage, the work of Grow (1991) is very useful. Grow also based his Staged Self-Directed Learning Model (SSDL) (see Figure 2) on several key concepts of Hersey and Blanchard, in particular that there were four stages as depicted in Figure 1.

Stage 1 (in both Figure 1 and Figure 2) represents the Knowlesian interpretation of pedagogy while Stage 3 describes that of andragogy. The processes for teaching and learning in Stages 1 and 3, therefore, have been well documented in the literature. Stages 2 and 4, however, are more of a conundrum. Stage 4 may be best visualized as only involving the learner without the assistance of a teacher or facilitator. Candy's concept of autodidaxy (Candy 1991) would appear to be relevant there. According to Candy (1991), these competencies include "observation, reflection, conceiving of an idea". To this list one could add testing the idea, reformulating personal knowledge and further experimentation (e.g., Kolb, 1984).

Stage 3 would appear to present special challenges to the teacher/facilitator and the learners. At this stage, the learners are rebelling against the structures of pedagogy but still be feeling insecure when faced with the prospect of taking

Figure 1.
Four Stages of Learning



responsibility for their own learning. As the teacher withdraws the familiar structures of pedagogical methods, other support systems will be needed. Of prime concern is an upgrading of the relationship between the teacher and the learner. In addition, the learner is still looking for more general constraints that provide guidance rather than control.

LIMITATIONS AND FUTURE RESEARCH

As with any research design involving field investigation, the challenge of controlling or measuring all extraneous variables remains problematical. In this study, an attempt was made to confine some of these extraneous variables by limiting the field of the respondents to business management students. This in itself creates problems with generalizability. Therefore, there is a need to repeat the investigation with students from other professions. The entire sample in this study comes from a university population, which had the advantage of supplying a large group of respondents sufficient to satisfy statistical analysis concerns. In addition, there was reasonable representation from the working population. Additional insights may be gained from further study that incorporates other variables, such as the older population, youths, people from different socio-

Figure 2.

The Staged Self-directed Learning Model

<u>Stage</u>	<u>Student</u>	<u>Teacher</u>	<u>Examples</u>
1	Dependent Coach	Authority immediate feedback	Coaching with drill; informational lecture; overcoming deficiencies and resistance.
2	Interested	Motivator; guide	Inspiring lectures plus guided discussion; goal- setting and learning strategies.
3	Involved	Facilitator	Discussion facilitated by teacher who participates as equal; seminar; group projects
4	Self- directed	Consultant; delegator	Internship; dissertation; individual work or self- directed study-group.

From: Grow, G.O.(1991).

economic levels, and learners from outside the official career-based education system.

There are also the usual deficiencies stemming from operationalizing research into a theoretical concept. This study used a quantitative approach that interpreted andragogy and pedagogy as the *orientation towards* andragogy and pedagogy. Other interpretations of the concepts need to be explored.

The models (see Figures 1 and 2) presented in the discussion have had their base assumption of the orthogonal relationship confirmed by this study. A number of other assumptions, however, require further study. The effect of situational variables other than learner maturity need to be examined. Indeed, the concept of learner maturity itself is worthy of investigation. In addition, the model presented in Figure 1 is logical as far as the four corners of the square are concerned. However, new queries can be made about the learners represented by the middle portion of Figure 1.

The findings in this study open up exciting possibilities for future research. In particular, there is now a more complex definition of learners which could lead to investigations into the types of learners who prefer various types of learning strategies. For example, Hams (1989) strongly recommends research into self-directed learners' personal socio-psychological characteristics. Harris also recommends research into the self-directed learners' changes in consciousness in becoming 'more experienced' people as a result of self-directed learning. Long (1989) provides a thoughtful model based on teaching methodology and a construct termed "psychological control". Investigating this construct on the basis of the orthogonal relationship of andragogy and pedagogy could prove a rich source of analysis. Another interesting line of inquiry would be the changes in orientation as the result of exposure to both andragogical and pedagogical experiences, along the lines of Caffarella and Caffarella (1986). There is also the opportunity to examine the complexities of the learning process based on andragogical and pedagogical strategies. The situational variables predicating appropriate choices in strategies would be well worth research effort. Writers such as Biggs (1989), Delahaye (1992), Grow (1991) and Pratt (1988) have posited a number of situational factors that could predict appropriate strategies. The orthogonal relationship of pedagogy and andragogy provides new opportunities for the exploration of learning orientations, and instructional strategies. The linkage of these orientations with situational variables provides the potential for adult educators to enhance educational practice by breaking away from the linear tradition of andragogy/pedagogy to embrace a more holistic sense of learning orientation.

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This is the authors' version of a paper that was published as:

Delahaye, Brian L. and Limerick, David C. and Hem, Greg (1994) The relationship between andragogical and pedagogical orientation and the implications for adult learning. *Adult Education Quarterly* 44(4): 187-200.

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