
Objective versus projective measurement of need for achievement: the relation between TAT and CMPS

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Introduction

The importance of the achievement motive for economic development has been shown[1-3]. Even if some questions have been raised about the relationship between achievement and economic growth[4,5], the connection seems well established[6,7]. That founders of businesses have a higher level of need for achievement, and the significance of need for achievement, as a factor for business prosperity, has been demonstrated[2,8-11].

To find connections between entrepreneurial activity and a personal characteristic such as need for achievement puts demands on the methods of measurement. Two paradigms for measuring techniques have been of significance in the development of test instruments. The impressionistic school promotes the use of projective tests, while the psychometric school uses objective tests, that is questionnaires[12]. They are objective in the sense that determination of points is done in advance with an elaborated guide and is not dependent on the interpretation of a person. When using a projective test the subject under investigation gives their expression of standardized, unstructured material, the expression is then interpreted by the experimenter.

The test first used, and the test with which the relationship between entrepreneurship and need for achievement has been established is the thematic apperception test (TAT). It was originally developed by Morgan and Murray[13] for use in clinical work as a support in psychotherapy and psychoanalysis. TAT consists primarily of 20 pictures in black and white, pictures of people and objects in different settings[14]. The supporting theory, with its roots in psychoanalytical theory, argues that a person will project his own feelings, needs and motives into the picture; the projective hypothesis[15]. In the manual for TAT[14] the method's special benefit is described as if it will "... expose the underlying tendencies which the subject...is not willing to admit, or cannot admit because he is unconscious of them". The achievement motive as it is defined in the theory of McClelland is not identical with our common idea about achievement as high income or a high test score, but as a process of planning and behaviour in striving for excellence[15]. By definition

n achievement is also directly related to the experiment conducted by Atkinson and McClelland[16] to develop Murray's clinically-used TAT for research purpose and to be able to measure the strength of motive. This experiment was carried out by varying the intensity of instructions in groups of subjects before they wrote their TAT stories. One group was given achievement oriented instructions, a second group neutral, and a third relaxed instructions. The special kind of thoughts found in the achievement group and not found in neutral and relaxed groups was used as an operational definition of achievement motivation[15]. By this procedure, there will be a unanimity between theoretical definition, method of measurement and operational definition.

Over the years TAT has been criticized on two different levels; one specific about its psychometrical standards, and one more general regarding its use and administration. Gjesme and Nygård[17, p. 4] for example, feel that "... the projective procedure is rather complicated and time consuming both in administration and scoring"; they suggest the use of an objective test instead. Its psychometrical standards have been criticized as having a low predictive validity[18] and reliability[19,20]. My purpose in this study is not to argue with these critics. My intention is to provide more understanding of the effects of replacing the projective method by the objective method.

Critics of use and administration of TAT have the opinion that TAT is time consuming, subjective, that it is difficult to interpret the stories, and that the interpreter needs clinical experience. The reason for this kind of criticism seems to be a misunderstandings of the differences between the original TAT test[14] and what Atkinson and McClelland[16] developed for research purposes. The main differences are: TAT-Murray consists of 20 pictures, TAT-McClelland has only 4-6 pictures, TAT-Murray assumes an experienced psychologist is needed for interpretation of the stories, TAT-McClelland could be coded by a well-trained (in coding) non-psychologist; TAT-Murray takes into consideration background data of the respondent, TAT-McClelland does not; TAT-Murray forms an interpretation by a psychologist, TAT-McClelland has an objective coding of behavioural sequences from established conventions[14-15,21,22].

To determine a test's validity the researcher must find whether some relationship exists between test score and what it is supposed to be measure. Klinger[18] mentioned that TAT measures suffer from low predictive validity. Numerous researchers have found relationships between *n* achievement and test scores, and, after a review of a number of studies when TAT was used, Fineman[19] concluded that TAT has construct validity, even as a predictor.

To determine a test's reliability, a common method is to use the split-half method. McClelland *et al.*[15] reported a split-half coefficient of 0.64 for two groups of three pictures. However, values as low as 0.20 to 0.40 have been reported[19,20]. By traditional psychometric standards, this is a low correlation. As a comparison, split-half coefficients for questionnaires in the interval 0.30 to 0.90 have been reported[19,20]. But reported coefficients may not be as low as they seem to be at first glance. Ozer[23], opposing the standards of

psychometrics, proposes that it is the non-squared coefficient of correlation that is interpreted as the rate for measuring variance. Rosenthal and Rubin[24,25] propose a similar view in their binomial effect. Using a split-half coefficient sees each story separated from another. Atkinson *et al.*[26] have, in an experiment, and through computer simulation, shown that people writing the stories have a continuous flow of thoughts in which motives compete with each other in a way that, over time, one motive could be stronger in one story, and another motive could be stronger when writing the next story. This flow means that *n* achievement could not be expected to be the same from one story to another.

As an effect of the criticism against the use of projective tests, a few objective tests have been developed. A summary of tests used in entrepreneurship research can be found in Johnson[7]. Examples of research when questionnaires have been used include: Pandey and Tewary[27] used Mukherjee Sentence Completion Test (SCT), and found significantly higher achievement values for successful entrepreneurs in India, than among non-successful; Mescon and Montanari[28] found no difference between entrepreneurs and entrepreneurs with Personality Research Form-E (PRF-E); Smith, *et al.*[29] found a positive connection between a company's achievement and Miner Sentence Completion Scale-Form T (MSCS-Form T)[30]. However, in entrepreneurship research it is primarily Edwards's Personal Preferences Schedule (EPPS)[31] and The Lynn Achievement Motivation Scale (LAMQ)[32] that have been used.

LAMQ was developed to replace TAT[32], and consists of eight questions to answer yes or no, e.g. "Do you like to see things get lost"?, "Could you totally relax during your holidays"? The research findings are contradictory. In a study conducted by Hull *et al.*[33] no difference could be found regarding likelihood of starting a new business. They found no statistically significant differences for students, if need for achievement could be a predictor of tendencies to start a new company. Cromie and Johns[34] found no statistically significant differences between entrepreneurs and managers. Ahmed[35] found a statistically significant difference between entrepreneurs and non-entrepreneurs. Perry *et al.*[36] examined differences between three groups; (1) people in seminars for new and intentional new businesses ($n = 118$), (2) small business owners ($n = 165$), and (3) 18 so called "super-entrepreneurs". They found statistically significant differences between groups.

EPPS is a test where the subject has to rank different needs depending on personal priorities[31]. EPPS consists of 225 questions, of which achievement is one of 15 subscales. Hornaday and Bunker[37], and a following study by Hornaday and Aboud[38] indicate that entrepreneurs are statistically significantly higher on Need for Achievement than normal population. Begley and Boyd[39] examined 730 managers and entrepreneurs (239 answered), and found significant differences.

Are questionnaires then the better solution? In criticizing the TAT, the weaknesses of objective methods seem to be forgotten. The most obvious weakness with questionnaires is that questions cannot be unmasked and that they could be biased as subjects make their choices about what could be seen as

socially acceptable, to create an ideological picture of themselves[22,40], or in correspondence with their picture of themselves[22, 40]. The subject could also have difficulties in deciding because they are too specific or without nuances. The questions will also be fixed in predetermined areas, which will limit the information they can give[22]. As Johnson[7] pointed out, the use of questionnaires examining need for achievement, could be most problematic.

Using LAQM the research findings are contradictory in measuring need for achievement and entrepreneurial activity. This is not surprising. In the report about the test construction[33] statistically significant differences between students ($x = 4.82$), and managers ($x = 6.20$), entrepreneurs ($x = 6.82$) and professors ($x = 6.54$) were reported. No statistically significant differences were established between the last three groups, e.g. between managers and entrepreneurs. This leaves us with serious doubts about how this test could discriminate between entrepreneurs and other groups, and why it has been used for that purpose. Regarding EPPS, Fineman[19] drew attention to the fact that no validity has been shown. He further points out that “the vast majority of questionnaire instruments do not survive a close scrutiny of their psychometric properties”.

The arguments for using questionnaires instead of projective tests seem to be weak. The use of questionnaires could even be questionable. However, we do not know if it is possible to replace TAT with an objective test. Previous research has shown a relationship between n achievement and entrepreneurial activity. If we want to refer to this research but use an “easier” administered test method, e.g. a questionnaire, then the correlation between the two tests, TAT and objective test chosen, should be about one. The validity of the objective test must be good in relation to the projective test it is to replace and we could possibly use it as a substitute for the projective test method. Previous research indicates that this is not the case. A study by Yamauchi and Doi[41] examined 11 different scales for measuring need for achievement. Factor analysis with Varimax rotation found that TAT alone loads on one factor while the remaining ten distribute among the other three. Fineman[19] found TAT to be uncorrelated to questionnaires, and even separated from other projective tests.

Previous research does not give us any final answer. Further research needs to be performed to compare projective and objective measurements of need for achievement. In this research it will be important to use different questionnaires to be able to shed light on this problem. The questionnaires will of course have to be developed basically from the same theoretical ground as TAT. One test which has not been used to examine this correlation between TAT and a questionnaire is CMPS. This study will examine whether this objective test, CMPS, could be used as a measurement instrument instead of the projective test, TAT, in measuring need for achievement. TAT and CMPS both originate from Murray's theory of personality[42]. Do the different types of instrument have good or bad convergence in their validity? Are they interchangeable? This study will show what correlation exists between TAT and CMPS.

Method

The study was a before-after design as another purpose was to see how need for achievement changed over time. The time period between the two tests was seven months. As there are measures from two different periods of time, I chose to see these groups as different, one for T1 (pre-test) and one for T2 (post-test).

Subjects

The study is of persons with high school education or equivalent. Four classes in higher education were included in the study. A total of 89 individuals participated in the pre-test, and by the time for the post-test 71 individuals were included. The average age at pre-test was 21.3 years. The men had an average age of 21.7 years ($n = 46$), and the women 20.9 years ($n = 43$).

Procedure

With the intention of not biasing the study, it was described to subjects as a test of their creative ability (need for achievement), and a broad test of personality (Cesarez-Marke's personal schema). After the misleading information about the purpose had been presented, the group was told that participation was voluntary, that the responses would be anonymous, and that materials should not be given to any outsiders. The instruction concluded with a short description of how to work with the tests.

Reliability has been controlled by standardizing the measurement procedure. All tests have been carried out in a similar milieu, in a group setting, and by the same experimenter. Strict and identical instructions have been used, times, order of tests, and pauses were kept constant. Threats against validity [43,44] have not appeared.

TAT

Because individuals could show achievement in different situations, the pictures chosen for the test could be of importance for the tests' content validity [22]. The pictures should not be biased towards a specific sphere. The pictures used have various themes. Some pictures were different for men and women, so women had a better chance to identify with a person in the picture. The same pictures were used, and in the same order, at pre and at post-test. The pictures used were:

- *Bild A*: three men and woman, working.
- *Bild B (men)*: old man talking to young man.
- *Bild B (women)*: old woman and young girl.
- *Bild C*: boy with violin.
- *Bild D*: man working at desk.
- *Bild E (men)*: two men in office.
- *Bild E (women)*: two women in laboratory.
- *Bild F*: man in aeroplane.

Data were collected by stapled papers in the A4 format handed out to the participants, reverse side upwards. The booklet consisted of instructions, six pictures, paper to write stories on with four assisting questions, and a blank paper to cover the next picture in the series. The four assisting questions were as follows[15].

- (1) What is happening? Who are the persons?
- (2) What has led up to this situation? That is, what has happened in the past?
- (3) What is being thought? What is wanted? By whom?
- (4) What will happen? What will they do?

The experimenter provided a summary of the attached instructions. After that the participants were requested to turn over the test and carefully read the instructions on the first page. After a check that everybody had read and understood the instructions, they were repeated. Subjects were told that there were no correct or incorrect stories, but that the important thing was to use one's imagination. To improve the test-retest reliability, a supplementary remark was made at the post-test. According to Winter and Stewart[45] the participants were informed that they could tell the same or another story at the second occasion, dependent on how they felt at the moment. The time limits were explained.

The test subjects were allowed to turn to the first picture, study it for 30 seconds, and then turn the page and write the story. Time to do the writing was five minutes. Subjects were told when 30 seconds remained to finish their stories. The experimenter checked the time and provided information about when to stop writing, and when to turn pages to the next picture until all six stories had been written.

In this study six pictures were used. For each of the pictures the test subjects wrote a story. Through analysis of phenomena in the stories, knowledge about an individual's operant behaviour was acquired. Stories were coded on the basis of the presence of an achievement image (AIm), thus a kind of goal-related achievement image. In stories with AIm one counts the appearance of special phenomena, such as instrumental activity (/) to reach the goal[21]. The sum will be called *n* achievement[1]. A total of 11 points could be given for each story

Coding the stories was done in accordance with Smith and Feld's[46] instructions and by using practical material they have developed. Correlation between the experimenter's judgement and expert judgement of the practical material varied between 0.80 and 0.99, lower when coding rapidly, with an average of 0.92. As a comparison McClelland[22] states the correlation between well-experienced scorers should be between 0.85 and 0.95.

Coding the stories followed, with minor modifications, the guidelines of Smith and Feld[46]. Every story was given a number. All stories belonging to a certain picture were collected and were mixed to prevent the stories from being in the same order. Each story was first judged for the presence of AIm. Then

stories with AIm were coded. Coding of one picture was done before the coding of the next picture took place. After coding the stories the result was inserted on a numbered list. The points were totalled for the person who had written the stories. In the course of the coding the individual became anonymous for the person coding the stories. During the coding procedure it was not possible to know whether the story came from the pre or post-test.

CMPS

CMPS include 11 subscales, of which achievement is one. Each subscale has 15 questions for a total of 165 questions. When constructing the test constructors have tried to utilize Murray's[42] theory[47]. Questions from EPPS[31] have also been used. Example of questions: "Could other persons easily get you to change a decision you already have decided on?", and "Do you often think of making some great achievement".

The subject has to answer yes or no. Scoring is done according to a manual. Scoring considerations are taken to age, sex and to what normgroup the person belongs to. Normgroup is an adult at a higher education institution[47, norm Table 15].

Analysis of reliability of the achievement scale in CMPS has a split-half coefficient for the norm group: adults in higher education, men 0.73 ($n = 134$), women 0.76 ($n = 92$), men and women 0.75 ($n = 226$). Retest-analysis is for the normgroup (32 men, 53 women), with a time interval of one month, show a correlation of 0.82.

Results

The statistical result shows that no correlation exist between n achievement (TAT) and need for achievement (CMPS). Pearson's correlations coefficient is about zero (Table I) at pre-test ($r = 0.0556$, $n = 89$) as well as post-test ($r = .0733$, $n = 71$). When divided into two subgroups, men and women, the correlation is also very low.

When a result of a product-moment correlation analysis shows a linear correlation between two measures of about zero, Crano and Brewer[48] offer three explanations. One explanation could be that a systematic variation, but not linear, exists. A scatterplot proves that no pattern indicating a non-linear

Table I.
Correlation (r) between
TAT and CMPS at
pre-test and post-test
(SPSS/PC+)

	CMPS, pre-test	CMPS, post-test
TAT, pre-test	0.0556 ($n = 89$)	
Women	0.0763 ($n = 43$)	
Men	0.0035 ($n = 46$)	
TAT, post-test		0.0733 ($n = 71$)
Women		0.1892 ($n = 32$)
Men		0.0461 ($n = 39$)

connection exists. Another explanation could be a limitation in the measurement, e.g. that only a selection of a point region became part of the analysis. Any such limitation does not exist in this analysis, the whole scale of CMPS and TAT are included in the correlation analysis. The third possibility is that no systematic relation exists between the two variables under consideration. This is the real condition as well as the expected result of the analysis of correlation.

The result is not surprising as it is in line with earlier research[7,18,19,49,50]. Why the difference occurs could be as McClelland[40] pointed out, the difference between operant and respondent behaviour. It means that a person, in a questionnaire, may say they are very interested in achievement, but in reality lacks motive to do so. This distinction is important as the correlation between operant and respondent behaviour is about zero[40]. A second explanation could be the difference between conscious and subconscious. As TAT was developed based on the psychoanalytical school of thought it is plausible to think that TAT measures the unconscious motives while questionnaires measure the conscious. A third perspective is how the development of the measurement instrument took place. Because there is a correspondence between instrument and operational definitions, a different instrument of any kind should have difficulties in replacing TAT. A fourth opportunity for explanation is that objective test methods measure values of achievement rather than the motive. Values are positive or negative emotions connected to a person, idea or symbol[51].

Findings, when TAT has been used, frequently are used as an argument to study achievement motivation and then using another measurement than TAT, without cross validation. This result indicates that if findings, when TAT have been used, should be claimed, then the use of a questionnaire is not possible. Neither should it be possible to generalize and to use studies when different kinds of measurement instrument have been used. In summary, the findings of the research reported here confirm the hypothesis that TAT cannot be replaced by CMPS, and it indicates the importance that the researcher very clearly and distinctly state his view about motive and which measurement instruments are then available.

References

1. McClelland, D., *The Achieving Society*, Van Nostrand, Princeton, NJ, 1961.
2. McClelland, D.N., "Achievement and entrepreneurship: a longitudinal study", *Journal of Personality and Social Psychology*, Vol. 1 No. 4, 1965, pp. 389-92.
3. McClelland, D. and Winter, D.G., *Motivating Economic Achievement*, The Free Press, New York, NY, 1969.
4. Frey, R.S., "Need for achievement, entrepreneurship, and economic growth: a critique of the McClelland thesis", *Social Science Journal*, Vol. 21 No. 2, 1984, pp. 125-34.
5. Gilleard, C.J., "The achieving society revisited: a further analysis of the relation between national growth and need achievement", *Journal of Economic Psychology*, Vol. 10 No. 1, 1989, pp. 21-34.
6. Shaver, K.G. and Scott, L.R., "Person, process, choice: the psychology of new venture creation", *Entrepreneurship Theory and Practice*, winter, 1991, pp. 23-45.

7. Johnson, B.R., "Towards a multidimensional model of entrepreneurship: the case of achievement motivation and the entrepreneur", *Entrepreneurship Theory and Practice*, spring, 1990, pp. 39-54.
8. Kock, S.W., *Management and Motivation*, doctoral dissertation, The Swedish School of Economics, Helsingfors, 1965.
9. Wainer, H. and Rubin, I.M., "Motivation of research and development entrepreneurs: determinants of company success", *Journal of Applied Psychology*, Vol. 53 No. 3, 1969, pp. 178-84.
10. Morris, J.L. and Fargher, K., "Achievement drive and creativity as correlates of success in small business", *Australian Journal of Psychology*, Vol. 26 No. 3, 1974, pp. 217-22.
11. Durand, D. and Shea, D., "Entrepreneurial activity as a function of achievement motivation and reinforcement control", *Journal of Psychology*, Vol. 88, 1974, pp. 57-63.
12. Caird, S.P., "What do psychological tests suggest about entrepreneurs?", *Journal of Managerial Psychology*, Vol. 8 No. 6, 1963, pp. 11-20.
13. Morgan, C.D. and Murray, H.A., "A method for investigating fantasies: the thematic apperception test", *Archives of Neurological Psychiatrists*, Vol. 34, 1935, pp. 289-306.
14. Murray, H.A., *Thematic Apperception Test, Manual*, Harvard Psychological Clinic, Cambridge, MA, 1943.
15. McClelland, D., Atkinson, J.W., Clark, R.A. and Lowell, E.L., *The Achievement Motive*, The Free Press, New York, NY, 1953.
16. Atkinson, J.W. and McClelland, D.C., "The projective expression of needs. II: the effect of different intensities of the hunger drive on thematic apperception", *Journal of Experimental Psychology*, 1948, pp. 643-58.
17. Gjesme, T. and Nygård, R., "Achievement-related motives, theoretical considerations and construction of the measuring instrument", Report No. 2, September 1970, Fear of Failure Project, University of Oslo, 1970.
18. Klinger, E., "Fantasy need achievement as a motivational construct", *Psychological Bulletin*, Vol. 66 No. 4, 1966, pp. 291-308.
19. Fineman, S., "The achievement motive construct and its measurement. Where are we now?", *British Journal of Psychology*, Vol. 68, 1977, pp. 1-22.
20. Entwisle, D.R., "To dispel fantasies about fantasy-based measures of achievement motivation", *Psychological Bulletin*, Vol. 77 No. 6, 1972, pp. 377-91.
21. Atkinson, J.W. (Ed.), *Motives in Fantasy, Action and Society*, Van Nostrand, Princeton, NY, 1958.
22. McClelland, D., *Human Motivation*, Cambridge University Press, Cambridge, 1990.
23. Ozer, D.J., "Correlation and the coefficient of determination", *Psychological Bulletin*, Vol. 97 No. 2, 1985, pp. 307-15.
24. Rosenthal, R. and Rubin, D.B., "A note on percent variance explained as a measure of the importance of effects", *Journal of Applied Social Psychology*, Vol. 9 No. 5, 1979, pp. 395-6.
25. Rosenthal, R. and Rubin, D.B., "A simple, general purpose display of magnitude of experimental effect", *Journal of Educational Psychology*, Vol. 74 No. 2, 1982, pp. 166-9.
26. Atkinson, J.W., Bongort, K. and Price, L.H., "Explorations using computer simulations to comprehend thematic apperceptive measurement of motivation", *Motivation and Emotion*, Vol. 1 No. 1, 1977, pp. 1-27.
27. Pandey, J. and Tewary, N.B., "Locus of control and achievement values of entrepreneurs", *Journal of Occupational Psychology*, No. 52, 1979, pp. 107-11.
28. Mescon, T.S. and Monanari, J.R., "The personalities of independent and franchise entrepreneurs: an empirical analysis of concept", *Journal of Enterprise Management*, Vol. 3 No. 2, 1981, pp. 149-59.
29. Smith, N.R., Bracker, J.S. and Miner, J.B., "Correlates of firm and entrepreneur success in technologically innovative companies", *Frontiers of Entrepreneurship Research*, 1987, pp. 337-53.

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30. Miner, J.B., *Scoring Guide for the Miner Sentence Completion Scale – form T*, Organizational Measurement Systems Press, Buffalo, NY, 1986.
 31. Edwards, A., *Manual for the Edwards Personal Preference Schedule*, The Psychological Corporation, New York, NY, 1959.
 32. Lynn, R., "An achievement motivation questionnaire", *British Journal of Psychology*, Vol. 60, 1969, pp. 529-34.
 33. Hull, D.L., Bosley, J.J. and Udell, G.G., "Renewing the hunt for the heffalump: identifying potential entrepreneurs by personality characteristics", *Journal of Business Management*, Vol. 20 No. 2, 1982, pp. 11-19.
 34. Cromie, S. and Johns, S., "Irish entrepreneurs: some personal characteristics", *Journal of Occupational Behaviour*, Vol. 4, 1982, pp. 317-24.
 35. Ahmed, S.U., "nAch, risk-taking propensity, locus of control and entrepreneurship", *Personality and Individual Differences*, Vol. 6 No. 6, 1985, pp. 781-2.
 36. Perry, C., Macarthur, R., Meredith, G. and Cunington, B., "Need for achievement and locus of control of Austrian small business owner-managers and super-entrepreneurs", *International Small Business Journal*, Vol. 4 No. 4, 1986, pp. 55-64.
 37. Hornaday, J.A. and Bunker, C.S., "The nature of the entrepreneur", *Personnel Psychology*, Vol. 23, 1970, pp. 47-54.
 38. Hornaday, J.A. and Aboud, J., "Characteristics of successful entrepreneurs", *Personnel Psychology*, Vol. 24, 1971, pp. 141-53.
 39. Begley, T.M. and Boyd, D.P., "Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses", *Journal of Business Venturing*, No. 2, 1987, pp. 79-93.
 40. McClelland, D., "Motive dispositions: the merits of operant and respondent measures", in Wheeler, L. (Ed.), *Review of Personality and Social Psychology (Vol. 1)*, Sage, Beverly Hills, CA, 1981.
 41. Yamauchi, H. and Doi, K., "Factorial study of achievement-related motives", *Psychological Reports*, 1977, pp. 795-801.
 42. Murray, H.A., *Explorations in Personality*, Oxford University Press, New York, NY, 1938.
 43. Cohen, L. and Manion, L., *Research Methods in Education*, Croom Helm, London, 1980.
 44. Gold, J.A., *Principles of Psychological Research*, The Dorsey Press, Homewood, IL, 1984.
 45. Winter, D.G. and Stewart, A.J., "Power motive reliability as a function of retest instructions", *Journal of Consulting and Clinical Psychology*, Vol. 45, 1977, pp. 436-40.
 46. Cezarec, Z. and Marke, S. (1964), *Manual for the Cezarec-Marke Personal Scheme*, University of Lund, Lund.
 47. Smith, C.P. and Feld, S., "How to learn the method of content analysis for n achievement, n affiliation and n power", in Atkinson, J.W. (Ed.), *Motives in Fantasy, Action and Society*, Van Nostrand, Princeton, NJ, 1958.
 48. Crano, W.D. and Brewer, M.B., *Principles of Research in Social Psychology*, McGraw-Hill, New York, NY, 1973.
 49. McClelland, D., "The use of measuring human motivation", in Atkinson, J.W. (Ed.), *Motives in Fantasy, Action and Society*, Van Nostrand, Princeton, NJ, 1958.
 50. McClelland, D.C., "Longitudinal trends in the relation of thoughts to action", *Journal of Consulting Psychology*, Vol. 30 No. 6, 1966, pp. 479-83.
 51. Edwards, A.L., *Techniques of Attitude Scale Construction*, Appleton-Century-Crofts, New York, NY, 1957.