

## **FACTOR STRUCTURE OF VARIABLES ASSOCIATED WITH DROPOUT: A CONFIRMATORY STUDY**

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### **Abstract**

Understanding and predicting dropout in adult education necessitates not only multivariate but multifactor designs. As a result, considerable conceptual and technical sophistication is required to deal with this complexity. One method of approaching this problem is through a conceptual offering of variables associated with adult dropout. This study addressed the internal and external validity of a theoretically derived and confirmed typology of dropout factors originally proposed by Garrison (1988). Additional variables were included based upon Tinto's (1975) and Boshier's (1973) theories of dropout and a different population of learners was the focus for data collection. The findings confirmed the original typology but concluded that the original typology was a higher order factor structure where each of the original factors is likely to be multifaceted. The relationship of this typology with reported participation and nonparticipation factor structures is also discussed.

### **Résumé**

Pour comprendre et prédire les abandons en éducation des adultes, il faut des devis non seulement à variables multiples mais aussi multifactoriels. Ce qui signifie que pour bien cerner cette complexité, il faut être très sophistiqué au plan conceptuel et technique. Une méthode pour aborder le problème est l'utilisation d'un ensemble de variables associées au phénomène de l'abandon chez les adultes. Cette étude a examiné la validité intrinsèque et extrinsèque d'une typologie des facteurs d'abandon développée par Garrison (1988), cette typologie ayant d'abord été dérivée théoriquement puis vérifiée. Les théories de l'abandon de Tinto (1975) et de Boshier (1973) ont inspiré l'ajout de variables. Une population différente d'apprenants a été le focus pour la

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collecte des données. Les résultats, bien qu'ayant confirmé la typologie initiale, mènent à la conclusion que cette typologie est une structure factorielle d'un niveau plus élevé, où chacun des facteurs initiaux peut avoir de multiples facettes. La relation de cette typologie avec les structures factorielles de participation et de non participation est discutée.

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Understanding and predicting dropout in any educational setting often appears to be an impossibly complex task. Reasons for dropout have been attributed to a wide range of variables which have necessitated not only multivariate but multifactor research designs. A study is fortunate to account for more than 10 percent of the variance associated with dropout even when a number of seemingly important variables are included (Anderson and Darkenwald, 1979). However, while "the complexity of human behaviour suggests the inclusion of a greater number and variety of variables to account for a significant portion of the variance, it is not practical or rational to indiscriminately include large numbers of variables in prediction equations." (Garrison, 1988, p. 209)

A means must be found to recognize and deal with the inherent complexity of dropout and yet study it by selecting a manageable number of variables. As Lenning states "...it is important to realize that retention and attrition are complex phenomena and require studies with considerable conceptual and technical sophistication." (Lenning, 1982, p. 49)

One method of approaching the complexity problem is within a theoretical framework where a parsimonious ordering of a comprehensive range of variables associated with dropout is explicated. With the assistance of a typology of variables associated with dropout, variables for study in specific situations can be selected systematically and findings interpreted within this context. One comprehensive typology of factors associated with dropout was deduced and tested by Garrison (1988). It is the purpose of this study to address the internal and external validity of this typology with an expanded set of variables and a different population of learners.

## Theoretical Considerations

The original study by Garrison (1988) of a factor structure of variables associated with adult dropout was deduced within a systems theory framework. A five factor typology was hypothesized and confirmed. The five factors were internal motivation, external motivation, capabilities, internal constraints and external constraints. Internal motivations are fundamental values and beliefs and are seen as needs. External motivations are those attitudes resulting from external expectations. Capability is the set of cognitive abilities responsible for coping with change in positive ways. Internal constraints are those dispositions which restrict the individual's ability to induce change or establish stability. External constraints are those environmental barriers which restrict change and stability. Both internal and external constraints are unidirectional in that they may impede change and stability but only contribute to change and stability through their absence.

Internal validity of this typology is addressed in this study by expanding the range of variables through the consideration of two theoretical constructs. Tinto's (1975) model of dropout in higher education is perhaps the most prominent and frequently cited work. This model is based upon the degree of academic and social integration that the learner expresses and experiences within the institutional context. According to Tinto:

In the final analysis, it is the interplay between the individual's commitment to the goal of college completion and his commitment to the institution that determines whether or not the individual decided to drop out from the college and the forms of dropout behaviour the individual adopts. (Tinto, 1975, p. 96)

It would therefore seem reasonable to include variables associated with academic (goal) and social integration in an analysis of factors associated with dropout.

Another prominent model of dropout often cited in the adult education literature is Boshier's (1973) congruence model. The congruence model suggests that the adult learner's two primary concerns are "maintaining inner harmony with himself and with the environment" (p. 259) and when discrepancies exist between self and environment, dropout is likely to occur. Boshier (1971) operationalized this concept with the Personality and Educational Environment Scales (PEES) which measured self concept

incongruency or discrepancy. Discrepancies can be measured between ratings of "myself" and "other adult education students", "myself" and "my adult education lecturer", and "myself" and "myself as I would like to be". This theory adds to the issue of integration by addressing psychological or self concept congruence and integration. Together the Tinto and Boshier models suggest that students who demonstrate higher academic, social, and psychological integration (congruence) will more likely persist in their studies.

Therefore, a number of school and psychological variables have been identified as being associated with dropout. There exists, however, another broad range of socioeconomic variables which have been cited in numerous situation specific studies as legitimate reasons for dropout (Garrison, 1983, 1985). As such, a comprehensive factor structure or typology of dropout variables must consider and classify the range of variables discussed in prominent theories as well as those studies in a variety of empirical investigations. In addition, the external validity or generalizability of a typology must also be addressed. This dropout typology research moves from a population of high school completion students, used in the first study to a population of first year college students.

In the first study, it was suggested that the dropout typology might well be a higher order factor structure since it was derived theoretically. If this is the case, then it would seem reasonable to suspect that additional lower order factors may result. That is, each of the higher order factors may have two or more factors which could be interpreted as falling within and consistent with the higher order factor. In addition, since there were a number of trivial factors and considerable variance remaining in the first study, one might hypothesize additional factors. A similar situation has occurred with Houle's (1961) three factor participation typology based upon motivational orientation factors. Subsequent extensive empirical research appears to reveal structures that resemble the original typology but with one of the factors being multifaceted (Boshier and Collins, 1985). As a result, there is every reason to believe that many of the factors proposed and confirmed in the first dropout typology will be found to be multifaceted.

### **The Problem**

The purpose of this study was to delineate and describe the factor structure of variables associated with dropout in adult education.

It builds upon and enhances the previous research of Garrison (1988) through the inclusion of additional variables and by studying a different population of learners. The primary question is whether the factor structure derived in this study is isomorphic with the structure obtained in the first study. Secondly, are there other factors which are separable and identifiable with each of the previously derived factors of the typology?

## **Instrumentation**

Instruments were identified based upon previous research in this area (Garrison, 1988) as well as academic, social and psychological integration variables associated with Tinto's dropout model and Boshier's congruence model. The instruments used were: the Social Readjustment Rating Scale (SRRS) (Holmes and Rahe, 1967), a subjective rating scale of perceived financial concern; a subjective rating of goal certainty and course relevancy, the Differential Aptitude Tests: Verbal (DAT) (Bennett *et al.*, 1972); the Personality and Educational Environment Scales (PEES) (Boshier, 1971); the Adjective Check List (ACL) (Gough and Heilbrun, 1980); and the Organizational Climate Index: Short Form (OCI) (Richman and Stern, 1975).

With the exception of the instruments to be addressed next, a discussion of the instrument reliability and validity can be found in Garrison (1988). With regard to the PEES, Boshier (1971) states that the factorial procedure and reliability data indicate "reliable and factorially representative and meaningful scales" (p. 5). The OCI factor reliabilities range from .63 to .81 and validity was established through "consequent validation" procedures (Stern, 1970). Reliability estimates (Hoyt's) were, respectively, .93 and .92 for the goal clarity and course relevancy scales. For a discussion of the validity of these two instruments see Garrison (1985).

Selection of the scales and subscales of the previously stated instruments was based upon previous research (Garrison, 1985, 1987, 1988) as well as their reflection of academic, social and psychological integration variables. Academic and social integration was measured by goal clarity, course relevancy, and the OCI. Psychological integration was measured by the PEES. The PEES self/lecturer congruency scale was not included in the study because students received instruction from multiple teachers. The following 23 variables were included in the study:

1. SRRS: a measure of recently experienced life changes that result in stress.
2. Financial Concern: an instrument that assesses the perceived degree of financial stress.
3. Goal Clarity: a measure of how clear students are about their career aspirations.
4. Course Relevancy: a measure of how relevant a course is to an individual's occupational goal.
5. DAT: the DAT Verbal Reasoning Subtest that purports to measure how well an individual can understand, think and reason verbally, as well as being a good predictor of educational performance.
6. Self/Other Congruency: the PEES variable that measures the perceived congruence of the student with other students.
7. Self/Ideal Congruency: the PEES variable that measures the congruency between how the student is and s/he would like to be; considered to a global measure of self esteem.
8. Achievement Need: a subscale of the ACL that assesses the need to strive and live up to socially recognized performance.
9. Endurance: an ACL subscale that measures persistence in a task undertaken.
11. Intrareception: an ACL subscale that measures attempts to understand one's own behaviour or that of others.
11. Change: an ACL subscale that measures seeking of novelty of experience and avoidance of routine.
12. Self Control: an ACL subscale on which high scorers can be typified as being responsible and diligent while low scorers are self-centred and expressive.
13. Abasement: an ACL subscale that measures feelings of inferiority.

14. Deference: an ACL subscale that measures the tendency to seek and maintain subordinate roles in relationships with others.
15. Self Confidence: an ACL subscale on which high scorers are determined and enterprising while low scorers are shy and inhibited.
16. Ideal Self: an ACL subscale on which high scorers are characterized by interpersonal effectiveness while low scorers feel defeated by life.
17. Creative Personality: an ACL subscale on which high scorers are characterized as exhibiting a wide variety of interests, have a high degree of intellectual capacity, and think in unconventional ways while low scorers favour conservative values and are uncomfortable with uncertainty.
18. Achievement Standard: the OCI factor that reflects standards of personal achievement.
19. Intellectual Climate: the OCI factor score that assesses the degree to which the school environment is conducive to scholarly interests.
20. Practicalness: the OCI factor score that assesses the degree programs are likely to be well-structured and their objectives clear.
21. Supportiveness: the OCI factor score assesses the respect for the integrity of the individual and the provision of a supportive environment.
22. Orderliness: the OCI factor score that reflects organizational structure and procedural orderliness.
23. Impulse Control: the OCI factor score that reflects the degree of organizational constraint and restrictiveness on personal expression.

### **Sample and Administration**

The sample comprised 182 first year college students studying English. The courses were "Principles of Expository Writing" and the "Novel and Short Story" offered at a large community college.

Courses were offered in the fall term for a period of four months. A total of 10 classes were selected based primarily upon when they were scheduled (for convenience of administration) and secondarily the cooperation of the instructors. Four classes from a total of 40 offering "Principles" were selected and six classes from a total of 17 offering the "Novel" were selected.

Administration of the instruments took place during the second and fourth week of classes. The DAT, ACL, SRRS, course relevancy, goal clarity and financial concern were administered during the first testing period (i.e., second week) and took approximately one hour. The PEES and OCI were administered during the second testing period (i.e., fourth week) and took approximately one hour. These latter two instruments were delayed to give the students time to get an impression of the institutions and fellow students.

### **Analysis**

Factor analysis was used to determine an underlying structure for the selected variables. Further, a common factor model was employed to obtain a factor pattern since this was an exploratory investigation. The analysis used the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975) factor analysis programme. The particular method used was Rao's Canonical Factoring. Orthogonal and oblique rotations were employed to find the best solution (i.e., simple structure) or description of the data set. Means and standard deviations of all the variables are found in Table 1.

Eigen values (proportion of variance accounted for by the factors) were generated using a principal component factor analysis. Using the Kaiser-Guttman criterion of eigen values greater or equal to one indicated that the number of factors to be retained was seven. However, a common factor solution retaining seven factors using both Varimax (orthogonal) and oblimin (oblique) transformations did not produce an interpretable solution.

The underlying structure was further explored using five and six factor solutions with orthogonal and oblique transformations (rotations). The results of the oblique transformations with three degrees of obliquity revealed that simple structure improved as orthogonality was approached. After considering interpretability it was decided that the six factor orthogonal solution should be retained. The salient factor loadings after rotation are shown in Table 2.



Table 1  
Sample Data Means and Standard Deviations  
(N=182)

| Test/Variable                | Mean  | Standard<br>Deviation |
|------------------------------|-------|-----------------------|
| SSRS                         | 159.9 | 99.5                  |
| Financial Concern            | 19.7  | 6.1                   |
| Goal Certainty               | 17.3  | 4.8                   |
| Course Relevancy             | 28.3  | 4.9                   |
| DAT                          | 33.5  | 10.0                  |
| Self/Other Congruency (PEES) | 21.9  | 13.2                  |
| Self/Ideal Congruency (PEES) | 21.7  | 12.4                  |
| Achievement Need             | 45.7  | 7.9                   |
| Endurance                    | 44.4  | 7.5                   |
| Intracception                | 45.4  | 8.7                   |
| Change                       | 52.0  | 8.3                   |
| Self Control                 | 46.0  | 10.0                  |
| Abasement                    | 48.8  | 8.2                   |
| Deference                    | 46.8  | 9.1                   |
| Self Confidence              | 48.9  | 8.8                   |
| Ideal Self                   | 45.9  | 8.1                   |
| Creative Personality         | 47.7  | 9.0                   |
| Achievement Standards (OCI)  | 6.3   | 1.9                   |
| Intellectual Climate (OCI)   | 5.4   | 2.2                   |
| Practicalness (OCI)          | 5.3   | 2.2                   |
| Supportiveness (OCI)         | 6.4   | 1.8                   |
| Orderliness (OCI)            | 5.5   | 2.2                   |
| Impulse Control              | 4.5   | 1.5                   |

Interpretation of the factor solution is done within the context of the previous hypothesized typology of factors associated with adult learner dropout. This typology consists of five factors: internal motivation, external motivation, capability, internal constraint, and external constraint.

The two highest salient loadings on Factor One were endurance and achievement need which corresponded to the high loadings of

internal motivation in the original study. This factor was therefore identified as "internal motivation". Similarly, the loadings of deference and self control in this analysis corresponded to the same loadings on the external motivation factor in the original study. As such, Factor Two was labelled "external motivation". The remaining factors were not so clearly identifiable with the original variables and, therefore, largely are discussed independently of factor loadings in the original study.

The salient loadings on Factor Three were all OCI subscales. Since these variables represented external context variables with which the individual would have to cope to be successful, this factor was identified as "external constraint." External constraint represents those variables which have the potential of interfering with the pursuit of desired goals.

The dominant variable on Factor Four was the need for change. In the first study this variable loaded on the external motivation factor which seemed to suggest interpreting it as external motivation. The need for change is clearly an attitude concerning external expectancies and within the original theoretical construct it must be seen as an "external motivation". Since Factor Two was also labelled external motivation this category is therefore a higher order factor with two or more subfactors. This is not unexpected since humans are complex beings with multiple and sometimes conflicting attitudinal dispositions toward the external world. Factor Two represents an attitude of compliance with outside demands while Factor Four represents a more proactive stance toward the external world. They are clearly separate attitudes or motivations and may be differentially associated with dropout behaviour.

The salient loadings of Factor Five are creative personality and ideal self. Both are associated with a wide range of interests. The highest loading variable—creative personality—is associated with "a high degree of intellectual capacity" and creativity. The dilemma is whether to interpret this factor as an attitude (external motivation) or as an ability. The decision was to interpret this factor as a unique ability because creative personality more strongly reflects an intellectual ability associated with creativity. The key to this decision is that creative personality loads the highest and the dominant descriptions of this variable center around ability (Gough and Heilbrun, 1980).

Table 2

## Salient Factor Loadings After Orthogonal Rotation

|     | F1  | F2  | F3  | F4  | F5  | F6  |
|-----|-----|-----|-----|-----|-----|-----|
| V1  |     |     |     |     |     |     |
| V2  |     |     |     |     |     |     |
| V3  |     |     |     |     |     |     |
| V4  |     |     |     |     |     |     |
| V5  |     |     |     |     |     |     |
| V6  |     |     |     |     |     | .51 |
| V7  |     |     |     |     |     | .68 |
| V8  | .89 |     |     |     |     |     |
| V9  | .77 |     |     |     |     |     |
| V10 |     | .71 |     |     |     |     |
| V11 |     |     |     | .82 |     |     |
| V12 |     | .79 |     |     |     |     |
| V13 | .62 | .56 |     |     |     |     |
| V14 |     | .91 |     |     |     |     |
| V15 | .66 |     |     | .48 |     |     |
| V16 | .48 |     |     |     | .64 |     |
| V17 |     |     |     |     | .76 |     |
| V18 |     |     | .77 |     |     |     |
| V19 |     |     | .71 |     |     |     |
| V20 |     |     | .68 |     |     |     |
| V21 |     |     | .62 |     |     |     |
| V22 |     |     | .40 |     |     |     |
| V23 |     |     |     |     |     |     |

|                           |                      |                            |
|---------------------------|----------------------|----------------------------|
| V1: SRRS                  | V9: Endurance        | V17: Creative Personality  |
| V2: Financial Concern     | V10: Intraception    | V18: Achievement Standards |
| V3: Goal Certainty        | V11: Change          | V19: Intellectual Climate  |
| V4: Course Relevancy      | V12: Self Control    | V20: Practicalness         |
| V5: DAT                   | V13: Abasement       | V21: Supportiveness        |
| V6: Self/Other Congruency | V14: Deference       | V22: Orderliness           |
| V7: Self/Ideal Congruency | V15: Self Confidence | V23: Impluse Control       |
| V8: Achievement Need      | V16: Ideal Self      |                            |

It should also be noted that the DAT, which is clearly a capability, did not have a salient loading on any of the six factors. The statistical reason is likely that there was not a second variable with sufficient common variance to identify it as

anything other than a trivial factor. However, this was a problem of instrument selection and not necessarily a reflection of its nonexistence within the typology. Since DAT did not load on Factor Five the implication is that capability is likely to be multifaceted. Again, this is not surprising given the variety of intelligence tests that appear to test unique abilities. Greater identifiability and separability of this originally hypothesized factor (as with all other factors) will require additional unique representative ability measures.

Factor Six's salient loadings were the two PEES variables. The highest loading was the self/ideal congruency variable. In the first study the self concept variable loadings were interpreted as internal constraint. It was argued that internal constraints are dispositions which may impede or interfere with success but in itself cannot ensure success. Self concept was cited as the best example of an internal constraint. Since self/ideal scores are associated with measures of global self-esteem it seemed consistent to label Factor Six as "internal constraint".

The variance accounted for by the six factors was 62.5 percent of the total variance. Since the sample size was sufficient to delineate the factors, it would appear that we are measuring a few factors well and a larger number of other factors less well. This fact and the findings reported here support the view that the originally hypothesized five factor typology is a higher order factor structure where each category may be multifaceted. Delineation of more factors would, of course, increase the variance accounted for and reflect a more comprehensive typology. This will, however, demand inclusion of other unique variables and a larger sample size.

## **Conclusion**

This study has attempted to address both the internal and external validity of the dropout typology first hypothesized by Garrison (1988). The conclusion is that the higher order factor structure of variables associated with dropout was confirmed, although it is suggested that each of the higher order factors is likely to be multifaceted. This was evidenced by two factors being clearly identified as external motivation. In addition, it seems more than reasonable to suggest, given the literature on intelligence, that there should be multiple capability factors. and finally, with all of the socioeconomic constraints cited as reasons for dropout (Garrison, 1983), there is every reason to believe that

other external constraint factors will be delineated in future research.

The validity of the dropout typology has been further supported by this study and should be of value to researchers in identifying and selecting dropout variables for study. It goes without saying that human behaviour is inherently complex and to study dropout in a rational and systematic manner demands a parsimonious ordering of the many variables associated with the phenomena and a framework in which to interpret research results. Such a typology might very well provide a framework around which a model of dropout could develop. Future studies may suggest a theory of dropout where factors differentially are associated with dropout in particular settings. For example, there is some basis upon which to speculate that reasons for dropout in ABE might more strongly be associated with socioeconomic constraints, whereas dropout in post-secondary education might more strongly be associated with internal motivational and capability variables. In any case, this typology provides the framework in which such hypotheses could be studied.

There is one important aspect of the dropout typology in need of clarification. While the deterrents to participation factor structure (Darkenwald and Valentine, 1985) has contributed to the general development of participation theory there is little apparent overlap with the Education Participation Scale factor structure (Boshier and Collins, 1983) that evolved from Houle's tripartite typology of motivational orientations to participation in adult education. To a large extent they represent the disjoint negative and positive factors surrounding the nonparticipation and participation issue. On the other hand, the dropout typology reported here is bipolar in the sense that it represents reasons, and can accommodate explanations, for persistence as well as dropout.

Clearly the benefits of this research primarily will accrue to researchers. Considerable additional efforts will need to be made to confirm the results of this study. However, such efforts might well order and clarify the multiplicity of variables associated with dropout for the benefit of the practitioner. The immediate benefit of this research for the practitioner might be to increase the awareness of the adult educator to the factors that should be considered when attempting to reduce a dropout problem. However, in the longer term, situation models will need to be developed to gather more specific and useful information toward reducing dropout. (For a discussion of how prediction models may

be developed, see Garrison, 1988.) It must be emphasized that the findings of this study are of an abstract nature and are not intended to have direct application to practice. Only through situation specific studies will we develop useful prediction models to alert practitioners as to those students who have the potential of dropping out. The results of those studies may assist in targeting additional support services to those individuals. The purpose of this present study, however, was to validate a general framework that could be used in the future to develop situation specific prediction models to guide adult education practitioners and benefit adult learners who might otherwise discontinue their studies.

### Reference Notes

- Anderson, R. & Darkenwald, G. (1979). *Participation and persistence in American adult education*. New York: College Entrance Examination Board.
- Bennett, G., Seashore, H. & Wesman, A. (1972). *Differential Aptitude Tests: Verbal Reasoning (Form T)*. New York: The Psychological Corporation.
- Boshier, R.W. (1971). *An instrument and conceptual model for the prediction and diagnosis of dropout from educational institutions* (Monographs in Adult Education). Wellington, New Zealand: Victoria University of Wellington.
- Boshier, R.W. (1973). Educational participation and dropout: A theoretical model. *Adult Education*, 23, pp. 255-282.
- Boshier, R.W. & Collins, J.B. (1983). Education Participation Scale factor structure and socio-demographic correlates for 12,000 learners. *International Journal of Lifelong Education*, 2, pp. 163-177.
- Boshier, R. & Collins, J.B. (1985). The Houle Typology after twenty-two years: A large-scale empirical test. *Adult Education Quarterly*, 35, pp. 113-130.
- Darkenwald, G. & Valentine, T. (1985). Factor structure of deterrents to public participation in adult education. *Adult Education Quarterly*, 35, pp. 177-189.
- Garrison, D.R. (1983). Prediction of adult learner dropout using a psychosocial system model. (Doctoral dissertation, University of British Columbia, 1983). *Dissertation Abstracts International* 44, 1292A.
- Garrison, D.R. (1985). Predicting dropout in adult basic education using interaction effects among school and nonschool variables. *Adult Education Quarterly*, 36, pp. 25-38.
- Garrison, D.R. (1987). Dropout prediction within a broad psychosocial context: An analysis of Boshier's congruence model. *Adult Education Quarterly*, 37, pp. 212-222.
- Garrison, D.R. (1988). A deductively derived and empirically confirmed structure of factors associated with dropout in adult education. *Adult Education Quarterly*, 38, pp. 199-210.
- Gough, H. & Heilbrun, A. (1980). *The adjective check list*. Paolo Alto: Consulting Psychologists Press, Inc.
- Holmes, T. & Rahe, R. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, 2, pp. 213-218.

- Houle, C.O. (1961). *The inquiring mind*. Madison: University of Wisconsin Press.
- Lenning, D.T. (1982). Variable-selection and measurement concerns. In E.T. Pascarella (Ed.), *Studying student attrition* (pp. 35-54). San Francisco: Jossey-Bass, Inc.
- Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K. and Bent, D.H. (1975). *Statistical package for the social sciences* (2nd ed.). New York: McGraw-Hill.
- Richman, J. & Stern, G.G. (1975). *Stern personality and environment indexes: A user's technical manual*. Syracuse, New York: Evaluation Research Associates.
- Stern, G.G. (1970). *People in context*. New York: John Wiley and Sons.
- Tinto, V. (1975). Dropout from higher education: A Theoretical synthesis of recent research. *Review of Educational Research*, 45, pp. 89-125.