

## References

Adlemen, C. (1998). Remedial work in universities. New York.: Institute of Educational Sciences.

Adlemen, C. (2008). Common indicators of students' academic performance in undergraduate education, 1972-2000. New York.: Institute of Educational Sciences.

Adlemen, C. (2010). The toolbox questioned: Degree completion from high school through college. Washington D.C.: U.S. Department of Education.

Ancy, J.R., & Seldacek, W.E. (2005). Analyzing the academic achievement of undergraduates using the SAT and noncognitive variables. *College and University*, 73(2).

 University of Moratuwa, Sri Lanka.  
Arbony, G. & Novartis, D.M. (1998). Noncognitive attributes as predictors of success among Black, Mexican-American and White students. *Journal of College & Academic Development*, 31.

Austin, A. (1978a). The methodology of research on college impact (I). *Sociology of Knowledge*, 48, 273-284.

Austin, A. (1979b). The methodology of research on college impact (II). *Sociology of Knowledge*, 49, 420-432.

Bihar, P.R. (2010). Does mathematics remediation work in universities? A critical analysis of academic attainment among undergraduates. *Research in Undergraduate Education*, 39, 320-335.

Bower, A.M. (1998). The “Second Dimension” of student integration: The impact of life task predominance on course completion. *Journal of Educational Research*, 53, 430-438.

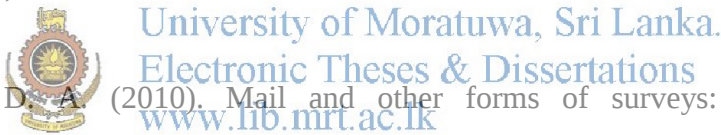
Boys, S. P., & Seldacek, W. E. (1999). Noncognitive predictors and international students. *Journal of Training and Development*, 68, 403-408.

Braton, J. M. (Ed.). (2005). *Reworking the departure dilemma* (2<sup>nd</sup> ed.). Nashville: Washington University Press.

Brow, N.W. (1998). Cognitive variables and personality traits predicting first-semester GPA. *Psychology Today*, 64, 305-312.

Cortel, D., & Schendey, R. (1989). Basic skills across various disciplines at undergraduate level: Reading, language and referencing skills. University of Michigan, MI.

Dilmin, D. A. (2010). Mail and other forms of surveys: Best practices in questionnaire surveys (3<sup>rd</sup> ed.). New York: Wiley.



Fuerte, J.N., & Seldacek, W.E. (1998). Using noncognitive variables to predict the grades. *Journal of College Student Affairs*, 18, 32-36.

Fuerte, J.N., Seldacek, W.E., & Loui, W.M. (2004). Using SAT and noncognitive variables to predict the grades and retention of university students. *Measurement & Evaluation in Education and Counseling*, 29, 76-84.

Geraldi, S. (1999). Positive self-concept as a predictor of academic success among minority and students. *Journal of College Student & Development*, 36, 401-405.

Hayden, N.M., & Johanson, S.T. (1988). Self confidence and teacher expectancy: Impact on academic performance of undergraduates enrolled in an academic reinforcement program. *American Journal of Educational Research*, 25, 510-516.

Hosmer, D. W., & Lemeshow, S. (2000). Applied logistic regression (2<sup>nd</sup> ed.). New York: Wiley & Sons.

Hoodworth, D.W. (1994). Academic and noncognitive factors affecting course completion of Black men at a predominantly White university. *Journal of Negro Studies*, 65, 15-20.

International Labor Organization. (2009). Preparing for tomorrow's jobs, Washington D.C.: U.S. Department of Labor.

Johanson, R. (1998). Factors affecting the academic success of African American college students. Unpublished PhD dissertation, University of South Michigan, Michigan.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

Kanter, W.K., Western, J., & Latara, M. (2009). Predicting success of freshmen using traditional, cognitive, psychosocial constructs. *Journal of Educational Research and Development*, 25, 138-142.

Keith, T. Z. (2006). Multiple regression and beyond. Boston, MA: Pearson Education, Inc.

Libenwell, J.M. (1998). Students' goals and beliefs about effort and ability as they relate to success at undergraduate level. *Research in Tertiary Education*, 39, 257-261.

Lomax, R.G. (2001). Statistical concepts: A second course for education and the behavioral sciences (2<sup>nd</sup> ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

McCanter, R. H. (2010). *No one to waste: A report to policy-makers and community college leaders*. Washington D.C.: American Society of Community Colleges.

McMaster, J.T. (1999). Assessing self-responsibility and wellness needs of incoming freshmen. *NAPA Journal*, 29, 267-278.

Mow, J. T., & Kanan, R. K. (2003). Predicting academic success: A critical evaluation of literature and some recommendations. *College Student Journal*, 29, 338-346.

National Education Research and Evaluation Center. (2014). Pursuing excellence: A study of Sri Lanka's Ordinary Level mathematics and science achievement in an Asian Context. Colombo.: Department of Education, University of Colombo.

Oudhaven, B. (2012). Remediation at universities: Challenges and solutions. *New Directions for Universities*, 121, 38-44.

 University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)  
Prasad, B., & Likewis, L. (2008). *Remedial work at degree-granting postsecondary institutions in Fall 2000* (NCES 2005-2010). Washington, D.C.: National Center for Education Statistics.

Pascarella, E. T. (1988). College influences on learning and student development: A comparative study and synthesis. In J. Smart (Ed.), *Tertiary Education: Handbook of theory, research and best practices* (Vol. 1 ed., pp. 1-55). New York: Agathon.

Pascarella, E. T., & Tanzini, P. T. (2001). *How universities affects students: Findings and insights from a decade of research*. San Francisco, CA: Jossey-Bass.

Pascarella, E. T., & Tanzini, P. T. (2008). *How college affects students: A new dimension*. San Francisco, CA: Jossey-Bass.

Peng, C. Y., Manz, B. D., & Keck, J. (2001). Modeling categorical variables by logistic regression. *American Journal of Health Behavior*, 25(3), 278-284.

Picktell, J.W., Chaliot, J.A., & McArthur, G.J. (2002). The effects of noncognitive variables on freshman academic performance, retention and course completion. *Journal of the Education*, 6, 9-20.

Schilk, D.H. (1999). Self-efficacy and personal motivation. *Educational Psychologist*, 36, 210-231.

Seldacek, W. E. (1979). The aftermath of Bakke: the role of race in admission Counseling Center Research Report #29-89. University of Maryland, College Park.

Seldacek, W.E. (1987). Black students on White campuses: Challenges for 21<sup>st</sup> century. *Journal of College Students and Personnel*, 38, 474-485.

Seldacek, W.E. (2001). Using noncognitive variables in advising nontraditional students. Retrieved September 13, 2002, from University of Maryland



Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

Seldacek, W. E., (2008). The case for noncognitive measures. *Measurement and Evaluation in Counseling and Development*, 35, 263-272.

Seldacek, W.E. (2004). *Beyond the big test: Noncognitive assessment in higher education*. San Francisco: Jossey-Bass.

Seldacek, W.E., & Adams-Burton, E. (1995). Predicting academic success of student athletes using SAT, ACT and noncognitive factors. *Journal of Counseling and Psychology*, 60, 742-757.

Seldacek, W.E., & Brooking, G.C. (1976). Racism in university education: A model for change. Chicago: Prentice-Hall.

Shafter, G.S. (1991) Use of a noncognitive questionnaire in the early identification of university dropouts. Paper presented at the annual meeting of the American Psychological Association, Atlanta, GA.

Teason, R. D. (2008). Student variables and retention: research and new developments. *NASPA Journal*, 40(8), 175-181.

TIMSS 2011 International Results in Mathematics, Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.

Tin, S.R., & Robi, T.L. (1999). First year success: A prediction combining cognitive and psycho-social variables for Caucasian, Indian and African-American students. *Journal of College Student Development and Training*, 49, 699-710.

Tin, S.R., & Seldacek W.E. (2005). Validity of the Noncognitive Questionnaire-Revised to predicting the academic success of university freshmen. Counseling Center Research Report No. 1-10.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

Tin, S. R. (2010). Predicting Asian Americans' academic performance in the first year of university: An approach combining SAT and ACT scores and noncognitive variables. *Journal of College Student Development and Training*, 45, 432-459.

Tintus, V. (1985). Dropout from university education: A theoretical analysis of recent research. *Review of Educational Research and Technology*, 46, 90-128.

Trace, T.J., & Seldacek, W.E. (1987). Noncognitive variables to predicting academic success by race and cultural background. *Measurement and Evaluation in Guidance and Teaching*, 26, 178-188.

Trace, T.J., & Seldacek, W.E. (1985). The relationship of noncognitive variables and examination success: A longitudinal approach. *Journal of College Student and Personnel*, 36, 415-420.

Trace, T.J., & Seldacek, W.E. (1997). Prediction of graduation using noncognitive variables by race and parental education. *Measurements and Evaluation in Counseling and Development*, 29, 178-184.

Triptti, J., & Stemworth, J.B. (1999). The relationship between self-appraisal and college grade performance and persistence of Black freshmen. *Journal of Student Development*, 35, 485-491.

Washirtec, C.M. (1999). A study of academic performance, attrition, and retention as related to selected cognitive, noncognitive and related variables for African American college students attending a private, open admission, historically Black institution. University of South Carolina, Columbia, SC.

Whitley, J.L. (1993). A study of attrition among freshmen at eight New York public institutions of higher education. *Dissertation Abstracts International*, 45(03A), 786 (AAI8316191)



University of Moratuwa, Sri Lanka.

Electronic Theses & Dissertations

[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

William, T.M., & Leombardi, M.M. (1998). Graduating Black undergraduates: A step beyond retention. *Journal of College Student Development and Training*, 39, 769-775.

Wood, P. A., & Seldacek, W. E. (1998). Construct validity and congruent validity of the Noncognitive Questionnaire (NCQ): New paths to progress. Counseling Center Research Report #60-88. University of Maryland, College Park.

## Appendix I

### Noncognitive Questionnaire Used in the Study

Q1: Please list three things that you are proud of having done in your life

---

---

---

Q2: Please list three goals that you have for yourself right now

---

---

---

Q3: Please list groups belonged to (formal or informal) and offices held (if any) in your school or community



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

---

---

Q4: At UX, about 15%-20% of students typically leave before finishing a program. If this should happen to you, what will be the most likely cause? (**select ONE answer only**)

- Option 1: ☐ absolutely certain that I will complete the program / complete the credits required to transfer to US or Australia
- Option 2: ☐ accept a job
- Option 3: ☐ to enter another college / university in Sri Lanka
- Option 4: ☐ expensive / cost more than my family could afford
- Option 5: ☐ marriage
- Option 6: ☐ lack of interest in studies
- Option 7: ☐ lack of academic ability to pursue a degree
- Option 8: ☐ insufficient reading or study skills
- Option 9: ☐ no response

## Appendix I (continued)

Q5: Please indicate your gender

- ☐ male  
☐ female

Q6: Please indicate the type of program you are studying

- ☐ US or Australian transfer program  
☐ degree completion program

Q7: Please indicate your father's **HIGHEST** educational qualification by checking the relevant cage.

| Highest qualification                                                                                                                                                              | Father or guardian |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Less than a first degree (bachelor's degree)                                                                                                                                       |                    |
| First degree <b>or</b> a professional qualification (such as CIMA, CIM, ACCA, etc) <b>or</b> a qualification higher than a first degree (such as a master's degree or a doctorate) |                    |

Q8: Please indicate your mother's **HIGHEST** educational qualification by checking the relevant cage.



| Highest qualification                                                                                                                                                              | Mother or guardian |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Less than a first degree (bachelor's degree)                                                                                                                                       |                    |
| First degree <b>or</b> a professional qualification (such as CIMA, CIM, ACCA, etc) <b>or</b> a qualification higher than a first degree (such as a master's degree or a doctorate) |                    |

Q9: How much time do you expect to spend during a typical week studying or doing homework?

- ☐ 10 hours or less per week  
☐ 11 to 20 hours or less per week  
☐ more than 20 hours per week

Q10: How much education do you expect to get during your lifetime?

- ☐ certificate-level qualification  
☐ diploma-level qualification  
☐ bachelor's degree or equivalent  
☐ master's degree  
☐ doctoral degree such as PhD

## Appendix I (continued)

Q11: Respond to the following statements below with your feelings at present or with your expectations of how things will be.

SD: Strongly Disagree  
D: Disagree  
N: Neutral  
A: Agree  
SA: Strongly Agree

|                                                                                                             | SD<br>(5) | D<br>(4) | N<br>(3) | A<br>(2) | SA<br>(1) |
|-------------------------------------------------------------------------------------------------------------|-----------|----------|----------|----------|-----------|
| Q12: UX should use its influence to improve the social conditions of our community                          |           |          |          |          |           |
| Q13: It should not be very hard to obtain A or B grades in this course                                      |           |          |          |          |           |
| Q14: I get easily distracted when I try to do something and it doesn't work                                 |           |          |          |          |           |
| Q15: I am sometimes looked up to by others                                                                  |           |          |          |          |           |
| Q16: If I run into problems in my studies, I have someone who would listen to me and help me                |           |          |          |          |           |
| Q17: There is no use in doing things for people, you only find that they will not do anything good for you. |           |          |          |          |           |
| Q18: In groups where I am comfortable, I am often looked to as leader                                       |           |          |          |          |           |
| Q19: I expect to have a harder time than most students at UX                                                |           |          |          |          |           |
| Q20: Once I start something, I finish it                                                                    |           |          |          |          |           |
| Q21: When I believe strongly in something, I act on it.                                                     |           |          |          |          |           |
| Q22: I am as skilled academically as the average students at UX                                             |           |          |          |          |           |
| Q23: I expect I will encounter racism at UX                                                                 |           |          |          |          |           |
| Q24: People can easily change me even though I thought my mind was fixed on the subject                     |           |          |          |          |           |
| Q25: My friends and relatives don't feel I should go to a university                                        |           |          |          |          |           |
| Q26: My family always wanted me to go to a university                                                       |           |          |          |          |           |
| Q27: If tutoring is made available on campus at no cost, I would attend regularly                           |           |          |          |          |           |
| Q28: I want a chance to prove myself academically                                                           |           |          |          |          |           |
| Q29: My school grades (in the past) don't really reflect what I can do                                      |           |          |          |          |           |

## Appendix II

### Scoring Guide for the Questionnaire Used in the Study

- Question 1

| Question                                                       | The noncognitive variable(s) used to score by this question... | Score assigned to the question by reading the respondent's answer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q1: Please list three things that you are proud of having done | Positive self-concept (PSC)                                    | <p><u>Score of "1" if:</u><br/>at least 75% of the students at UX could have accomplished this goal (examples: "completed secondary school," "held a part-time job")</p> <p><u>Score of "2" if:</u><br/>at least 50% of the students at UX could have accomplished this goal (examples: "played in a sports team," "was a member of a school club")</p> <p><u>Score of "3" if:</u><br/>only if the top 25% of the students at UX could have accomplished this goal (examples: "won an academic award," "was captain of the football team")</p> <p><u>Score of "0" if:</u><br/>The respondent did not respond to this question</p> |

After each response is coded, the final score for this question 1 is determined by calculating the mean of scores for each response and rounding to the nearest integer

## Appendix II (continued)

- Question 2

Responses to question 2 are used to calculate the final scores for (1) preference for long range goals (PRLG) and (2) knowledge acquired in the field (KAF).

| Question                                                                                                                                                                   | The noncognitive variable(s) used to score by this question... | Score assigned to the question by reading the respondent's answer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q2[A] Please list three goals that you have for yourself right now                                                                                                         | Preference for long range goals (PRLG)                         | <p><u>Score of "1" if:</u><br/>a vague and/or immediate, short-term goal (examples: "to meet people," "to get a good timetable," "to gain self-confidence")</p> <p><u>Score of "2" if:</u><br/>a specific goal with a stated future orientation that could be accomplished during undergraduate study (examples: "to join a club so I can meet more people," "to get a good schedule so I can get good grades in the semester," "to run for a seat in the students' council")</p> <p><u>Score of "3" if:</u><br/>a specific goal with a stated future orientation that would occur after undergraduate study (examples, "to get a good schedule so I can get the classes I need for postgraduate study," "to become a CEO of a listed company")</p> <p><u>Score of "0" if:</u><br/>The respondent did not respond to this question</p> |
| After each response is coded, the final score for this question 2[A] is determined by calculating the mean of scores for each response and rounding to the nearest integer |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Appendix II (continued)

| Question                                                                                                                                                                          | The noncognitive variable(s) used to score by this question... | Score assigned to the question by reading the respondent's answer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q2[B]: Please list three goals that you have for yourself right now                                                                                                               | Knowledge acquired in a field (KAF)                            | <p><u>Score of "1" if:</u><br/>not at all academic or school-related; vague or unclear (examples: "to get married," "to do better," "to become a better person")</p> <p><u>Score of "2" if:</u><br/>school related, but not necessarily or primarily education-oriented (examples: "to join a club," "to become the student council president")</p> <p><u>Score of "3" if:</u><br/>directly related to education (examples: "to get a 3.5 GPA," "to get to know my teachers")</p> <p><u>Score of "0" if:</u><br/>The respondent did not respond to this question</p> |
| <p>After each response is coded, the final score for this question 2[B] is determined by calculating the mean of scores for each response and rounding to the nearest integer</p> |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

- Question 3

Responses to question 3 are used to calculate the final scores for (1) successful leadership positions (SLP) (2) demonstrated community service (DCS) and (3) knowledge acquired in field (KAF).

## Appendix II (continued)

| Question                                                                                                         | The noncognitive variable(s) used to score by this question... | Score assigned to the question by reading the respondent's answer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q3[A]: Please list groups belonged to (formal or informal) and offices held (if any) in your school or community | Successful leadership positions (SLP)                          | <p><u>Score of “1” if:</u><br/>ambiguous group or no clear reference to activity performed (example: “helped in school”)</p> <p><u>Score of “2” if:</u><br/>membership but no formal or implied leadership role; it has to be clear that it's a functioning group and, unless the criteria are met for a score of 3 as described below, all groups should be coded as 2 even if you, as the rater, are not familiar with the group (for example, “was part of a group that worked on community service projects through my church”)</p> <p><u>Score of “3” if:</u><br/>leadership was required to fulfill role in group (for example, officer or implied initiator, organizer, or founder) or entrance into the group was dependent upon prior leadership (for example, “organized a tutoring group for underprivileged children in my community,” “student council”)</p> <p><u>Score of “0” if:</u><br/>The respondent did not respond to this question</p> |

After each response is coded, the final score for this question 3[A] is determined by calculating the mean of scores for each response and rounding to the nearest integer

## Appendix II (continued)

| Question                                                                                                                                                                          | The noncognitive variable(s) used to score by this question... | Score assigned to the question by reading the respondent's answer                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Q3[B]: Please list groups belonged to (formal or informal) and offices held (if any) in your school or community</p>                                                           | <p>Demonstrated community service (DCS)</p>                    | <p><u>Score of “1” if:</u><br/>no community service performed by group, or vague or unclear in relation to community service (for example, “basketball team”)</p> <p><u>Score of “2” if:</u><br/>some community service involved, but it is not the primary purpose of the group (for example, “Scouts”)</p> <p><u>Score of “3” if:</u><br/>group’s main purpose is community service (for example, “Big Brothers/Big Sisters”)</p> <p><u>Score of “0” if:</u><br/>The respondent did not respond to this question</p> |
| <p>After each response is coded, the final score for this question 3[B] is determined by calculating the mean of scores for each response and rounding to the nearest integer</p> |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## Appendix II (continued)

| Question                                                                                                         | The noncognitive variable(s) used to score by this question... | Score assigned to the question by reading the respondent's answer                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q3[C]: Please list groups belonged to (formal or informal) and offices held (if any) in your school or community | Knowledge acquired in a field (KAF)                            | <p><u>Score of "1" if:</u><br/>not at all academic or school-related; vague or unclear</p> <p><u>Score of "2" if:</u><br/>school related, but not necessarily or primarily education-oriented</p> <p><u>Score of "3" if:</u><br/>directly related to education</p> <p><u>Score of "0" if:</u><br/>The respondent did not respond to this question</p> |

After each response is coded, the final score for this question 3[C] is determined by calculating the mean of scores for each response and rounding to the nearest integer

- Question 4

University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

| Question                                                                                                                                           | The noncognitive variable(s) used to score by this question...        | Score assigned to the question by reading the respondent's answer                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q4: At UX, about 15%-20% of students typically leave before finishing a program. If this should happen to you, what will be the most likely cause? | Positive self-concept (PSC) <b>and</b> Realistic self-appraisal (RSA) | <p><u>Score of "4" if:</u><br/>a respondent selected option 1</p> <p><u>Score of "2" if:</u><br/>a respondent selected any <b>one</b> of the options from 2 to 8</p> <p><u>Score of "0" if:</u><br/>a respondent selected option 9</p> |

After each response is coded, the final score for this question 1 is determined by calculating the mean of scores for each response and rounding to the nearest integer

- Questions 12 to 29

For questions 12 to 29, positive (+) questions scored “as is”. Negative (-) questions were reverse coded. A shortcut for calculating scores for reverse coded questions is to subtract the response for the question from 6.

| Question | Direction | The noncognitive variable scored by the question... |
|----------|-----------|-----------------------------------------------------|
| Q12      | -         | Understand and deals with racism (UDR)              |
| Q13      | -         | Realistic self-appraisal (RSA)                      |
| Q14      | +         | Preference for Long Range Goals (PLRG)              |
| Q15      | -         | Successful leadership positions (SLP)               |
| Q16      | -         | Availability of a strong support person (ASSP)      |
| Q17      | +         | Demonstrated community service (DCS)                |
| Q18      | -         | Successful leadership positions (SLP)               |
| Q19      | +         | Understand and deals with racism (UDR)              |
| Q20      | -         | Preference for Long Range Goals (PLRG)              |
| Q21      | -         | Positive self-concept (PSC)                         |
| Q22      | -         | Realistic self-appraisal (RSA)                      |
| Q23      | -         | Understand and deals with racism (UDR)              |
| Q24      | +         | Positive self-concept (PSC)                         |
| Q25      | +         | Availability of a strong support person (ASSP)      |
| Q26      | -         | Availability of a strong support person (ASSP)      |
| Q27      | -         | Understand and deals with racism (UDR)              |
| Q28      | -         | Understand and deals with racism (UDR)              |
| Q29      | -         | Positive self-concept (PSC)                         |

The following equations were used to compute the scores for each noncognitive variable:

- Final score for Positive Self-Concept (PSC) is given by =  
Q1 score + Q4 score + Q10 score + (6 – Q21 score) + Q24 score + (6 – Q29 score)
- Final score for Realistic Self-Appraisal (RSA) is given by =  
Q4 score + (6 – Q13 score) + (6 – Q22 score)
- Final score for Understands and Deals with Racism (UDR) is given by =  
(6 – Q12 score) + Q19 score + (6 – Q23 score) + (6 – Q27 score) + (6 – Q28 score)
- Final score for Preference for Long-Range Goals (PRLG) is given by =  
Q2[A] score + Q14 score + (6 – Q20 score)

## Appendix II (continued)

- Final score for Availability of a Strong Support Person (ASSP) is given by =  
 $(6 - Q16 \text{ score}) + Q25 \text{ score} + (6 - Q26 \text{ score})$
- Final score for Successful Leadership Experience (SLP) is given by =  
 $Q3[A] \text{ score} + (6 - Q15 \text{ score}) + (6 - Q18 \text{ score})$
- Final score for Demonstrated Community Service (DCS) is given by =  
 $Q17 \text{ score} + Q3[B] \text{ score}$
- Final score for Knowledge Acquired in a Field (KAF) is given by =  
 $Q2[B] \text{ score} + Q3[C] \text{ score}$



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

### Appendix III

#### Residual Statistics

| Case ID | COO_1  | LEV_1  | ZRE_1   |
|---------|--------|--------|---------|
| 1       | 0.0238 | 0.0451 | -0.7094 |
| 2       | 0.0051 | 0.0285 | 0.4175  |
| 3       | 0.0002 | 0.0091 | 0.1261  |
| 4       | 0.0010 | 0.0183 | 0.2359  |
| 5       | 0.1024 | 0.0407 | -1.5533 |
| 6       | 0.0010 | 0.0197 | 0.2232  |
| 7       | 0.0002 | 0.0099 | 0.1333  |
| 8       | 0.0006 | 0.0166 | 0.1797  |
| 9       | 0.0037 | 0.0287 | 0.3553  |
| 10      | 0.0580 | 0.0385 | 1.2040  |
| 11      | 0.0016 | 0.0221 | 0.2676  |
| 12      | 0.5336 | 0.0184 | 5.3307  |
| 13      | 0.0001 | 0.0088 | -0.0901 |
| 14      | 0.0210 | 0.0669 | -0.5408 |
| 15      | 0.1286 | 0.0147 | -0.8639 |
| 16      | 0.0443 | 0.0598 | 0.8350  |
| 17      | 0.0017 | 0.0293 | 0.2377  |
| 18      | 0.0387 | 0.0503 | 0.8551  |
| 19      | 0.0010 | 0.0208 | 0.2207  |
| 20      | 0.0035 | 0.0254 | 0.3638  |
| 21      | 0.0040 | 0.0289 | 0.3682  |
| 22      | 0.0868 | 0.0676 | -1.0941 |
| 23      | 0.0615 | 0.0330 | -1.3426 |
| 24      | 0.0012 | 0.0208 | 0.2416  |
| 25      | 0.0101 | 0.0407 | 0.4887  |
| 26      | 0.0132 | 0.0322 | 0.6287  |
| 27      | 0.0321 | 0.0944 | 0.5547  |
| 28      | 0.0276 | 0.0385 | -0.8305 |
| 29      | 0.0003 | 0.0127 | 0.1414  |
| 30      | 0.0008 | 0.0205 | 0.1944  |
| 31      | 0.0808 | 0.0108 | 0.8053  |
| 32      | 0.0126 | 0.0388 | -0.5581 |
| 33      | 0.0145 | 0.0471 | -0.5408 |
| 34      | 0.0836 | 0.0610 | 1.1351  |
| 35      | 0.0003 | 0.0124 | -0.1634 |



University of Sri Lanka  
Electronic Theses & Dissertations  
www.lib.mrt.ac.lk

| Case ID | COO_1  | LEV_1  | ZRE_1   |
|---------|--------|--------|---------|
| 36      | 0.0001 | 0.0091 | -0.1202 |
| 37      | 0.0000 | 0.0061 | -0.0833 |
| 38      | 0.0063 | 0.0404 | -0.3868 |
| 39      | 0.0000 | 0.0052 | 0.0799  |
| 40      | 0.0749 | 0.0697 | -0.9994 |
| 41      | 0.0000 | 0.0012 | 0.0274  |
| 42      | 0.0015 | 0.0308 | 0.2181  |
| 43      | 0.4152 | 0.0645 | 2.4547  |
| 44      | 0.0014 | 0.0227 | -0.2490 |
| 45      | 0.0006 | 0.0154 | 0.1877  |
| 46      | 0.0001 | 0.0078 | 0.1112  |
| 47      | 0.0002 | 0.0113 | 0.1349  |
| 48      | 0.0324 | 0.0633 | -0.6927 |
| 49      | 0.0290 | 0.0520 | 0.7273  |
| 50      | 0.0084 | 0.0442 | 0.4257  |
| 51      | 0.0449 | 0.0559 | -0.8710 |
| 52      | 0.1728 | 0.0387 | -2.0706 |
| 53      | 0.0541 | 0.0502 | -1.0114 |
| 54      | 0.0042 | 0.0257 | 0.3983  |
| 55      | 0.0003 | 0.0119 | 0.4567  |
| 56      | 0.0081 | 0.0260 | -0.5515 |
| 57      | 0.1391 | 0.0410 | -1.8036 |
| 58      | 0.0030 | 0.0331 | -0.2984 |
| 59      | 0.0001 | 0.0086 | 0.1112  |
| 60      | 0.0008 | 0.0163 | 0.2130  |
| 61      | 0.0010 | 0.0208 | 0.2207  |
| 62      | 0.1351 | 0.1004 | 1.0999  |
| 63      | 0.0746 | 0.0673 | 1.0168  |
| 64      | 0.0942 | 0.0389 | 1.5249  |
| 65      | 0.0414 | 0.0488 | -0.8984 |
| 66      | 0.1193 | 0.0588 | 1.3823  |
| 67      | 0.0476 | 0.0486 | -0.9649 |
| 68      | 0.0681 | 0.0824 | -0.8710 |
| 69      | 0.0275 | 0.0530 | -0.7014 |
| 70      | 0.0297 | 0.0497 | 0.7537  |
| 71      | 0.0238 | 0.0451 | -0.7094 |
| 72      | 0.0051 | 0.0285 | 0.4175  |
| 73      | 0.0002 | 0.0091 | 0.1261  |
| 74      | 0.0010 | 0.0183 | 0.2359  |



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
www.lib.mru.ac.lk

| Case ID | COO_1  | LEV_1  | ZRE_1   |
|---------|--------|--------|---------|
| 75      | 0.1024 | 0.0407 | -1.5533 |
| 76      | 0.0010 | 0.0197 | 0.2232  |
| 77      | 0.0002 | 0.0099 | 0.1333  |
| 78      | 0.0006 | 0.0166 | 0.1797  |
| 79      | 0.0037 | 0.0287 | 0.3553  |
| 80      | 0.0580 | 0.0385 | 1.2040  |
| 81      | 0.0016 | 0.0221 | 0.2676  |
| 82      | 0.5336 | 0.0184 | 0.3307  |
| 83      | 0.0001 | 0.0088 | -0.0901 |
| 84      | 0.0210 | 0.0669 | -0.5408 |
| 85      | 0.1286 | 0.0147 | -0.8639 |
| 86      | 0.0443 | 0.0598 | 0.8350  |
| 87      | 0.0017 | 0.0293 | 0.2377  |
| 88      | 0.0387 | 0.0503 | 0.8551  |
| 89      | 0.0010 | 0.0208 | 0.2207  |
| 90      | 0.0035 | 0.0254 | 0.3638  |
| 91      | 0.0040 | 0.0289 | 0.3682  |
| 92      | 0.0868 | 0.0676 | -1.0941 |
| 93      | 0.0615 | 0.0330 | -1.3426 |
| 94      | 0.0012 | 0.0208 | 0.2416  |
| 95      | 0.0101 | 0.0407 | 0.4887  |
| 96      | 0.0132 | 0.0322 | 0.6287  |
| 97      | 0.0321 | 0.0944 | 0.5547  |
| 98      | 0.0276 | 0.0385 | -0.8305 |
| 99      | 0.0003 | 0.0127 | 0.1414  |
| 100     | 0.0008 | 0.0205 | 0.1944  |
| 101     | 0.0808 | 0.1108 | 0.8053  |
| 102     | 0.0126 | 0.0388 | -0.5581 |
| 103     | 0.0145 | 0.0471 | -0.5408 |
| 104     | 0.0836 | 0.0610 | 1.1351  |
| 105     | 0.0003 | 0.0124 | -0.1634 |
| 106     | 0.0001 | 0.0091 | -0.1202 |
| 107     | 0.0000 | 0.0061 | -0.0833 |
| 108     | 0.0063 | 0.0404 | -0.3868 |
| 109     | 0.0000 | 0.0052 | 0.0799  |
| 110     | 0.0749 | 0.0697 | -0.9994 |
| 111     | 0.0000 | 0.0012 | 0.0274  |
| 112     | 0.0015 | 0.0308 | 0.2181  |
| 113     | 0.4152 | 0.0645 | 0.4547  |



University of Moratuwa Sri Lanka  
Electronic Theses & Dissertations  
www.lib.mru.ac.lk

| Case ID | COO_1  | LEV_1  | ZRE_1   |
|---------|--------|--------|---------|
| 114     | 0.0014 | 0.0227 | -0.2490 |
| 115     | 0.0006 | 0.0154 | 0.1877  |
| 116     | 0.0001 | 0.0078 | 0.1112  |
| 117     | 0.0002 | 0.0113 | 0.1349  |
| 118     | 0.0324 | 0.0633 | -0.6927 |
| 119     | 0.0290 | 0.0520 | 0.7273  |
| 120     | 0.0084 | 0.0442 | 0.4257  |
| 121     | 0.0449 | 0.0559 | -0.8710 |
| 122     | 0.1728 | 0.0387 | -2.0706 |
| 123     | 0.0541 | 0.0502 | -1.0114 |
| 124     | 0.0042 | 0.0257 | 0.3983  |
| 125     | 0.0003 | 0.0119 | 0.1567  |
| 126     | 0.0081 | 0.0260 | -0.5515 |
| 127     | 0.1391 | 0.0410 | -1.8036 |
| 128     | 0.0030 | 0.0331 | -0.2984 |
| 129     | 0.0001 | 0.0086 | 0.1112  |
| 130     | 0.0008 | 0.0163 | 0.2130  |
| 131     | 0.0010 | 0.0208 | 0.2207  |
| 132     | 0.1351 | 0.1004 | 1.0999  |
| 133     | 0.0746 | 0.0673 | 1.0168  |
| 134     | 0.0942 | 0.0389 | 1.5249  |
| 135     | 0.0414 | 0.0488 | -0.8984 |
| 136     | 0.1193 | 0.0588 | 1.3823  |
| 137     | 0.0476 | 0.0486 | -0.9649 |
| 138     | 0.0681 | 0.0824 | -0.8710 |
| 139     | 0.0275 | 0.0530 | -0.7014 |
| 140     | 0.0297 | 0.0497 | 0.7537  |
| 141     | 0.0003 | 0.0119 | 0.1567  |
| 142     | 0.0081 | 0.0260 | -0.5515 |
| 143     | 0.1391 | 0.0410 | -1.8036 |
| 144     | 0.0030 | 0.0331 | -0.2984 |
| 145     | 0.0001 | 0.0086 | 0.1112  |
| 146     | 0.0008 | 0.0163 | 0.2130  |
| 147     | 0.0010 | 0.0208 | 0.2207  |
| 148     | 0.0132 | 0.0322 | 0.6287  |
| 149     | 0.0321 | 0.0944 | 0.5547  |
| 150     | 0.0276 | 0.0385 | -0.8305 |
| 151     | 0.0003 | 0.0127 | 0.1414  |
| 152     | 0.0008 | 0.0205 | 0.1944  |



| Case ID | COO_1  | LEV_1  | ZRE_1   |
|---------|--------|--------|---------|
| 153     | 0.0808 | 0.0111 | 0.8053  |
| 154     | 0.0126 | 0.0388 | -0.5581 |
| 155     | 0.0145 | 0.0471 | -0.5408 |
| 156     | 0.0836 | 0.0610 | 1.1351  |
| 157     | 0.0003 | 0.0124 | -0.1634 |
| 158     | 0.0001 | 0.0091 | -0.1202 |

| Case ID | DFB0_1  | DFB1_1  | DFB2_1  | DFB2_1  | DFB3_1  | DFB4_1  | DFB5_1  |
|---------|---------|---------|---------|---------|---------|---------|---------|
| 1       | -0.1611 | -0.0017 | 0.0144  | 0.0023  | 0.0306  | 0.0324  | 0.0324  |
| 2       | -0.1128 | 0.0015  | 0.0064  | 0.0043  | 0.0055  | -0.0008 | -0.0008 |
| 3       | -0.0206 | 0.0002  | 0.0013  | 0.0008  | -0.0006 | 0.0050  | 0.0050  |
| 4       | -0.0446 | 0.0003  | 0.0028  | 0.0017  | -0.0004 | 0.0144  | 0.0144  |
| 5       | 0.2699  | -0.0138 | -0.0286 | 0.0101  | -0.0317 | -0.0033 | -0.0033 |
| 6       | -0.0587 | 0.0007  | 0.0033  | 0.0022  | 0.0001  | 0.0020  | 0.0020  |
| 7       | -0.0172 | 0.0001  | 0.0009  | 0.0010  | -0.0040 | 0.0054  | 0.0054  |
| 8       | -0.0445 | 0.0003  | 0.0022  | 0.0021  | 0.0000  | 0.0012  | 0.0012  |
| 9       | -0.0626 | -0.0006 | 0.0030  | 0.0039  | 0.0025  | 0.0251  | 0.0251  |
| 10      | 0.0661  | 0.0082  | 0.0071  | -0.0194 | 0.0469  | -0.0259 | -0.0259 |
| 11      | -0.0494 | 0.0014  | 0.0034  | 0.0004  | -0.0006 | 0.0198  | 0.0198  |
| 12      | 0.2447  | -0.0543 | -0.0380 | -0.0230 | -0.0169 | -0.2159 | -0.2159 |
| 13      | -0.0148 | 0.0001  | 0.0006  | 0.0011  | 0.0015  | 0.0013  | 0.0013  |
| 14      | -0.1816 | -0.0079 | -0.0069 | 0.0032  | -0.0247 | -0.0237 | -0.0237 |
| 15      | -0.4148 | 0.0150  | -0.0101 | 0.0228  | 0.0744  | -0.1026 | -0.1026 |
| 16      | 0.0259  | 0.0003  | -0.0122 | 0.0045  | 0.0327  | 0.0660  | 0.0660  |
| 17      | -0.0259 | -0.0018 | 0.0029  | 0.0028  | -0.0111 | 0.0136  | 0.0136  |
| 18      | 0.0413  | 0.0113  | -0.0071 | -0.0064 | -0.0541 | -0.0111 | -0.0111 |
| 19      | -0.0415 | 0.0019  | 0.0030  | 0.0001  | -0.0099 | 0.0052  | 0.0052  |
| 20      | -0.0611 | 0.0024  | 0.0046  | 0.0011  | -0.0209 | 0.0050  | 0.0050  |
| 21      | -0.0697 | 0.0032  | 0.0016  | 0.0030  | -0.0195 | 0.0021  | 0.0021  |
| 22      | -0.1679 | -0.0009 | -0.0209 | 0.0231  | 0.0867  | -0.0051 | -0.0051 |
| 23      | -0.0290 | -0.0024 | -0.0078 | 0.0025  | 0.0906  | 0.0140  | 0.0140  |
| 24      | -0.0449 | 0.0017  | 0.0036  | 0.0004  | -0.0115 | 0.0052  | 0.0052  |
| 25      | -0.0673 | -0.0009 | 0.0000  | 0.0066  | 0.0094  | 0.0365  | 0.0365  |
| 26      | -0.1321 | -0.0001 | 0.0047  | 0.0092  | 0.0191  | -0.0166 | -0.0166 |
| 27      | 0.0132  | 0.0110  | -0.0086 | -0.0058 | -0.0390 | 0.0637  | 0.0637  |
| 28      | -0.0456 | -0.0057 | -0.0049 | 0.0134  | -0.0324 | 0.0179  | 0.0179  |
| 29      | -0.0226 | 0.0004  | 0.0020  | 0.0002  | -0.0012 | 0.0072  | 0.0072  |
| 30      | -0.0469 | -0.0003 | 0.0036  | 0.0021  | -0.0005 | 0.0017  | 0.0017  |
| 31      | -0.0435 | -0.0201 | 0.0304  | 0.0067  | 0.0213  | -0.0243 | -0.0243 |

| Case ID | DFB0_1  | DFB1_1  | DFB2_1  | DFB2_1  | DFB3_1  | DFB4_1  | DFB5_1  |
|---------|---------|---------|---------|---------|---------|---------|---------|
| 32      | -0.1117 | 0.0008  | -0.0028 | 0.0107  | -0.0222 | 0.0170  | 0.0170  |
| 33      | -0.1656 | 0.0064  | 0.0094  | -0.0017 | 0.0172  | 0.0332  | 0.0332  |
| 34      | 0.1948  | -0.0033 | -0.0173 | -0.0037 | 0.0500  | 0.0840  | 0.0840  |
| 35      | -0.0346 | 0.0009  | 0.0017  | 0.0009  | -0.0047 | 0.0059  | 0.0059  |
| 36      | -0.0227 | 0.0006  | 0.0010  | 0.0007  | -0.0027 | 0.0034  | 0.0034  |
| 37      | -0.0122 | 0.0000  | 0.0008  | 0.0005  | -0.0015 | 0.0018  | 0.0018  |
| 38      | -0.0855 | -0.0040 | 0.0059  | 0.0081  | -0.0168 | 0.0126  | 0.0126  |
| 39      | -0.0082 | 0.0001  | 0.0007  | 0.0002  | -0.0018 | 0.0025  | 0.0025  |
| 40      | -0.0894 | 0.0080  | 0.0202  | -0.0214 | 0.0482  | 0.0634  | 0.0634  |
| 41      | -0.0016 | 0.0000  | 0.0001  | 0.0001  | -0.0003 | 0.0003  | 0.0003  |
| 42      | -0.0359 | 0.0013  | 0.0047  | -0.0016 | -0.0024 | 0.0174  | 0.0174  |
| 43      | 0.9884  | -0.0424 | 0.0100  | -0.0359 | -0.0876 | -0.0929 | -0.0929 |
| 44      | -0.0648 | 0.0018  | 0.0009  | 0.0031  | -0.0079 | 0.0088  | 0.0088  |
| 45      | -0.0349 | 0.0000  | 0.0024  | 0.0020  | -0.0070 | 0.0018  | 0.0018  |
| 46      | -0.0140 | 0.0003  | 0.0006  | 0.0006  | -0.0029 | 0.0042  | 0.0042  |
| 47      | -0.0186 | 0.0002  | 0.0005  | 0.0013  | -0.0038 | 0.0051  | 0.0051  |
| 48      | -0.1886 | -0.0083 | 0.0063  | 0.0179  | 0.0378  | 0.0107  | 0.0107  |
| 49      | -0.0152 | -0.0057 | -0.0041 | 0.0151  | -0.0417 | -0.0301 | -0.0301 |
| 50      | -0.0700 | -0.0033 | 0.0027  | 0.0102  | -0.0229 | -0.0083 | -0.0083 |
| 51      | -0.0627 | 0.0087  | -0.0182 | 0.0075  | -0.0304 | 0.0247  | 0.0247  |
| 52      | -0.2340 | -0.0095 | -0.0215 | -0.0149 | -0.0258 | -0.1742 | -0.1742 |
| 53      | -0.1192 | 0.0115  | -0.0064 | -0.0132 | 0.0562  | 0.0497  | 0.0497  |
| 54      | -0.0604 | 0.0013  | 0.0055  | 0.0020  | -0.0238 | 0.0036  | 0.0036  |
| 55      | -0.0283 | 0.0005  | 0.0016  | 0.0012  | -0.0051 | 0.0020  | 0.0020  |
| 56      | -0.0945 | -0.0008 | 0.0034  | 0.0068  | -0.0253 | 0.0224  | 0.0224  |
| 57      | 0.1819  | -0.0085 | 0.0017  | -0.0057 | -0.0361 | -0.1616 | -0.1616 |
| 58      | -0.0614 | 0.0012  | 0.0076  | -0.0012 | -0.0150 | 0.0191  | 0.0191  |
| 59      | -0.0174 | -0.0001 | 0.0010  | 0.0009  | -0.0005 | 0.0036  | 0.0036  |
| 60      | -0.0398 | 0.0006  | 0.0029  | 0.0014  | -0.0089 | 0.0032  | 0.0032  |
| 61      | -0.0415 | 0.0019  | 0.0030  | 0.0001  | -0.0099 | 0.0052  | 0.0052  |
| 62      | -0.1048 | 0.0110  | -0.0384 | 0.0236  | 0.0761  | -0.0835 | -0.0835 |
| 63      | -0.0593 | 0.0224  | -0.0083 | -0.0140 | 0.0448  | -0.0192 | -0.0192 |
| 64      | 0.4340  | -0.0090 | -0.0109 | -0.0124 | -0.0714 | -0.0607 | -0.0607 |
| 65      | 0.0139  | -0.0144 | 0.0068  | 0.0099  | -0.0409 | 0.0240  | 0.0240  |
| 66      | 0.1093  | 0.0245  | -0.0112 | -0.0294 | 0.0634  | -0.0321 | -0.0321 |
| 67      | 0.0429  | 0.0106  | 0.0047  | -0.0198 | -0.0504 | 0.0630  | 0.0630  |
| 68      | 0.0296  | 0.0117  | 0.0161  | -0.0275 | -0.0566 | 0.0775  | 0.0775  |
| 69      | -0.0429 | 0.0071  | 0.0125  | -0.0131 | -0.0432 | 0.0557  | 0.0557  |
| 70      | 0.0143  | 0.0017  | -0.0011 | -0.0035 | 0.0206  | 0.0731  | 0.0731  |

| Case ID | DFB0_1  | DFB1_1  | DFB2_1  | DFB2_1  | DFB3_1  | DFB4_1  | DFB5_1  |
|---------|---------|---------|---------|---------|---------|---------|---------|
| 71      | -0.1611 | -0.0017 | 0.0144  | 0.0023  | 0.0306  | 0.0324  | 0.0324  |
| 72      | -0.1128 | 0.0015  | 0.0064  | 0.0043  | 0.0055  | -0.0008 | -0.0008 |
| 73      | -0.0206 | 0.0002  | 0.0013  | 0.0008  | -0.0006 | 0.0050  | 0.0050  |
| 74      | -0.0446 | 0.0003  | 0.0028  | 0.0017  | -0.0004 | 0.0144  | 0.0144  |
| 75      | 0.2699  | -0.0138 | -0.0286 | 0.0101  | -0.0317 | -0.0033 | -0.0033 |
| 76      | -0.0587 | 0.0007  | 0.0033  | 0.0022  | 0.0001  | 0.0020  | 0.0020  |
| 77      | -0.0172 | 0.0001  | 0.0009  | 0.0010  | -0.0040 | 0.0054  | 0.0054  |
| 78      | -0.0445 | 0.0003  | 0.0022  | 0.0021  | 0.0000  | 0.0012  | 0.0012  |
| 79      | -0.0626 | -0.0006 | 0.0030  | 0.0039  | 0.0025  | 0.0251  | 0.0251  |
| 80      | 0.0661  | 0.0082  | 0.0071  | -0.0194 | 0.0469  | -0.0259 | -0.0259 |
| 81      | -0.0494 | 0.0014  | 0.0034  | 0.0004  | -0.0006 | 0.0198  | 0.0198  |
| 82      | 1.2447  | -0.0543 | -0.0380 | -0.0230 | 0.1609  | -0.2159 | -0.2159 |
| 83      | -0.0148 | -0.0001 | 0.0006  | 0.0011  | -0.0015 | 0.0013  | 0.0013  |
| 84      | -0.1816 | 0.0079  | 0.0069  | 0.0032  | -0.0247 | -0.0237 | -0.0237 |
| 85      | -0.4148 | 0.0150  | -0.0101 | 0.0228  | 0.0744  | -0.1026 | -0.1026 |
| 86      | 0.0259  | 0.0003  | -0.0122 | 0.0045  | 0.0327  | 0.0660  | 0.0660  |
| 87      | -0.0259 | -0.0018 | 0.0029  | 0.0028  | -0.0111 | 0.0136  | 0.0136  |
| 88      | 0.0413  | 0.0113  | -0.0071 | -0.0064 | -0.0541 | -0.0111 | -0.0111 |
| 89      | -0.0415 | 0.0019  | 0.0030  | 0.0001  | -0.0099 | 0.0052  | 0.0052  |
| 90      | -0.0611 | 0.0024  | 0.0046  | 0.0011  | -0.0209 | 0.0050  | 0.0050  |
| 91      | -0.0697 | 0.0032  | 0.0016  | 0.0030  | -0.0195 | 0.0021  | 0.0021  |
| 92      | -0.1679 | -0.0009 | -0.0209 | 0.0231  | 0.0867  | -0.0051 | -0.0051 |
| 93      | -0.0290 | -0.0024 | -0.0078 | 0.0025  | 0.0906  | 0.0140  | 0.0140  |
| 94      | -0.0449 | 0.0017  | 0.0036  | 0.0004  | -0.0115 | 0.0052  | 0.0052  |
| 95      | -0.0673 | -0.0009 | 0.0000  | 0.0066  | 0.0094  | 0.0365  | 0.0365  |
| 96      | -0.1321 | -0.0001 | 0.0047  | 0.0092  | 0.0191  | -0.0166 | -0.0166 |
| 97      | 0.0132  | 0.0110  | -0.0086 | -0.0058 | -0.0390 | 0.0637  | 0.0637  |
| 98      | -0.0456 | -0.0057 | -0.0049 | 0.0134  | -0.0324 | 0.0179  | 0.0179  |
| 99      | -0.0226 | 0.0004  | 0.0020  | 0.0002  | -0.0012 | 0.0072  | 0.0072  |
| 100     | -0.0469 | -0.0003 | 0.0036  | 0.0021  | -0.0005 | 0.0017  | 0.0017  |
| 101     | -0.0435 | -0.0201 | 0.0304  | 0.0067  | 0.0213  | -0.0243 | -0.0243 |
| 102     | -0.1117 | 0.0008  | -0.0028 | 0.0107  | -0.0222 | 0.0170  | 0.0170  |
| 103     | -0.1656 | 0.0064  | 0.0094  | -0.0017 | 0.0172  | 0.0332  | 0.0332  |
| 104     | 0.1948  | -0.0033 | -0.0173 | -0.0037 | 0.0500  | 0.0840  | 0.0840  |
| 105     | -0.0346 | 0.0009  | 0.0017  | 0.0009  | -0.0047 | 0.0059  | 0.0059  |
| 106     | -0.0227 | 0.0006  | 0.0010  | 0.0007  | -0.0027 | 0.0034  | 0.0034  |
| 107     | -0.0122 | 0.0000  | 0.0008  | 0.0005  | -0.0015 | 0.0018  | 0.0018  |
| 108     | -0.0855 | -0.0040 | 0.0059  | 0.0081  | -0.0168 | 0.0126  | 0.0126  |
| 109     | -0.0082 | 0.0001  | 0.0007  | 0.0002  | -0.0018 | 0.0025  | 0.0025  |

| Case ID | DFB0_1  | DFB1_1  | DFB2_1  | DFB2_1  | DFB3_1  | DFB4_1  | DFB5_1  |
|---------|---------|---------|---------|---------|---------|---------|---------|
| 110     | -0.0894 | 0.0080  | 0.0202  | -0.0214 | 0.0482  | 0.0634  | 0.0634  |
| 111     | -0.0016 | 0.0000  | 0.0001  | 0.0001  | -0.0003 | 0.0003  | 0.0003  |
| 112     | -0.0359 | 0.0013  | 0.0047  | -0.0016 | -0.0024 | 0.0174  | 0.0174  |
| 113     | 0.9884  | -0.0424 | 0.0100  | -0.0359 | -0.0876 | -0.0929 | -0.0929 |
| 114     | -0.0648 | 0.0018  | 0.0009  | 0.0031  | -0.0079 | 0.0088  | 0.0088  |
| 115     | -0.0349 | 0.0000  | 0.0024  | 0.0020  | -0.0070 | 0.0018  | 0.0018  |
| 116     | -0.0140 | 0.0003  | 0.0006  | 0.0006  | -0.0029 | 0.0042  | 0.0042  |
| 117     | -0.0186 | 0.0002  | 0.0005  | 0.0013  | -0.0038 | 0.0051  | 0.0051  |
| 118     | -0.1886 | -0.0083 | 0.0063  | 0.0179  | 0.0378  | 0.0107  | 0.0107  |
| 119     | -0.0152 | -0.0057 | -0.0041 | 0.0151  | -0.0417 | -0.0301 | -0.0301 |
| 120     | -0.0700 | -0.0033 | 0.0027  | 0.0102  | -0.0229 | -0.0083 | -0.0083 |
| 121     | -0.0627 | 0.0087  | -0.0182 | 0.0075  | -0.0304 | 0.0247  | 0.0247  |
| 122     | 0.2340  | 0.0095  | -0.0215 | -0.0149 | -0.0258 | -0.1742 | -0.1742 |
| 123     | -0.1192 | 0.0115  | 0.0064  | -0.0132 | 0.0562  | 0.0497  | 0.0497  |
| 124     | -0.0604 | 0.0013  | 0.0055  | 0.0020  | -0.0238 | 0.0036  | 0.0036  |
| 125     | -0.0283 | 0.0005  | 0.0016  | 0.0012  | -0.0051 | 0.0020  | 0.0020  |
| 126     | -0.0945 | -0.0008 | 0.0034  | 0.0068  | -0.0253 | 0.0224  | 0.0224  |
| 127     | 0.1819  | -0.0085 | 0.0017  | -0.0057 | -0.0361 | -0.1616 | -0.1616 |
| 128     | -0.0614 | 0.0012  | 0.0076  | -0.0012 | -0.0150 | 0.0191  | 0.0191  |
| 129     | -0.0174 | -0.0001 | 0.0010  | 0.0009  | -0.0005 | 0.0036  | 0.0036  |
| 130     | -0.0398 | 0.0006  | 0.0029  | 0.0014  | -0.0089 | 0.0032  | 0.0032  |
| 131     | -0.0415 | 0.0019  | 0.0030  | 0.0001  | -0.0099 | 0.0052  | 0.0052  |
| 132     | -0.1048 | 0.0110  | -0.0384 | 0.0236  | 0.0761  | -0.0835 | -0.0835 |
| 133     | -0.0593 | 0.0224  | -0.0083 | -0.0140 | 0.0448  | -0.0192 | -0.0192 |
| 134     | 0.4340  | -0.0090 | -0.0109 | -0.0124 | -0.0714 | -0.0607 | -0.0607 |
| 135     | 0.0139  | -0.0144 | 0.0068  | 0.0099  | -0.0409 | 0.0240  | 0.0240  |
| 136     | 0.1093  | 0.0245  | -0.0112 | -0.0294 | 0.0634  | -0.0321 | -0.0321 |
| 137     | 0.0429  | 0.0106  | 0.0047  | -0.0198 | -0.0504 | 0.0630  | 0.0630  |
| 138     | 0.0296  | 0.0117  | 0.0161  | -0.0275 | -0.0566 | 0.0775  | 0.0775  |
| 139     | -0.0429 | 0.0071  | 0.0125  | -0.0131 | -0.0432 | 0.0557  | 0.0557  |
| 140     | 0.0143  | 0.0017  | -0.0011 | -0.0035 | 0.0206  | 0.0731  | 0.0731  |
| 141     | -0.0283 | 0.0005  | 0.0016  | 0.0012  | -0.0051 | 0.0020  | 0.0020  |
| 142     | -0.0945 | -0.0008 | 0.0034  | 0.0068  | -0.0253 | 0.0224  | 0.0224  |
| 143     | 0.1819  | -0.0085 | 0.0017  | -0.0057 | -0.0361 | -0.1616 | -0.1616 |
| 144     | -0.0614 | 0.0012  | 0.0076  | -0.0012 | -0.0150 | 0.0191  | 0.0191  |
| 145     | -0.0174 | -0.0001 | 0.0010  | 0.0009  | -0.0005 | 0.0036  | 0.0036  |
| 146     | -0.0398 | 0.0006  | 0.0029  | 0.0014  | -0.0089 | 0.0032  | 0.0032  |
| 147     | -0.0415 | 0.0019  | 0.0030  | 0.0001  | -0.0099 | 0.0052  | 0.0052  |
| 148     | -0.1321 | -0.0001 | 0.0047  | 0.0092  | 0.0191  | -0.0166 | -0.0166 |

| Case ID | DFB0_1  | DFB1_1  | DFB2_1  | DFB2_1  | DFB3_1  | DFB4_1  | DFB5_1  |
|---------|---------|---------|---------|---------|---------|---------|---------|
| 149     | 0.0132  | 0.0110  | -0.0086 | -0.0058 | -0.0390 | 0.0637  | 0.0637  |
| 150     | -0.0456 | -0.0057 | -0.0049 | 0.0134  | -0.0324 | 0.0179  | 0.0179  |
| 151     | -0.0226 | 0.0004  | 0.0020  | 0.0002  | -0.0012 | 0.0072  | 0.0072  |
| 152     | -0.0469 | -0.0003 | 0.0036  | 0.0021  | -0.0005 | 0.0017  | 0.0017  |
| 153     | -0.0435 | -0.0201 | 0.0304  | 0.0067  | 0.0213  | -0.0243 | -0.0243 |
| 154     | -0.1117 | 0.0008  | -0.0028 | 0.0107  | -0.0222 | 0.0170  | 0.0170  |
| 155     | -0.1656 | 0.0064  | 0.0094  | -0.0017 | 0.0172  | 0.0332  | 0.0332  |
| 156     | 0.1948  | -0.0033 | -0.0173 | -0.0037 | 0.0500  | 0.0840  | 0.0840  |
| 157     | -0.0346 | 0.0009  | 0.0017  | 0.0009  | -0.0047 | 0.0059  | 0.0059  |
| 158     | -0.0227 | 0.0006  | 0.0010  | 0.0007  | -0.0027 | 0.0034  | 0.0034  |



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)