# ATTRITION IN ODL: A MACRO PERSPECTIVE FOR REDUCING NON-COMPLETION RATE AMONG LLL LEARNERS

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## Abstract

*Increasing student attrition at high rates in Open and Distance Learning (ODL) institutions is a phenomenon which has not been fully understood. Generally, much literature has been produced to explore student attrition in the conventional higher education settings, which provides guidance as to possible factors that may influence attrition. Many factors affecting student attrition have been identified; however, these results have only benefited the traditional institution of higher education that promotes full-time learning, but have not helped the attrition rates at ODL institutions that supports formal learning via lifelong learning (LLL). Today, in the advent of the Internet and its digital technologies, focus on LLL, online education and adult learning is more evident. ODL institutions in Malaysia have now reached the mainstream of education via lifelong learning through formal learning. Therefore, a major benefit of this research is to provide conclusive results, which are to be used to work towards successfully reducing student attrition at ODL institutions, and, in turn, increase their completion rates.*

## Introduction

As Malaysia transforms into an information and technology-driven and knowledge-based society to attain fully developed nation status by the year 2020, a highly-skilled and well-educated workforce is deemed critical in achieving this. The Malaysian education system has been reformed by the setting up of the Malaysian Qualification Agency (MQA) and the Malaysian Qualification Framework (MQF) to bring tertiary education in Malaysia to a higher standard and to ensure constant development of a highly educated, highly skilled professional workforce to transform Malaysia from the production-based economy to the knowledge-based economy. Fortunately for Malaysians, accessibility to higher education programmes through public and private universities and colleges offering full-time and part-time higher education are being provided so that Malaysians, both young and old, have the opportunity to acquire new skills and higher qualifications and LLL that will enable them to contribute and adapt towards global changes. This is clearly indicated in the Tenth Malaysia Plan, which is testimony to the Malaysian's government's commitment towards enhancing the capabilities of Malaysians through the human capital transformation agenda to support the growth of the knowledge based economy (10th Malaysia Plan 2011-2015). Other documents supporting the implementation of knowledge-driven academic programmes include the Enculturation Lifelong Learning for Malaysia blueprint 2011-2012, the Fourth Outline Perspective Plan or OPP4 (2011-2020), the Third Industrial Master Plan (2006 to 2015), Multimedia Super Corridor (MSC) Project and Malaysia's Vision 2020.

To ensure continuous manpower employability and marketability, Malaysian Higher Education Institutions (HEIs) are encouraged to improve the quality of higher education and expand the educational base to include adult learners, in line with technological advancements and industry demands. Due to this encouragement via the support from the Malaysia Ministry of Education, many adult learners participate to add value to their competencies. One such avenue that has the most number of adult learners is Open University Malaysia (OUM), which is offering degrees and diplomas right up to PhDs to adult students via open and distance learning (ODL). ODL appeals to Malaysians because of the weekend day-time classes, flexible lecture hours, low programme fee, convenient location of learning centres, wide choice of university learning centres, the proximity to home and familiar surrounding of people and neighbourhood (Santhi, 2009). In addition, courses offered by OUM are carefully designed for adult learners participating in part-time education via ODL with LLL notion in mind. With the knowledge that ODL provides an avenue to learn theories in a classroom environment as well as share practices and experiences gained at the workplace, the enrolment in OUM has been overwhelming. In just 11 years, the number of courses in OUM rose from 5 programmes with 753 students, to 80 programmes offered, with about 155,000 cumulative student enrolment (OUM Statistics, September 2014). Because the current economy requires a better-educated worker, and due to the increase in the use of technology in the workplace, adult learners are now seeking higher education (Burns, 2001). However, sadly, the attrition rate among these learners is also high. Nearly 30% of new learners enrolled in their first semester in OUM do not re-register for their second semester and nearly 10% do not re-register for their third semester. Research has indicated that ODL learners have a higher attrition rate than their counterparts in campus-based institutions (Brindley, 1985; Parker, 1995).

Learning via ODL has its own sets of problems: workload at the workplace, domestic and marital responsibilities at the family front, inability to cope with lessons and assignments, lack of learning skills, lack of confidence and motivation, cost and affordability, student support services, inaccessibility to online learning, time mismanagement, etc.

## Objective of the Study

The objective of this paper is to identify factors responsible for LLL learners' attrition studying in various programmes in an ODL environment.

## Research Questions

To achieve the study objective, the following research question is formulated:

- What are the factors (both controllable and uncontrollable factors) leading to learners' attrition in various programmes in an ODL setting?

## Significance of the Study

The main investigation carried out here is to identify factors responsible for undergraduate and postgraduate learner attrition in each programme. A major benefit and importance of this research is the prospective possibilities in which student attrition rate at the undergraduate and postgraduate level can be reduced, in turn, increase the rate of retention and completion.

## Literature Review

As universities reform to face local and global changes in human resource, the concept of ODL is becoming more popular (Santhi et al, 2005). ODL refers to education using learning resources, rather than attending face-to-face classroom sessions at a physical location, is the central feature of the learning experience (Commonwealth of Learning, 2003). This requires the learner to be responsible for his/her own learning and self-development, which in turn suggests a highly learner-centred philosophy.

The nature of ODL institutions allows learners to pace their studies based on their preferences, as such in this respect, the attrition figure may not essentially reflects the performance and quality of the institution (Latifah et al, 2009). Attrition was predominantly investigated from the institutional point of view as opposed to emphasis on learners' interest, thus it may not justly reveal the real motives of learners when they decide to discontinue their studies. Latifah et al (2009) notes that the institutions normally embark on reaching to their learners who had stepped aside from the system and encourage them to continue their studies but the institutions' enthusiasm is sometimes not matched by learners' enthusiasm.

A learner, who lacks enthusiasm or is not self-instructed, will find himself easily deterred from continuing his education. Hubble (2000), Rezabeck (1999), Nahdi (1999), Hansen (1999), Galusha (1998), Murphy & Terry (1998), Quigley (1998), Belzer (1998), Miller (1997), Scanlan & Darkenwald (1984), and others, have developed almost similar typologies or classification to identify what factors deter learners from continuing to participate in adult education. The deterrents classifications are situational, dispositional and institutional.

Situational and institutional are structural barriers, whereby the learners will find them beyond their control, as these barriers exist externally. Situational barriers includes lack of day care centres for the learners' children, lack of transportation, lack of family support for learning, health problems, financial or legal difficulties, and personal or family problems, which may not be under their control (Belzer, 1998). Institutional barriers are matters such as scheduling of classes, locations of programmes, and institutional red tape that may discourage participation or retention. Institutional barrier had the widespread support of researchers through their use of this categorization (Rezabeck, 1999; Garland, 1993; Brindley, 1988; Brookfield, 1986; Charner & Frazer, 1986; Darkenwald & Valentine, 1985; Scanlan & Darkenwald, 1984; and Thiel, 1984).

Dispositional deterrents describe barriers that are within the learner, such as fear of failure, unwillingness to try something new (Cross, 1981), lack of self confidence (Rezabeck, 1999), self-esteem and prior educational experience (Hubble, 2000). Quigley (1997) notes that dispositional barriers are the most significant for determining retention in any adult learning programmes. He adds that early identification of at-risk learners in a programme, with appropriate interventions, can significantly reduce drop-out rates and increase retention. "At-risk" learners here means, those learners who probably have the highest chance of dropping out in the first few critical weeks (Latifah & Mansor, 2007) by virtue of the dispositional barriers than others (Quigley & Kuhne, 1997). In Darkenwald & Merriam's (1982) study, the fourth deterrent was used: informational deterrent, arising from lack of information from faculty among learners regarding educational opportunities in the faculty and difficulty to accessing information from faculty staff.

In this study, informational deterrent is excluded since all information is uploaded in myVLE (My Virtual Learning Environment), the university's Learning Management System, and updated from time to time, as well as easily accessible via internet by all learners.

Thus, there are many deterrents to successful ODL – some might be new and many have plagued ODL since it was first conceived. Much literature too has been produced to explore student attrition in the higher education settings, which provides guidance as to possible factors that may influence attrition. Many factors have been considered to affect student attrition, and some of them are interrelated. Indeed, researchers view student departure as a process of interaction between individual students' characteristics, the academic environment and the social environment. The key factors identified are as listed below:

- Previous academic achievement

- First preference

- Quality of teaching

- Basis of entry

- Financial ability

- Family support

- Language background

- Mode of study

These aspects, as well as other references are taken into consideration in the construction and execution of the questionnaire.

## Methodology

This study applies an exploratory survey which integrates Scanlan & Darkenwald's (1984) Deterrents to Participation Scale (DPS) as the basis for this research framework. These established scales are applicable in a university setting, and its test-retest reliability and construct validity has been previously certified in countless other studies.

This research utilizes the quantitative research methodology involving a sample of working adults who had quit or have not re-registered in both undergraduate and postgraduate programmes in OUM. To obtain the responses from the respondents, the questionnaires were sent out to all the identified learners who quit from OUM programmes since January 2006 Semester as well as learners who did not re-register since January 2009 Semester up till January 2011 Semester. The online questionnaire was posted in Survey Monkey (https://www.surveymonkey.com/s/PGMWNTN) in 2011 for the respondents to answer online. Emails were sent out to all names in list. Respondents were given 3-4 weeks to complete the online questionnaire. In the survey, respondents were requested to rate their responses to several statements based on the Likert-type scale of 1 to 5; with 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly Agree). Higher scores indicate greater needs and greater deterrents. A total of 8251 learners who had quit or did not re-register (dormant) were requested to respond to the survey via an email sent to them on 17 September 2012. Reminder emails were sent again by batches on 9 October, 11 October, 21 October, 24 October and 31 October 2012 to trigger a better response rate among the population. The Centre for Student Management (CSM) assisted by contacting the learners who were yet to respond to the email reminder. A total of 340 (4.12%) responded. A total of 263 (2.92%) questionnaires were completed while 84 (1.03%) were partially filled. A total of 275 (3.33%) emails bounced back to sender.

It was suspected that many from the population would not be accessing their OUM emails as well as their alternative emails since quitting or not re-registering in OUM. A total of 263 valid responses (3.19% of return rate) were used. The survey sample covered all states in Malaysia.

## Data Analysis

### *Profile of Respondents*

This section begins with a demographic overview of the respondents. The total number of respondents was 340, however, only 263 actually completed the entire survey, which is 77.4%. Based on the finding it reveals that the highest qualification of the respondents before they entered into a programme at OUM is a diploma at 37.7%, consisting of 126 respondents. This is followed by respondents with SPM (equivalent to O-Level) or equivalent with 116 respondents, making up 34.7% of respondents. The first and second make up a large portion of the total respondents. This is followed by STPM (equivalent to A-Level) or equivalent at 40 (12%), 22 respondents with a Bachelors degree (6.6%), 10 respondents with a Masters degree (3%), and interestingly, 4 respondents already with a Doctorate (1.2%). The remainder of the respondents, making up 4.8% (16) categorized themselves in various qualifications, such as, certificate, foundation in science, executive diploma, matriculation, and polytechnic certificate.

Based on the research finding the current programme respondents were enrolled in at OUM, majority are from Bachelors programme at 77.2% (258), followed by Diploma at 15.6% (52), Masters at 4.8% (16), and PhD at 2.4% (8). Majority of the respondents (63) were registered in the Bachelor of Management, programme, followed by Bachelor of Business Administration, and Bachelor of IT. Others include various Bachelors in Multimedia Communication, Bachelor in Nursing Science, TESL, and Bachelors in Education.

The top three faculties in terms of number of respondents were FBM at 27.3% (91), followed by FITMC at 25.4% (85), and FEL at 20.4% (68). The other respondents registered under FST at 13.2% (44), CGS at 7.5% (25), FASS at 3.6% (12) and the least was from the former SONAHS, now FONAHS, at 2.7% (9).

Majority of the respondents were from Shah Alam, followed by Bangi, Petaling Jaya, Kota Kinabalu, Johore Bahru, Ipoh, Kuching, Melaka. The result also indicated a fairly even distribution of respondents from these Learning Centres.

The response indicated that 72.9% (221) were self-financed, with include the facility provided by KWSP. As for the others, 15.5% (47) took out a loan, while 5.9% (18) were on full scholarship, and 5.6% (17) had partial financial assistance of various forms.

The respondents' current status, 47.2% (143) are considered dormant, while 27% (84) have officially quit, and 25.1% (76) are currently considered inactive.

Interestingly, the finding shows that 62% (188) of the respondents plan to return to the programme, while 19.5% (59) were uncertain, and 18.5% (56) will not be returning to the programme.

Although a large percentage of the respondents plan to return, the result indicates that 36.8% (111) of them plan to switch into another programme, which a larger percentage at 41.1% (124) still plans to continue in the same programme. 22.2% (67) were uncertain.

Nearly all the respondents were Malaysians (99.7%) and that 64.4% are male, while the remaining 35.6% are female. This was followed by an indication that 70% (212) of the respondents were Malay, while 9.9% (30) were Chinese and 9.2% (28) were Indian. The 'Others' category, making up 10.9% (33) of the respondents, which included Kadazan, Bidayuh, Dusun and Iban.

Of these respondents, the study indicated 66.7% (202) were married, while 30.4% (92) were single and 3% (9) were divorced.

The respondents' occupation, as indicated by the research finding, showed that 26.6% (80) were non-executive/support staff, followed by executive that make up 18.6% (56), 11.6% (35) are of the technical background, and 10.6% (32) were teachers. The remaining respondents are self-employed at 7.3% (22), employed at managerial level at 5.3% (16), professionals at 4.7% (14), and 2.7% are unemployed. The 'Others' category included police, clerk, IT analyst, web developer, fire officer and safety and health officer.

Majority of the respondents are from the private sector at 51.5% (150) and the government sector at 36.8% (107). Importantly, the result shows that a large majority of the responses hold full-time and permanent positions at 88% (256), while 6.9% (20) are on contract, 3.6% (11) hold part-time positions, two retirees, and a freelancer.

In terms of English proficiency, the result reveals that 39.8% (119) consider themselves average in oral communications, while 35.5% (106) consider themselves fairly proficient, 10% (30) consider themselves to be very proficient. As for written proficiency, the responses seem to correlate with the oral communication proficiency as the percentages are almost the same.

As for proficiency in Bahasa Malaysia, majority at 51.5% (154) and 48.2% (144) indicated that they were very proficient in oral and written proficiency, respectively.

*Using Factor Analysis to Identify Factors Affecting the Rate of Attrition*

This part of the paper uses the factor analysis to identify important factors affecting the rate of attrition among OUM learners. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. A "high" value of alpha is often used (along with substantive arguments and possibly other statistical measures) as evidence that the items measure an underlying (or latent) construct. Before proceeding into the analysis, we check the reliability of the instrument use. From table 1, the Cronbach's Alpha is 0.961 for the total 60 items. This indicates that the instrument is highly reliable and therefore can be use further analysis.

**Table 1:** Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|:---:|:---:|:---:|
| .961 | .963 | 60 |

The **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** measure varies between 0 and 1, and values closer to 1 are better. In this study, the KMO has a value of 0.908, which is much higher than the suggested minimum value of 0.6. Hence, the sample is more than adequate to conduct the factor analysis. Result of the **Bartlett's Test of Sphericity**, which tests the null hypothesis that the correlation matrix is an identity matrix is highly significant; hence, we reject this null hypothesis. Taken together, both these tests have provided the minimum standard for us to proceed with the factor analysis (or a principal components analysis).

**Table 2:** KMO and Bartlett's Test

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .908 |
|:---|:---|---:|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 12277.619 |
| | Df | 1770 |
| | Sig. | .000 |

*Factor Extraction*

Appendix 1 lists the eigenvalues associated with linear component (factor or variable) before extraction, after extraction and after rotation. The eigenvalues associated with each factor represent the variance explained by that particular linear component. The first component, for instance, has an eigenvalue of 20.20; and this factor alone explains 33.667% of the total variance. It should be clear that the first few factor; explain relatively large amounts of variance (especially factor 1); whereas subsequent factors explain only small amounts of the total variance.

Before extraction, there were 60 linear components within the data set. In this analysis, we chose to extract all factors with eigenvalues greater than 1. Hence after extraction, we obtained 13 factors. The interpretability of the extracted factors was further enhanced through rotation. Rotation optimizes the factor structure, where the relative importance of the 13 factors was equalized. In this case we use the varimax method of rotation. Results of the rotation are shown in the last three columns of Appendix 1. Notice that after extraction and rotation, Factor 1 explained 12.025% of the total variance, Factor 2 10.584%, and so on until Factor 13. Cumulatively, the 13 factors extracted explained 72.414% of the total variance.

## Discussion

The factor loadings are represented in the rotated component matrix (Appendix 2). These factor loadings are important in the interpretation of the factors. This is done by looking at the content of questions that load onto the same factor and identifying common themes. Assuming that the analysis represents some real world construct, then the common themes among highly loading questions can help us identify what the construct might be. The 13 factors extracted are discussed below.

*FACTOR 1: Institutional Barriers – Management of Assessment Practices*

From Appendix 2 and as reproduced in Table 3a, the questions that load highly on Factor 1 were mainly in the category called institutional barriers which are related to the management of assessment practices. The major issue appears to be the constant change in the assessment formats, both assignment and final examination. The learners also highlighted the delays in releasing examination results as well as posting of examination timetable.

The difficulty of submitting assignment was also highlighted. Three questions about quality of course materials, which happen to be in the institutional barriers category, were also loaded onto this factor.

**Table 3a:** Management of Assessment Practices

| |
|---|
| IB-A1 Constant change in the examination format |
| IB-A2 Constant change in the assignment format |
| IB-A3 Constant change in examination timetable |
| IB-A4 The delay in releasing the semester's examination results |
| IB-A5 The delay in posting the examination timetable |
| IB-A6 The examination timetable is not suitable |
| IB-A7 Difficulty in submitting assignment via MyVLE |
| IB-CM8 The course materials contain a lot of mistakes |
| IB-CM9 The course materials were often not available |
| IB-CM10 The course materials were not of quality |

*FACTOR 2: Institutional Barriers – Support Services*

The second factor extracted from the analysis also originated from the institutional barriers category (Table 3b). This factor points out that the quality of support services did contribute significantly to the attrition/inactive rate among learners. Poor administrative and academic support, lack of information and slow responses to complaints were some of the reasons that lead to attrition or inactivity.

**Table 3b:** Support Services

| |
|---|
| IB-S1 Poor administrative support |
| IB-S2 Lack of information from Learning Centre |
| IB-S3 No or slow response given for the enquiries/complaints |
| IB-S4 Lack of information from Main Campus (eg. Finance or Examination Unit) |
| IB-S5 Poor academic support |
| IB-S6 The institutional procedures are difficult to follow |
| IB-S7 No flexibility given in fees payment |
| IB-CM8 The course materials were difficult to understand |

*FACTOR 3: Dispositional Barriers – Leaner's Capacity to Study*

As shown in Table 3c, the respondents, however, did admit that they also contributed to incidence of attrition or inactivity. This is categorised as dispositional barriers. This factor concerns with the inability of the learners to cope with their studies. They felt they could not keep up with their studies, particularly, when they compare their capability with those of their fellow learners. The lack of self-confidence and the fear of failure tend to lead them to drop out of the programme.

**Table 3c:** Learner's Capacity to Study

| |
|---|
| DB1 Cannot keep-up with other learners |
| DB2 Lack of self-confidence |
| DB3 Fear of failure |
| DB4 Lack of support from fellow learners |
| DB5 Poor time management |
| DB6 Uncomfortable with ICT technology |
| DB7 Programme is irrelevant to my career |
| DB8 Unable to cope with the number of courses taken |
| DB9 No support from family members |

*FACTOR 4: Institutional Barriers – Tutoring and Facilitating*

The fourth factor that contributed to the attrition/inactivity points back to the institutional barriers. The questions that load highly on this factor relate to the quality of persons involved directly in delivering the services to the learners (Table 3d). Not only the respondents felt that the tutors/facilitators lacked the proper knowledge, they also believed that the tutor/facilitators were not well-prepared, responded very slowly, not approachable and inexperienced.

**Table 3d:** Delivery Practices – Tutoring and Facilitating

| |
|---|
| IB-D1 The tutor/facilitator was not knowledgeable |
| IB-D2 The tutor/facilitator was not well prepared |
| IB-D3 The tutor/facilitator's responsiveness was very slow |
| IB-D4 The tutor/facilitator was not approachable |
| IB-D5 The tutor/facilitator was inexperienced |
| IB-P6 The programme was not of quality |

*FACTOR 5: Institutional Barriers – Facilities*

As can be gleaned from Table 3e, another institutional barrier that was extracted from the Factor Analysis centred on the questions regarding facilities. Availability of computing facilities, poor conditions of the library at learning centres, poor conditions of computer laboratory and classrooms were cited as reasons for attrition or inactivity.

**Table 3e:** Facilities

| |
|---|
| IB-F1 Not enough computers available at the LC |
| IB-F2 The poor condition of the library at the Learning Centre(LC) |
| IB-F3 The poor condition of the computer labs |
| IB-F4 The poor condition of the classrooms |
| IB-F5 Not enough materials available in the library at the LC |

*FACTOR 6: Institutional Barriers – Programmes' Intensity*

Table 3f shows yet another institutional barrier that contributed to attrition and inactivity. The learners who were dormant or inactive felt that the programmes were too tough for them; perhaps tougher than what they expected before enrolling into the programmes. They felt that the assignments were too demanding and too time-consuming.

**Table 3f:** Programmes' Intensity

| |
|---|
| IB-P1 The programme was too demanding in terms of assignment |
| IB-P2 The programme was too demanding in terms of time |
| DB3 Unable to cope with the assignment(s) |
| IB-P4 The programme was too tough/difficult |

*FACTOR 7: Situational Barriers – Learning Environment and Time Management*

Questions reflecting situational barriers were highly loaded to Factor 7 (Table 3g). The respondent believed that the environment at the office and at home was not conducive for learning. As expected, work requirement and family commitment consumed most of their time.

**Table 3g:** Learning Environment and Time Management

| |
|---|
| SB1 Poor learning environment at office |
| SB2 Poor learning environment at home |
| SB3 Lack of time due to work requirement |
| SB4 Lack of time due to family commitment |

Looking back at Appendix 1, the seven factors above explained 54.336% of the total variance, whereas the next six factors as listed below, explained 18.078%. The factors that may explain why learners decided to remain dormant or inactive include health problem, transportation and location of learning centres, financial problems, timetabling of tutorial and seminar, and accessibility of the learning management system.

*FACTOR 8: Dispositional Barriers – Health Problem*

| |
|---|
| DB1 Unexpected health problems |
| SB2 Health problems |
| DB3 Unexpected personal problems |

*FACTOR 9: Situational Barriers – Transportation and Location*

| |
|---|
| SB1 Transport problems |
| SB1 Inconvenient location of the Learning Centre |
| IB-P3 The programme was not yet accredited |

*FACTOR 10: Situational Barriers – Financial Problem*

| |
|---|
| SB1 Financial constraints |
| IB-P2 The programme fees were too expensive |

*FACTOR 11: Dispositional Barriers – Tight Schedule*

| DB1 Too many activities in my schedule |
| --- |

*FACTOR 12: Institutional Barriers – Timetable*

| IB-T/S1 The tutorial/seminar timetable was not suitable |
| --- |
| IB-T/S2 Constant change in tutorial/seminar timetable |
| IB-T/S3 The delay in posting the tutorial/seminar timetable |

*FACTOR 13: Institutional Barriers – myVLE*

| IB-F1 The myLMS/ myVLE was difficult to access |
| --- |
| IB-F2 The myLMS/ myVLE was less user-friendly |

In the above analysis, we retained the factors which have eigenvalues of more than one. Thirteen factors were retained. Another rule of thumb regarding the number of factors to be retained is to look at the scree plot, as shown in Appendix 3. Using the scree plot, we may retain all factors before the breaking point or elbow. This curve is a bit difficult to interpret because the curve begins to tail off after five factors, but there is another drop after six factors before a plateau is reached. We could justify retaining either four or six factors.

## Conclusion

Concluding the discussion on this section, we found that the major factors leading to learners' attrition or inactivity were mainly due to institutional barriers; these include the institution's management of assessment practices, the quality of support services and the ability of the tutors and facilitators to deliver effectively. On the part of the learners, the main factor was their capacity to cope with the programmes' requirement.

## References

Belzer, A. (1998). *Stopping Out, Not Dropping Out. Focus on Basics*. Cambridge, MA: Harvard.

Brindley, J. E. (1985). Completion and attrition in distance education: The learner's perspective. Paper presented at the 13th annual International Council for Distance Education World Conference, Melbourne.

Brindley, J. E. (1988). A model of attrition for distance education, In J. S. Daniel & D. Stewart, *Developing Distance Education* (pp.131 -137). Oslo, Norway: International Council for Distance Education.

Brookfield, S. D. (1986). *Understanding and Facilitating Adult Learning: A Comprehensive Analysis of Principles and Effective Practices*. San Francisco: Jossey-Bass.

Burns, L. (2001). *When Mothers Become students: Impact on Children and the Family System.* Alliance/ACE Conference Proceedings, Austin, Texas.

Charner, I., & Fraser, B. (1986). *Different strokes for different folks: Access and barriers to adult education and training*. Washington, D.C.: National Institute for Work and Learning.

Cross, K. P. (1981*). Adults as Learners: Increasing Participation and Facilitating Learning*. San Francisco, CA: Jossey-Bass, Inc.

Darkenwald, G. G., & Merriam, S. (1982). *Adult education: Foundations of practice.* New York: Harper & Row.

Darkenwald, G. G & Valentine, T. (1985) Factor structure of deterrents to public participation in adult education. *Adult Education Quarterly*. 35. 177-193.

Galusha, J. M. (1998). *Barriers to learning in distance education.* Retrieved on 15 August 2009 from http://ehostvgw15.epnet.com/

Garland, M. (1993). Student perceptions of the situational, institutional, dispositional and epistemological barriers to persistence. *Distance Education* 14 (2): 181-98.

Hansen, M. F. (1999). *Deterrents to Participation in Educational Activities by Michigan Farmers*. Ph. D Thesis. Michigan State University.

Hubble, J. (2000). *Intake Procedures as a Factor in Identifying Addressing Barriers of Adult Education Students*. Southwest Texas University. (ERIC Document Reproduction Service No. Ed. 443982).

Latifah Abdol Latif, & Mansor Fadzil. (2007). *Retention initiatives at Open University Malaysia: Past, present and future.* Paper presented at 21st Annual AAOU Conference, Putrajaya.

Latifah Abdol Latif, Sumalee Sungsri & Ramli Bahroom. (2009). Managing Retention in ODL Institutions: A Case Study on Open University Malaysia and Sukhothai Thammathirat Open University. *ASEAN Journal of Open and Distance Learning*. Vol. 1 No. 1.

Malaysia Government. (2001). *The Third Outline Perspective Plan 2001-2010*. Government Press, Malaysia.

Malaysia Government. (2006). Ninth *Malaysia Plan 2006-2010*. Government Press, Malaysia.

Miller, G. (1997). Usefulness of the Iowa Communications Network for Delivery Instruction in Secondary Agriculture Programs. *In Encyclopedia of Distance Education Research in Iowa*. 2nd Edition. Edited by N. J. Maushak, M. Simonson, and K. E. Wright. Pp 63-68. Ames: Iowa Distance Education Alliance. (ED 409 001)

Murphy, T. H., and Terry, H. R., Jr. (1998). Faculty needs associated with agricultural distance education. *Journal of Agricultural Education.* Vol 39. No. 1: 17-27.

Nahdi, H. B. (1999). Utilization of Distance Learning Technology among Industrial and Technical Teacher Education Faculty. *Journal of Industrial Teacher Education*. Vol.36. No. 4 (Summer) Pp. 21-37.

Parker, A. (1995). Distance education attrition. International Journal of Educational Telecommunications, 1(4), 389-406.

Quigley, B. A. (1997). *Rethinking literacy education: The critical need for practice-based* change. San Francisco: Jossey-Bass.

Quigley, B. A. & Kuhne, G. (1997). "Creating practical knowledge: Posing problems, solving problems and improving daily practice through action research". *New Directions for Adult and Continuing Education Series No. 73.* San Farncisco, CA: Jossey-Bass.

Quigley, B. A. (1998). The first three weeks: A critical time for motivation. *Focus on Basics.* Retrieved on 18 July 2009 from www.gse.harvard.edu/~ncsall/fob/1998/quigley.htm

Rezabek, R. (1999). *Barriers to distance education enrollment*. Presented at TeleLearning Conference. October. Austin, TX.

Santhi Raghavan, Shamsuddin Ahmad, Bahaman Abu Samah & Azizan Asmuni. (2005). *What Turns Malaysian Workforce On to Open and Distance Education: Research Describing Needs to Participate.* National Conference on HRD: HRD Practices and Directions for A Developed Malaysia, Putrajaya, Malaysia.

Santhi Raghavan. (2009). Malaysian Workforce And Open & Distance Education: Deterrents Affecting Needs To Participate. Paper presented at The Asian Conference on Education 2009, Osaka, Japan.

Scanlan, C. L and Darkenwald, G. G. (1984). Identifying deterrents to participations in continuing education. *Adult Education Quarterly*. 34, 155-166.

The Commonwealth of Learning. (2003). Tutoring in Open and Distance Learning: A Handbook for Tutors. Vancouver, Canada.

Thiel, K. (1984). *The gaps between needs and services for adult students in higher education,* (ERIC Document Reproduction Service No. *251619)*.

## Appendix 1: Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 20.200 | 33.667 | 33.667 | 20.200 | 33.667 | 33.667 | 7.215 | 12.025 | 12.025 |
| 2 | 4.983 | 8.305 | 41.973 | 4.983 | 8.305 | 41.973 | 6.351 | 10.584 | 22.610 |
| 3 | 2.635 | 4.391 | 46.364 | 2.635 | 4.391 | 46.364 | 4.762 | 7.936 | 30.546 |
| 4 | 2.256 | 3.759 | 50.123 | 2.256 | 3.759 | 50.123 | 4.679 | 7.798 | 38.344 |
| 5 | 2.079 | 3.464 | 53.588 | 2.079 | 3.464 | 53.588 | 4.146 | 6.911 | 45.255 |
| 6 | 2.047 | 3.412 | 56.999 | 2.047 | 3.412 | 56.999 | 3.006 | 5.011 | 50.265 |
| 7 | 1.748 | 2.913 | 59.913 | 1.748 | 2.913 | 59.913 | 2.442 | 4.070 | 54.336 |
| 8 | 1.569 | 2.616 | 62.528 | 1.569 | 2.616 | 62.528 | 2.177 | 3.628 | 57.964 |
| 9 | 1.392 | 2.321 | 64.849 | 1.392 | 2.321 | 64.849 | 2.075 | 3.458 | 61.422 |
| 10 | 1.259 | 2.098 | 66.947 | 1.259 | 2.098 | 66.947 | 1.853 | 3.088 | 64.510 |
| 11 | 1.168 | 1.946 | 68.893 | 1.168 | 1.946 | 68.893 | 1.836 | 3.061 | 67.571 |
| 12 | 1.065 | 1.775 | 70.668 | 1.065 | 1.775 | 70.668 | 1.547 | 2.578 | 70.148 |
| 13 | 1.048 | 1.746 | 72.414 | 1.048 | 1.746 | 72.414 | 1.360 | 2.266 | 72.414 |

## Appendix 2: Rotated Component Matrix

| | Component | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| IB A1 | .839 | | | | | | | | | | | | |
| IB A2 | .822 | | | | | | | | | | | | |
| IB A3 | .787 | | | | | | | | | | | | |
| IB A4 | .733 | | | | | | | | | | | | |
| IB A5 | .728 | | | | | | | | | | | | |
| IB A6 | .716 | | | | | | | | | | | | |
| IB A7 | .678 | | | | | | | | | | | | |
| IB CM8 | .575 | | | | | | | | | | | | |
| IB CM9 | .486 | | | | | | | | | | | | |
| IB CM10 | .485 | | | | | | | | | | | | |
| IB S1 | | .825 | | | | | | | | | | | |
| IB S2 | | .820 | | | | | | | | | | | |
| IB S3 | | .789 | | | | | | | | | | | |
| IB S4 | | .775 | | | | | | | | | | | |
| IB S5 | | .762 | | | | | | | | | | | |
| IB S6 | | .623 | | | | | | | | | | | |
| IB S7 | | .503 | | | | | | | | | | | |
| IB CM8 | | .451 | | | | | | | | | | | |
| DB 1 | | | .783 | | | | | | | | | | |
| DB 2 | | | .765 | | | | | | | | | | |
| DB 3 | | | .724 | | | | | | | | | | |
| DB 4 | | | .710 | | | | | | | | | | |
| DB 5 | | | .643 | | | | | | | | | | |
| DB 6 | | | .619 | | | | | | | | | | |
| DB 7 | | | .533 | | | | | | | | | | |
| DB 8 | | | .489 | | | | | | | | | | |
| DB 9 | | | .338 | | | | | | | | | | |
| IB D1 | | | | .817 | | | | | | | | | |
| IB D2 | | | | .807 | | | | | | | | | |
| IB D3 | | | | .762 | | | | | | | | | |
| IB D4 | | | | .755 | | | | | | | | | |
| IB D5 | | | | .726 | | | | | | | | | |
| IB P6 | | | | .445 | | | | | | | | | |
| IB F1 | | | | | .819 | | | | | | | | |
| IB F2 | | | | | .772 | | | | | | | | |
| IB F3 | | | | | .756 | | | | | | | | |
| IB F4 | | | | | .696 | | | | | | | | |
| IB F5 | | | | | .674 | | | | | | | | |
| IB P1 | | | | | | .752 | | | | | | | |
| IB P2 | | | | | | .704 | | | | | | | |
| DB 3 | | | | | | .605 | | | | | | | |
| IB P4 | | | | | | .545 | | | | | | | |
| SB 1 | | | | | | | .780 | | | | | | |
| SB 2 | | | | | | | .768 | | | | | | |
| SB 3 | | | | | | | .564 | | | | | | |
| SB 4 | | | | | | | .500 | | | | | | |
| DB 1 | | | | | | | | .818 | | | | | |
| SB 2 | | | | | | | | .796 | | | | | |
| DB 3 | | | | | | | | .606 | | | | | |
| SB 1 | | | | | | | | | .728 | | | | |
| SB 2 | | | | | | | | | .662 | | | | |
| IB P3 | | | | | | | | | .557 | | | | |
| SB 1 | | | | | | | | | | .754 | | | |
| IB P2 | | | | | | | | | | .610 | | | |
| DB 1 | | | | | | | | | | | .673 | | |
| IB T/S1 | | | | | | | | | | | | .564 | |
| IB T/S2 | | | | | | | | | | | | .529 | |
| IB T/S3 | | | | | | | | | | | | .484 | |
| IB F1 | | | | | | | | | | | | | .618 |
| IB F2 | | | | | | | | | | | | | .549 |

**Appendix 3**



Scree Plot