Knowledge Management Mechanisms for Attrition Control in Private Higher Learning Institutions

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ABSTRACT

Private Higher Learning Institutions (PHLI) are concerned about student attrition because the cost related to the delivery of education is sensitive to the student enrolment. While mentoring is a useful approach for attrition control, such systems are often not well established in PHLI due to high turnover of lecturers who play the role of mentors and are also attributed to weak institutional follow-through. Apropos Knowledge Management (KM) mechanisms can help to equip the mentors with the requisite capabilities, as well as, facilitate the reinforcement of the institutional network and commitment to effectively deal with attrition. Consequently, the paper outlines a systematic approach for implementing an organised array of KM mechanisms for attrition control in PHLI. Our proposal is based on case studies involving two PHLI in Malaysia, analysed according to exemplar student integration and attrition models, and espouses intervention strategies through a mentoring program.

Keywords: Knowledge Management Mechanisms; Attrition Control Strategies; Mentoring Program; Higher Learning Institution.

I   INTRODUCTION

The Private Higher Learning Institutions (PHLI) in Malaysia encompass private universities, university colleges, colleges, foreign university branch campuses and distance learning centres (Ministry of Higher Education, 2007), and are in competitive state gaining numbers of students recruited into the institutions.

Student attrition is a real concern of PHLI. Student attrition occurs when a student leaves an institution citing financial, personal matters, academic, lack of support from the institution. Student attrition is expensive since access to higher education and the resulting private and public benefits are undermined when students do not achieve their educational objectives (Schuetz, 2005).

For an individual learner, attrition means a lost opportunity to enhance his level of personal and career development. Involuntary withdrawal because of academic failure or inability to cope with the demands of the educational system lowers self-confidence and self-esteem and likely represents a negative impact to the students.

For an institution, attrition is frequently cited as a critical factor in assessing the cost-effectiveness of the learning institutions (Tyler-Smith, 2006). Attrition is considered a waste of university resources, especially in an environment of limited financial and general resources. It also represents a loss of revenue as well as potentially damages its image and reputation, creating long-term implications for attracting new students (Ozga and Sukhnandan, 1998). Accordingly, it is far more cost effective for a PHLI to retain students that have been admitted than to recruit new ones (Taylor, 2005).

Studies have shown that student retention can be increased and academic achievement can be upheld through the setting up of a mentoring program in HLI (Leung and Bush, 2003). Mentoring programs are generally introduced in PHLI to provide appropriate guidance that meets the students' satisfaction. The mentoring systems are often not well set up in PHLI due to the high turnover of lecturers who play the role of mentors (Suraya and Azah, 2005). The ineffective establishment of the mentoring systems is also attributed to weak institutional follow-through. New mentors have little knowledge as to how to carry out attrition control, and often need to self-learn, whether rightly or wrongly.

Therefore, we propose to adopt the Knowledge Management (KM) approach and recommend apropos KM mechanisms to equip the mentors with the requisite capabilities, as well as to reinforce the institutional network and commitment to effectively deal with attrition. KM mechanisms are social and structural means to facilitate the knowledge activities (e.g. attrition control) in an organisation (Becerra-Fernandez et al, 2004).

Consequently, the paper outlines a systematic approach for implementing an organised array of KM mechanisms for attrition control in PHLI. Our proposal is based on case studies involving two

PHLI in Malaysia, which are analysed according to exemplar student integration and attrition models. The proposal espouses intervention strategies through a mentoring program.

The paper is organised as follows. In section II, we mention about the case studies that served as the source of our primary data, and describe the research method that we employed to gather and analyse the data. In section III, we discuss the related works. The attrition control models and strategies that serve as the basis for analysing the mentors' responsibilities and the attrition control tasks are explained. The relevant KM concepts are also briefly described in here. In section IV, we discuss the case study findings. In section V, we present the recommended KM mechanisms for attrition control based on the analyses on the knowledge needed to support the attrition control tasks and mentors' responsibilities. We also propose an implementation framework to stage the recommended mechanisms. Finally, we conclude in section VI.

II DATA GATHERING AND ANALYSIS

We followed a mixed method to gather and analyse the research data. Such triangulation approach is generally used for gathering qualitative data.

The primary data is based on observation and semi-structured interviews carried out at two PHLI, which we call INST_A and INST_B. The institutions will remain unnamed for the sake of confidentiality. These institutions were selected because they acknowledge the need to overcome the problem of institutional attrition, i.e., their students are leaving to another institution to continue their study. Moreover, the third author of this paper has access to the sources of knowledge in these institutions. The secondary data is obtained from documents and literature reviews.

Observation. Data is gained by observing the attrition control tasks carried out by mentors in the PHLI. We also took note of the existing attrition control strategies employed in these institutions and the knowledge sources and resources referred to by the mentors.

Semi-structured interviews. Three different groups of mentors, namely the new mentors, the experienced mentors and the academic administrators were interviewed to learn about their attrition control experience and to distinguish the attrition control tasks of the mentors in the different groups.

Document reviews. Resources related to the attrition control tasks such as meeting notes and activity forms were gathered and reviewed to understand the nature of knowledge shared in the institutions to support the mentors carrying out the attrition control tasks.

Literature reviews. We simultaneously reviewed previous researches on attrition control. In the process, we identified the relevant attrition models and applicable intervention strategies. The models and strategies (discussed in section III) helped us to support the organisation of the case study findings.

Strauss and Corbin (1990) pointed that the qualitative data gathering and data analysis are tightly interwoven, and occur alternately; the gathered data are analysed, and the analysis directs the further sampling of data. Therefore, the data gathering in the PHLI was conducted in two phases.

In the first phase, the attrition control tasks of experienced mentors in INST_A were observed. The mentors in the institutions were later interviewed to understand how different groups of mentors in INST_A dealt with attrition control. The preliminary study helps to uncover the some of the mentoring issues related to attrition control. The observations, interviews and documents review gathered in this phase directed us to look for additional information.

We embarked on a second phase of data gathering in INST_B. The data collected from INST_B helped to enrich the data gathered earlier from INST_A. The similarity and the differences of the approaches taken to control attrition in INST_A and INST_B, and backed by literature reviews, we determined the attrition control tasks and mentors' responsibilities (detailed in Table 3).

Next, we analysed the knowledge sources and resources that can be exploited to support the attrition control tasks. Finally, we reflected on the KM processes associated with these tasks to recommend suitable KM mechanisms that can facilitate the knowledge conversion involving those processes. The recommended KM mechanisms for attrition control are detailed in Table 3.

III RELATED WORKS

A. Attrition Control Models and Strategies

Tinto's Student Integration Model (Tinto, 1993) is the dominant model amongst the reviews in attrition research. The model extends his principles of attrition control (Tinto, 1975) that backs the three rites of passage stages namely, a) Separation (from family support), b) Transition (recognition of new values and behaviours), and c) Incorporation (adaption to a new set of values and behaviours). Tinto posits that attrition occurs when a student's rites of passage is incomplete.

Tinto's SIM underscores that the academic and social experiences are integrated and advocates that

a student's intentions, his goals, and his institutional and external commitments ought to be revisited once the student has gone through the academic and social experience in the learning institution. The model, which can serve as the basis for institutional action to overcome the attrition problem, urges institutional commitment to attrition control through academic advising.

Upholding Tinto's principles of attrition control, Bean and Metzner's proposes a Student Attrition Model (SAM) (Bean and Metzner, 1985) that attributes attrition to the following factors that affect a student's grades, commitments and fitness: a) Academic factors (academic performances and readiness), b) Social-psychological factors (student's goals setting and fit into social and academic expectations), c) Environmental factors (financial, external influences and opportunities). This attrition model contributed to the improvement of Tinto's SIM, which assigns the causes of student attrition summarised in Table 1.

Table 1. Attrition Causes (Tinto, 1992; Bean and Metzner, 1985)

Attrition Causes	Description
Academic difficulties	Inability or unwillingness to meet the minimum academic standards set by the institution because of insufficient academic skills.
Adjustment difficulties	Inability to make the adjustment to the academic and the social life, which for most is transitory.
Unclear or changing goals	Low extent of vision and commitments to the goal of college completion.
Uncertainty	Vague notions of education purpose and no clearly formulated educational and career goals.
Weak commitments	Low amount and impersistence of effort and commitment to the goal of college completion.
Poor integration	Ineffectual academic and social experience that hampers integration into the life of the college and lessens attachments and commitments to the goal of education and to the institution.
Lack of fit (academically and socially)	Evaluation of the manner and degree to which the social and intellectual life of the institution serves self interest and needs, which leads to mismatch or irrelevancy.
Isolation (from academic/ social environment)	Lack of interaction between self and other members of the institution.
Financial inadequacies	Lack of financial support and assistance needed to college completion.

By also maintaining Tinto's principles of attrition control, Gabb et al. proposed nine intervention activities aimed at improving retention in HLI (Gabb et al, 2006). The intervention activities are:

1) Improving academic advisory services,
2) Recruiting with integrity,
3) Paying particular attention to the early stages of courses offered to the students,
4) Tutoring which is focused on student progress,
5) Monitoring and follow up poor attendance,
6) Early identification of under-performing students or students, who are at risk provided with early feedback and action,
7) Early diagnosis of student requirements for basic skills and provision of appropriate support,
8) Improving student motivation, and
9) Improvements to teaching.

We regard the intervening activities that aim to improve retention as fitting attrition control activities (as indicated in the first column of Table 3). These attrition control activities served as the basis for our primary data gathering and analyses.

Previous studies that explored the issues affecting student attrition have indicated that mentoring positively contributes to students' persistence. Since the attrition control activities are seen as integrated transition program (Tinto, 1993), we concur that it can be facilitated through an institution's mentoring program. As a reference, we considered Miller's effective mentoring program for HLI students (Miller, 2002). The seven stages of the mentoring program are described in Table 2.

Table 2. Effective Mentoring Program (Miller, 2002)

Stages	Description
Pre-planning	Committing to develop the mentoring program, determining the program's basic criteria and recruit the support staff.
Mentor and mentee recruitment and selection	Setting the criteria for mentors and mentees selection to be involved in the mentoring program, and getting them to participate in the program; Agreeing to the program's objectives and outcomes.
Preparation of mentors and mentees	Mentors attending training sessions and meeting up experienced mentors to build up their mentoring skills. Setting objectives and creating agreements as per the needs of both mentors and mentees.
Matching mentees and mentors	Finding the right skilled or experienced mentors and matching each mentor with the right mentee as per the mentee's needs, desires and personality.
Mentoring meetings	Involving ongoing support by mentors: mentor supervision and monitoring mentee achievements.

Stages	Description
Ending	Preparing the closure of the mentoring event and gathering data on the outcomes of the project against its objectives (assessing the quality of the program and how it can be improved).
Evaluation and quality review	Integrating the mentors' and mentees' input into the process for future mentoring programs as part of continuous quality improvement.

B. KM Processes and KM Mechanisms

The four key organisational KM processes are Discovery, Capture, Sharing and Application of knowledge (Becerra-Fernandez et al, 2004), involving knowledge conversion subprocesses such as Socialisation, Externalisation, Combination and Internalisation (Nonaka, 1994). The idea behind these KM processes and subprocesses is for the organisation to create and build up its knowledge sources and resources and make them accessible and/ or available wherever and whenever they are needed through a variety of KM mechanisms.

KM mechanisms are social and structural means to facilitate the knowledge activities involving the KM processes and subprocesses in order to get the most out of knowledge sources and resources. Examples of KM mechanisms facilitating the Socialisation subprocess that relates to knowledge creation and sharing are *on-the-job training*, *learning by observation* and *face-to-face meeting*.

We intend to supplement the mentoring effort with suitable KM mechanism for controlling attrition in PHLI. For example, new mentors may gain important attrition control knowledge from experienced mentors via mechanisms such as *training* and *consultation*. Similarly, mechanisms established by the institution to *exchange* documents could benefit the mentors in providing quick and easy access to the knowledge needed for relevant student care in attrition control.

IV   MAIN FINDINGS AND DISCUSSION

Both institutions are concerned about attrition reduction and have set up strategic means to control attrition. They aim to achieve positive academic and social environment for their students.

INST_A supports its students on track towards achieving their academic goals. Its Course Appraisal system allows the institution to retrieve the course appraisal reports completed by students apart from the feedback given to the course tutors. The Feedback system and the Online Helpdesk provide alternative ways for students in this institution to reach for help when required. Mentors are engaged to deal with attrition when needs arise. Using these support systems, the institution

becomes aware about the students needs and areas for improvement.

INST_B provides pastoral cares apart from student services. Students are assigned mentors from the time of their enrolment. The mentors follow up with necessary actions to deal with the academic related issues that affected their students under their care. Three attrition control activities are enacted in this institution, namely, Monitoring and following up poor attendance, Identifying underperforming students and Tutoring on students' progress. Activity forms are filled by the mentors after meeting the students to write down the academic advisory provided to the students, feedback obtained from them and their progressing status. The tutored students are classified under one of three (A, M or Q) categories. For example, students who are identified to have withdrawal potentials are graded Q, and are followed up by the institution's administration.

It is commonly observed that attrition occurs when students are under-prepared or incur financial problem. The under-prepared students also tend to lack the necessary communication skills. As a result, they do not know how to seek for the right assistance when faced with adjustment difficulties. Similarly, students who faced financial inadequacies tend to have negative attitude about their own future and are more likely to withdraw from the institution. KM mechanisms are needed to connect these students with academic support and/ or with financial facilitators.

Both PHLI acknowledge that new mentors can learn much from the experienced mentors to effectively deal with attrition control. KM mechanisms that allow mentors to gain the requisite experiential knowledge are necessary. Applicable KM mechanisms are also needed that can guide the appropriate use of the shared knowledge.

V   RECOMMENDED KM MECHANISMS AND THE IMPLEMENTATION FRAMEWORK

From the analysis of the case study findings, a model arrangement for attrition control in the context of a mentoring program in PHLI can be envisaged.

In the second column of Table 3, we summarise the attrition control tasks that constitute the attrition control activities and the responsibilities of mentors. In listing the tasks, we also drew ideas from numerous studies that explored the issues affecting student attrition (Lettman, 1986; Picklesimer and Miller, 1998; Wilson et al, 1999, Cuseo, 2003; Fry et al, 2003; Grayson and Grayson, 2003; Pascarella and Terenzini, 2005; Tinto and Pusser, 2006; Morda et al, 2007; Sweeny, 2008). The attrition control

tasks targeted at students are listed under the heading STUDENTS, while those targeted at mentors and institution are listed under the heading MENTORS/ INSTITUTION.

Next, we reflected on the KM processes related to the knowledge conversion involved in the performance of the attrition control tasks, based on which we provide an array of KM mechanisms to deal with attrition in the last column of Table 3.
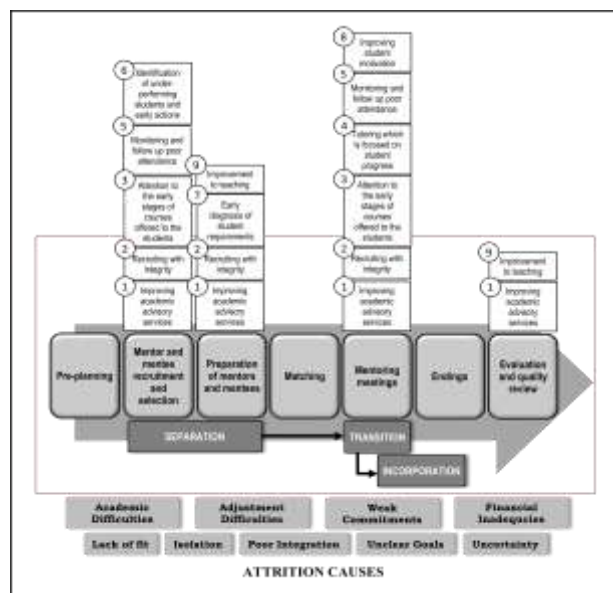

Figure 1. Implementation Framework Highlighting Specific Mentoring Program Stages Supporting the Attrition Control Activities

We also propose an implementation framework (see Figure 1) to stage, monitor and evaluate the KM mechanisms associated with each of the attrition control activities. The improved SIM (Tinto, 1993; Bean and Metzner, 1985) serves as the basis for institutional action, and the attrition control activities (originally recommended by Gabb et al, 2006) are incorporated within an institution's mentoring program. Accordingly, we analysed the attrition control tasks and activities in the context of Miller's mentoring program (Miller, 2002) to identify the possible intervention points to stage the attrition control activities.

The implementation framework illustrates the positioning of the attrition control activities in relation to the attrition causes (Tinto, 1993; Bean and Metzner, 1985) and the rites of passage inclusive of the principles of attrition reduction (Tinto, 1975). In particular, the framework suggests that the attrition control tasks can be executed as part of the attrition control activity that constitutes the tasks. We propose that the nine attrition control activities are carried out at four selected stages of the mentoring program, namely Mentor and mentee recruitment and selection, Preparation of mentors and mentees, Mentoring meetings, and Evaluation and quality review stages. We see the need to allow some of the attrition control activities to intervene more than once in the mentoring program lifecycle after reflecting on the institutional commitments and the mentors' responsibilities described in the second column of Table 3.

VI   CONCLUSION

Student attrition is a real concern for PHLI. Following the path of KM and case study research, we proposed a systematic approach for implementing an organised array of KM mechanisms for attrition control in PHLI.

The method we followed is described as follows. First, we gathered the data from the case study institutions and reviewed literature in order to learn about the existing attrition control strategies. Next, we analysed the data to identify the relevant attrition control tasks and activities, and the responsibilities of the mentors, as well as their knowledge needs. Finally, we considered the KM processes involved to bring about the knowledge conversion and then determine suitable KM mechanisms that target the mentors and the institution as a whole.

Supported by exemplar student integration and attrition models that espouse intervention strategies through a mentoring program, we additionally proposed an implementation framework to stage, monitor and evaluate the KM mechanisms associated with the related attrition control tasks and activities. Once implemented, we hope the KM mechanisms can help to equip the mentors with requisite capabilities, as well as aid in the reinforcement of the institutional network and commitment to effectively deal with attrition.

Table 3. Summary of Attrition Control Tasks and Mentors' Responsibilities, and the Recommended KM Mechanisms

Attrition Control Activity	Attrition Control Tasks and Mentors' Responsibilities	Recommended KM Mechanisms
1. Improving academic advisory services	STUDENTS • Introduce the students to institution's academic and social environment. • Inform the students about institution's policies, procedures and expectations. • Inform the students about their study plans and advise on course selection.	STUDENTS • Student academic handbook • Student orientation kit (that includes academic policies and procedures) • Briefing sessions for students • Academic counselling – discussion/face-to-face meetings

Attrition Control Activity	Attrition Control Tasks and Mentors' Responsibilities	Recommended KM Mechanisms
	• Help the students to set their academic goal. MENTORS/ INSTITUTION • Provide institution's information. • Provide mentoring guidelines; improve listening skills and self esteem (Miller, 2002; Cuseo, 2003). • Encourage mentors to establish memberships in the social communities of their institution (Grayson and Grayson, 2003). • Help the institution to formulate academic and social policies and regulations.	MENTORS/ INSTITUTION • Staff orientation modules • Mentor meetings and discussion • Experience sharing sessions - mentoring/ advising skills
2. Recruiting with integrity	STUDENTS • Introduce students to the academic related services and facilities in the institution. • Assist students to select suitable academic and social transition workshops to attend. • Direct needy students to relevant persons who are responsible for financial consult (advice on financial preparations, scholarships, loan, instalments, etc). MENTORS/ INSTITUTION • Obtain information about students' academic and family background to better understand the students' needs. • Obtain information about the institution's financial policies and support facilities. • Obtain information about transition programs and workshops. • Provide support for academic adjustments (Morda et al, 2007).	STUDENTS • Banners/ Electronic boards • Student orientation kit (which includes documents about program leadership, academic advice services and academic expectation) • Campus tour • Briefing sessions - information about transition programs and workshops • Information booth MENTORS/ INSTITUTION • Student portfolios • Financial policies and support facilities handbook • Staff orientation modules
3. Paying particular attention to the early stages of courses offered to the students	STUDENTS • Solicit students' views on their expectation during the beginning of the course. • Solicit students' views/feedback about the courses lectures, tutorials, transition workshops and seminars. • Advise students on course selection, transfer, withdrawal and also the procedures (Pascarella and Terenzini, 2005). • Check up on student's adaptation to college life in terms of academic, social and personal-emotional adjustment. • Provide strategic ideas to students for academic progress. • Promote and encourage the students to involve in academic workshops organised, competitions, seminars and study skills program organised by the institution (Morda et al, 2007) MENTORS/ INSTITUTION • Identify students' needs. • Provide information about program study plan. • Provide updated information about institution's policies, procedures and academic expectations.	STUDENTS • Student orientation kit (which includes program study plans) • Course modules • Ice-breaking sessions • Academic workshops for students MENTORS/ INSTITUTION • Students' feedback forms • Entrance/ exit survey forms • Inventories to assess students' needs (Picklesimer and Miller, 1998) • Exchange of documents/reports/memos • Academic seminars for mentors • Field visits (INST_B)
4. Tutoring which is focused on student progress	STUDENTS • Provide strategic ideas for students to achieve their academic goals based on their academic progress. MENTORS/ INSTITUTION • Solicit students' views/feedback about the courses lectures, tutorials, transition workshops and seminars. • Monitor students' academic performance progress. • Seek opportunities for extra assistance.	STUDENTS • Tutorial session • Face-to-face meeting MENTORS/ INSTITUTION • Continuous evaluation and assessment reports • Appraisal and feedback forms • Activity forms • Exchange of documents/reports/memos
5. Monitoring and	STUDENTS	STUDENTS

Attrition Control Activity	Attrition Control Tasks and Mentors' Responsibilities	Recommended KM Mechanisms
follow up poor attendance	• Enquire students for possible problem faced that lead to absenteeism. • Remind students on attendance policy. MENTORS/ INSTITUTION • Monitor student attendance and be aware of repeated absenteeism. • Analyse students' absenteeism patterns (Wilson et al, 1999). • Report students' repeated absenteeism (Tinto and Pusser, 2006). • Dealing with problem students.	• Warning letters • Group discussions. • Consultation/Face-to-face meeting MENTORS/ INSTITUTION • Students' performance reports. • Students' absenteeism reports. • Exchange of documents/reports/memos • Absenteeism patterns/Intervention strategies
6. Early identification of underperforming students or students who are at risk provided with early feedback and action	STUDENTS • Enquire reasons for lag in progress. • Provide feedback on students' performances and participation in class, assessments and mid-term evaluations. • Help students to recognise their weaknesses and provide assistance to improve. • Help student to analyse and evaluate ideas. • Help student to revisit the academic goal. MENTORS/ INSTITUTION • Monitoring of students' continuous evaluation and assessment results. • Help to identify underperforming students. • Appropriate action to assist underperforming students. • Provide assessment results and performance reports.	STUDENTS • Re-orientation programs (Morda et al, 2007) • Tutoring workshops • Face-to-face meeting MENTORS/ INSTITUTION • Students' performance reports • Activity forms • Knowledge sharing on the appropriate actions to assist needy students • Exchange of documents/reports/ memos
7. Early diagnosis of student requirements for basic skills and provision of appropriate support	STUDENTS • Brief students on learning skills. • Help students to identify the learning skills they required. • Help students to locate needed resources, equipment and services. • Coach students to develop their interpersonal and communication skills. MENTORS/ INSTITUTION • Assess students' needs and provide information about students' requirements to management.	STUDENTS • Face-to-face meeting MENTORS/ INSTITUTION • Students' performance reports • Student needs assessment reports • Activity forms • Exchange of documents/ reports/ memos
8. Improving student motivation	STUDENTS • Guide students to do self assessment and build confidence in learning. • Encouraging students to be socially active/ involve in extracurricular activities. • Motivate students to achieve their academic goal. • Share and positive experiences with students. MENTORS/ INSTITUTION • Promote academic excellence (INST_A).	STUDENTS • Open discussion sessions • Face-to-face meeting • Transition programs and workshops • Extracurricular activities MENTORS/ INSTITUTION • Motivation skill courses for mentors • Rewards for excelling mentors
9. Improvements to teaching	STUDENTS • Encourage students to provide honest feedback on lecturers/ tutors performance MENTORS/ INSTITUTION • Participate in peer observations. • Conduct discussion on current, relevant educational research and theories (Sweeny, 2008). • Suggest improvements to the course content and the mode of delivery.	MENTORS/ INSTITUTION • Student appraisal and feedback reports • Peer observation/ evaluation reports (INST_A) • Exchange of documents/ reports/ memos • Knowledge sharing sessions to discuss students' feedback on teaching standard/ improvements (Fry et al, 2003); Techniques and strategies to increase the effectiveness of teaching and tutoring (Lettman, 1986; Grayson and Grayson, 2003)

Attrition Control Activity	Attrition Control Tasks and Mentors' Responsibilities	Recommended KM Mechanisms
		• Incentives and opportunities for excelling academic staffs

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