The Use of ICT to Support Perpetual Undergraduate Students

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Abstract. Perpetual students are problematic, both for campus and for themselves. Inefficient student management could lead to bad lecturer: students' ratio and cause complicated problem for students and parents. This paper describes ICT used by an Informatics department of a big private university in Indonesia to help 203 perpetual undergraduate students finishing their study in a short time. Lengths of study are varying from 7 until 15 years and most of them suffered from some compulsory credits and mandatory internship project. We observed wide-range of ICT used for data management and communication during the beginning, middle and the end of periods. Success rate of finding perpetual students and producing graduates are almost 70%, but this percentage could be higher if we maximize ICT use. Information sharing type, social media, privacy and patience become important issues related with the use of ICT.

Keyword: perpetual student, ICT use, university student, social media

1. Introduction

We all hope to be able to be perpetual learners. However, being a perpetual student is a different matter. In Indonesia, a senior student in undergraduate level who does not graduate after 5 years is often referred to as the perpetual student. Although in general the various universities in Indonesia have a policy of maximum 7-year study period for undergraduate level, but in reality there are found many students with more than 7 years study period through various dispensations from the university. In fact, most prolonged students are not active students, which did not pay semester tuition and also did not follow the lecture. Some of prolonged students always pay semester tuition but did not take any courses. There are also prolonged students whom status is working on final project but in reality they did not make any progress.

This problem arises when the study was not completed within the expected time period (4 years) in which the college curriculum in Indonesia is designed for a period of 4 years. By not achieving timely graduation, the study duration becomes longer, and some failures as well as the attractiveness of activities in addition to learning, such as part-time jobs, may lead students to become perpetual student. Based on [1], there are three negative sides of the phenomenon to prolonged study period. First, the low qualification of the student entries. Students who lack academic skills, which in the past are not quite suitable for higher education, now have the easy opportunity to get access to higher education [2][3]. Second, the limited resource into higher education because of the increasing number of students. Third, the potential changes in the composition of the students' social status, especially students with low socioeconomic backgrounds may have to work while in college to finance their studies, giving impact on academic performance [4][5].

Encouraging timely graduation is important, not least because of three factors. First, to achieve the minimum period of completion, which is one potential indicator of performance for departments, as always evaluated in a yearly quality audit. Second, the longer period of study will lead to more costs. Third, with regard to the university management and organization, for example, the lecturer-student ratios, availability of lecture room and so on. In our study case, a big private university in Indonesia experienced problems in the form of a large number of students who will lead lecturer-student ratio to be small. To maintain balance of the lecturer-student ratios, a variety of strategies are needed to cope with the perpetual students. Perpetual students problem is a common problem in Indonesia. Not only in Indonesia, it is also common in Greece, Finland and South Africa [6].

In general, the university has a policy to limit the maximum study period of 14 semesters. But in practice there are still many departments in the University is dilatory in checking the maximum period of study. As example, Department of Informatics, in 2014, have checked the maximum period of study and found that approximately 203 students has passed the 14 semesters of study. This number has been weighing on teacher-student ratios, while in fact most of these students are not active.

Enforcement of a maximum 14 semesters of study period is basically a policy pursued for the good of the institution and the students themselves. Students who graduate on time will be able to immediately find a job and settle down, moving forward in his life. Graduation for Indonesian students is not just for the pride of the students themselves, but also for families, especially the parents. While for higher education institutions, encouraging students to graduate on time will also affect the number of students, teacher-student ratios and better quality of graduates.

In this paper, we want to explain our observation study in the integration of Information and Communication Technology (ICT) to help perpetual students to graduate soon. ICT is utilized to help perpetual students because of several reasons. First, IT has a wide reach range. As the perpetual students are usually inactive students, the department has a difficulty on communicating and monitoring them. Second, ICT is able to provide both individual and mass communication. Some information for perpetual students need to be delivered in the form of mass communication, but to monitor them, the department needs more individual. Third, IT can deliver information and monitoring function in a shorter time. This short time is substantial as the department policy gives only one semester extension for perpetual students to graduate. Utilization of ICT includes control functions to monitor the progress of these students, including identifying their problems and help them find a solution of their problem.

2. Methodology

Subject of this research is Informatics department of a big Indonesian private university located in the province of Daerah Istimewa Yogyakarta. Informatics department and other departments within one faculty have big student bodies, as they didn't execute the evaluation procedure regularly. Later we found that new management of Informatics department decided to handle the perpetual students at first months of their duty as the department would be re-accredited within one year. At September 2014, the department had 38 lecturers and student body of 1869, which consist of 1697 active students and 172 non-active ones. This condition caused lecturer: students ratio as bad as 1: 49.18.

This observation study was conducted during odd semester of academic year of 2014/2015. We add one preparation month before existing semester and add one finishing month after and then break it into three periods. We call it beginning, middle and last period. Later, we divide ICT into two broad categories, one-way and two-way communications without make further details.

During August 2014 until April 2015, we recorded policies carried out by the new management and observed how they inform it to public using technology. We also observed daily technology used by the selected team to communicate with students or coordinate internally. We recorded big events such as offline gathering of perpetual students and meeting with alumni association and follow-ups using ICT. We also kept the sample of students' profile data, including academic performance, problem being discussed and effort taken by the department for each single student. We also captured some big problems and technology used by department to solve it.

Finally, we recorded every single use of each ICT per period mentioned above. Users and ICT types were the result of the research, without being specified before. At the end, we count the success rate of the department's effort.

3. Research Context

The departments' curriculum requires students to finish minimum 144 credits units to be bachelor degree, which consists of 112 compulsory credit units, minimum 21 elective credit units, 2 credit units of Community Services (mandatory), 3 credit units of mandatory Internship and 6 credit units of Final Project. There are no alternatives to finish the study except perform the curriculum. As suggested in the department academic guide, students could finish all required subjects within four years study.

The university gives maximum seven years study (excluding leaves) to get bachelor degree. It also has a policy to overcome late-study problem and prevent perpetual students by enforcing some evaluation procedures, such as Dropout (DO) evaluation at first four semesters to cut students whose GPA under threshold (2.00) and DO re-evaluation at seventh years of study.

Perpetual students of the department reached 203 students or 10.86% of total student body, and its distribution varies, as shown in Figure 1. The one and oldest student had studied for 15 years, while 67 students had seven years of study. They faced their individual problems, either academic or non-academic. Three major problems sampled from 98 persons are: 30.61% of students didn't finished compulsory credits, 28.57% didn't completed Internship project, and 7.14% of them didn't enrol Community Service yet. Non-academic problems vary from ignorance, working activities, low motivation, financial support, and family problem.

Great population, mixed grades and many individual problems enforce the department not to create a mass problem solving. To overcome this case, the department launched rescue project and decided to give them only one semester dispensation to complete their entire academic tasks. The management also allowed students to take as many as credits needed (until reach maximum 24 credit units/semester) although their GPAs were under credit passing grade. To ensure optimum result, the department assign a special task force team consisting of the secretary of department, two lecturers and two staffs.
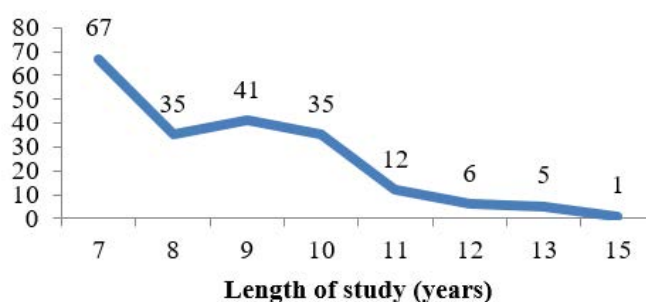

Figure 1 Number of perpetual students according to years of study

4. The use of ICT

Having a first and urgent project, the task force didn't have a master plan for Information and Communication Technology (ICT) use. But they rely on ICT, as it was hard to use paper-based solution to manage their data and to find or communicate with 203 perpetual students. Initially they used computerized academic system and spreadsheet software to check and prepare airmail to warn parents of the late study problem. By the time, types of ICT were altered and improved as the project

flows. To capture more details, here we describe types of ICT use in the beginning, middle and in the end of the project, which was taken during nine months, starting from August 2014 until April 2015.

4.1. ICT use at the beginning (August – October 2014)

Students' awareness became the first challenge in this period. At first, the task force had taken the perpetual students data from online academic system supplied by the university. As it has only "flat information" which display list of student's profile (covering student number, name, GPA, total credits taken, active/non-active status, and parent information) per year admission, the team use spreadsheet software to combine and manage all information needed to process warning airmails. After analysing the data deeper, the team recognized that 37 students (equivalent with 18.84% of total) were probably impossible to be graduates as their GPA below 2.00.

The letter then typed in word processor software using mail merge features to produce many letters in a shorter time. As required by the University, all departments have to send Dropout warning letter twice before Dropout status. First letters were sent at 24 September 2014 containing several important things, such as actual student's length of study, campus regulation, length of dispensation period, and step-by-step procedure to finish study.

As many as 30 letters were returned back to campus, then the team asked other students to find unreachable students. As half of them could be contacted and then arrived to campus to update home address data, team started to recognize a kind of "friendship network" which is absolutely needed in next periods. They also found this network run on social media, using Blackberry Messenger (BBM) and Facebook.

The team also posted warning news on the department's official website which includes students' names. The news shortly became popular and reached 583 hits. But later, complaints of privacy came up and the team deactivated it a few months later.

To reach maximum perpetual students, the team also broadcasted first warning in the Facebook group of Informatics students and graduates. Perpetual students are rarely come to campus and difficult to contact with, so the department also tried to ask help from alumni association by making a special meeting and giving follow up via email containing students names. The alumni and team stay in contact using Whatsapp social media.

These widespread warnings followed by gathering invitation to build a sustainable communication and inform the department's new policy. These efforts brought good result: 48.28% of targeted students showed up in campus within a month, and most of them then came to the first gathering session at 24 September 2014.

4.2. ICT use in the middle period (November 2014 – January 2015)

Communication channels were already open, and the team decided to maintain data and interaction using ICT. Many perpetual students didn't aware campus procedures, for example they forget what password to enter online academic system, how to check unpaid tuition fee and how to register for final exam. Some of them also had low confidence and motivation to fight for graduation day. The team used online file-sharing as a coordination tool and to share data collections, which consist of students' problem and proposed solution, recent activities, city they live in, motivation to graduate, team member in charge and others.

Public channel such as website and Facebook group were not suitable in this period, so the team positioned them only as a trigger for "friendship network". This network involves offline talk (personal or group) and online through social media (person-to-person communication and discussion group in Facebook, Whatsapp and Line). Later we found that students voluntary initiated this kind of network because of social reason: solidarity and care. The team believed that better communication should give better results. Then, they concluded that private online channel such as phone call, email, SMS, and social media are greatly used to find other students and to stay contact with them. This kind of channel also used to maintain interaction between parents and the department/staff, between student/parents and final project supervisor, and also among students.

More detailed problem needs more attention, more individual and more time to solve. Online communication traffic were heavily loaded by consultation of choosing between move on or leave campus, discussion of how to set up study plan or make meeting appointment, and information request for campus' procedure (such as how to reactivate the status and fulfil administration needed for final exam). The team members also maintain offline communication. Both team and students could explain the detail of campus procedures and problem/solution that difficult to express through gadget.

In this period, the department also send second Dropout warning via airmails and publish reminder posters routinely at the Facebook group as shown in Table 1. The number of likes didn't represent the total views, but since next posts reached greater "thumbs" than previous ones, we concluded that groups members (students and graduates) became more aware of the length of study and were expected to deliver further supports for their friends. Second gathering (held at 30 January 2015) was successful because as many as 75.81% students present in the event.

Table 1. Content of social media publishing in Facebook group.

	Content of the poster	**Likes**
20 September 2014	Invitation for first gathering	8
13 October 2014	Last call to come back to campus	18
31 December 2014	Motivation to survive	29
4 February 2015	Information of final project exam	26
25 February 2015	Reminder of one month left to finish study	75
21 March 2015	Schedule of last final project exam for perpetual students	99

4.3. ICT use in the last period (February – April 2015)
The department administers final project exams every month. A number of 124 students worked on final projects during this dispensation semester. Luckily, one-third students have GPA more than 3.00; so the team assumed academic competence was not a problem. Unfortunately, although exam schedule had been announced since first gathering at September 2014, almost sixty students didn't register the exam until February 2015. As March 2015 became the last exam for odd semester, the task force team had a very difficult task to ensure candidate students to fulfil the requirement for final exam registration and register for exam.

During this period, the department delivered mass communication twice only at Facebook group. Furthermore, team members check one-by-one graduate candidates more intensively. Existed alumni and fresh graduates from perpetual students surely help the team to check-and-contact friends personally. All of them utilized both conventional (phone call, SMS) and private channel in social media (Blackberry messages, Whatsapp, Line, and Facebook). Finally, 57 perpetual students registered for the last exam period and 91.23% of them passed the exam.

Furthermore, students who failed to be graduates use email, Whatsapp, and SMS to ask procedure and process to go out or move to another campus. The team also supply the required documents in the department's official website. At the end, 53.01% perpetual students graduate successfully, 15.66% choose to leave campus, and 31.33% become dropouts as communication never exist or GPA is under the threshold. It means the team had successfully maintained communication at level 70%.

5. Result and Discussion
Ineffective students management leads to negative effect for the ratio of lecturer: students and other problems. The use of ICT for rescue project in the research could be summarized in the Table 2.

Table 2. Various use of ICT to support perpetual students

	Participants	1st period	2nd period	3rd period
One-way				
Department website	Sender: the team Recipient: students, graduates, parents	To announce warning	To announce warning, list participants of final project exam	To announce warning, list participants of final project exam, share document for leaving campus
Academic information system	User: team members	To get students academic profile	To inform recent student's academic status	To inform recent student's academic status
Desktop-based spreadsheet	User: team members	To record data taken from academic IS	-	-
Word processing	User: team members	To print first warning letters	To print second warning letters	-
Two-way				
Online file-sharing	User: team members	-	Data sharing and coordination tool	Data sharing and coordination tool
Airmail	Sender: the team Recipient: parents	To notify parents	To notify parents	-
Phone call/SMS	Teams, students, graduates, parents, supervisor	Personal consultation and discussion	Personal consultation and discussion	Personal consultation and discussion
Email	Sender: the team Recipient: alumni association	To ask help to find students	-	To share document for leaving campus
Facebook group	Sender: the team Recipient: students, graduates	To post info/motivation/reminder/warning/	To post info/motivation/reminder/warning	To post info/motivation/reminder/warning
Social media: Official Facebook/Whatsapp members owned by department/team	Teams, students	-	Personal consultation and discussion	Personal consultation and discussion
Social media: BBM/Facebook/Whatsapp/Line	Among students, between students and team/supervisor	To find, inform, remind, and motivate students	To find, inform, remind, and motivate students	To check exam preparation, inform, remind, and motivate students

ICT comes in various types and functionalities. Computerized academic system and department's official website are common example of formal and one-directional media to take the authorized data

from and to broadcast information to public (perpetual students, alumni, and parents). To deliver accurate information for parents, sending airmail letters are also necessity. Creating and formatting those formal letters become more efficient while using office software such as word processor and spreadsheet.

One-directional communication channel such as department's website and email to alumni is a good starting point to contact perpetual students. But we must also keep them in contact using private channel, especially social media to ensure they run in the right track and finish the study as expected. As perpetual students usually face academic and non-academic problems, good communications among stakeholder become well deliverables using private channel. Topics vary from asking a very simple procedure to counselling study plan in a short time. But remember, as private channel become dominant in the middle and last period, assigned lecture/staff team should be more knowledgeable, patient and robust in these periods.

Learning from publishing poster in Facebook group, we conclude that being a trustworthy and reputable department for students or alumni need process and time. It is also necessary to collaborate broadcast and private channel periodically.

Furthermore, we recommend department to use academic information system intensively and assign special team to handle late study problem, which equipped by various ICT means. As every person is unique and probably using different technology, we also recommend to create such a master plan for each ICT channel to get higher success rate.

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