An Online Support Tool for Post-Secondary Perseverance: S@MI-Perseverance

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Abstract: Who are the students abandoning post-secondary studies? What variables predict their dropping out? What measures should be put into place to help prevent students from dropping out? What online perseverance support tools are used by undergraduate students experiencing their first session of university studies? Our research team, subsidized by the "Fonds Québécois de recherche sur la Société et la Culture" (FQRSC) and the Inukshuk Funds, tried to answer all these questions by putting in place what is called SAMI-Perseverance (Système d'Aide Multimédia Interactif à la PERSÉVÉRANCE aux études postsecondaires). Our paper aims to briefly introduce you to our Web environment (http://perseverance.savie.ca) and its extensive index of more than 600 support tools for enhancing student perseverance. We will also present some of the most significant results of the research that took place during the 2006 fall semester at three Quebec universities.

INTRODUCTION

Several studies have been conducted related to dropouts from on-campus and at a distance educational programs (Levy, 2007). The studies were mainly from the United States, the United Kingdom and Australia (Sauvé, Debeurme, Martel, Wright, Hanca and Castonguay, 2007). Few studies have been undertaken in Canada concerning abandonment and perseverance in post-secondary studies (Grayson, 2003). The Canadian literature relating to abandonment and perseverance in post-secondary studies is only emerging, whether it be at a distance (Powell, 2006) or on campus (Tremblay, 2005). Most studies show that students may abandon at any moment during their studies but that it is during the first three semesters that most abandons happen, whether on campus or at a distance education (Sauvé et al, 2006).

For society, for the universities and for students, the high rate of abandonment has dire consequences: reduction of student manpower, loss of student potential, loss of revenues and an important loss of productivity for society (Grayson, 2003). The knowledge society demands more qualified and competent workers to meet the challenges of the labour market. Universities have a crucial role to play since it is these institutions that prepare students in an advanced form of learning. The challenge to universities is not only to render higher learning more accessible but to provide an initial quality education or continuous training for those who decide to specialize and pursue professional development courses. This education is provided either on campus or at a distance. The S@MI-Perseverance (Système d'Aide Multimédia Interactif à la Persévérance aux études postsecondaires en ligne) research program deals with these problems. This project relies on the use of technologies to support perseverance in university studies and helps to reduce the drop-out rate.

In this report, we briefly present the context and the main research question. We will describe the S@MI-Perseverance Web environment, (http://perseverance. savie.ca), its components and its structure. Finally, we describe the research methodology and the difficulties encountered by the students during their first semester of studies.

THE CONTEXT OF THE RESEARCH

For several decades, research studies have explored factors that lead students to abandon their studies or to persevere until they obtain university degrees. Like Barr-Telford et al (2003) and Chenard (2005) we hypothesized that the decision to interrupt studies cannot be attributed to a single factor but rather to multiple factors which are at work at various moments in the life of the student.

What factors influence the student's decision? They are multiple, according to Tinto (2005) and differ (according to the moment) (Arulampalum et al, 2005). A review of the research literature (Sauvé et al, 2006), leads to the creation of five categories: (1) personal: sex, age, psychological state of mind (distress and suicidal tendencies), motivation towards studies; (2) learning: motivation in a learning context, learning style, approaches to learning, self-regulation and learning difficulties; (3) interpersonal and institutional: rapport with other students and with staff and faculty, sexual orientation, difficulty in adapting to the institutional context, and degree of academic and social integration; (4) family: parental responsibilities, support from family and friends, demands of work and studies and (5) environmental: minority group membership, socio-economic status, financial resources, the competing demands of work and study.

How can we reduce the drop-out rate in post-secondary studies? Several studies show that, in order to stimulate perseverance in studies, it is important to develop support systems which take into account the characteristics and difficulties of the students (Chenard, 2005; Roy, 2006; Dearnley and Matthew, 2007). Yorke and Longden propose the following avenues to increase levels of perseverance: (1) improve the student decision-making process regarding to his or her program of studies; (2) improve the student experience in the college or university; (3) improve the academic performance of the student and his or her fundamental response to the demands of study in higher education; (4) understand the events that impinge on the lives of students and account for them in students' academic pathways.

Universities have developed varied structures and frameworks to support students in post-secondary settings (Cartier and Langevin, 2001): welcoming activities, workshops on strategies for success, seminars, twinning of students at various levels, mentoring, support networks, help centres, individual consultations, make-up courses, telephone help lines, approaches to teaching, and indirect approaches by professors and support personnel. What do we know about the impact of these structures?

Begin and Ringette (2005) note that approaches to lowering drop-out rates and failure in higher education tend to operate within certain limits: "The actions are numerous and varied, but there is little coordination among them" (p.231). Too many different people are involved. Actions are undertaken disjointedly and there is little to encourage an integrated and coordinated approach. What is more, according to the authors, those who intervene do not have an overview of the student's situation and cannot possibly be working from a comprehensive picture of his or her needs. Support measures are often developed in an isolated manner in a given faculty and the experiences of the faculties are not woven into subsequent comprehensive plans of action. There are often no structures to facilitate the exchange of this information. University structures attempt to integrate students into the institution but do not concentrate on the needs of the students. As far as structures to support students online are concerned, an analysis of these structures by Sauvé et al (2006) concurs with Tremblay's findings (2005): the content offered online is often static, text-based, and non-interactive. Very few of the online environments allow students to diagnose their needs in the following areas: personal, learning, interpersonal and institutional, family, and environmental. Very few of these environments use real time communications such as audio and videoconferencing to support exchange among students, teachers and resource personnel: in general, they are limited to e-mail and discussion forums.

Taking into account the magnitude and complexity of the drop-out problem, we focused on the questions of what actions to put into place to diminish the drop-out rate and to stimulate perseverance during the first session of university studies. This study attempts to address these main research questions: "What are the styles of learning, the factors that motivate or demotivate, the difficulties encountered by the students and the socio-demographic variables (gender and age) and the scholastic variables (type and mode of studies) that can have an influence for the abandonment or the perseverance of studies of a student during the first semester in university studies?" and also do

"the help tools used by the students registered to a first semester of studies differ whether they persevered or abandoned their studies and do they differ also in function to certain socio-demographic variables (gender, age) as well as scholastic variables (mode and type of studies)?" To read more on objectives and specific research questions, we invite you to consult: http://recherche-perseverance.savie.ca.

SAMI-PERSEVERANCE

To answer these research questions, we have conceived and placed online an interactive multimedia help system for perseverance in post-secondary studies called SAMI-PERSEVERANCE. This online system offers three interfaces for the SAMI-Perseverance help system. There is the conception interface, the intervention interface, and the perseverance support interface. While the first two interfaces are used by professors and support personnel, the third is used by the students. At the heart of the SAMI-Perseverance system, the Web interface offers an independent learning environment and a place for reflection and self-evaluation for beginning post-secondary students. The system respects the principles of *personalization* of learning (Sauve, 2006) as it depends on an analysis of the needs of the student as well as his or her learning profile to offer support tools adapted to the student's needs.

The Intervention Components for Students in their First Semester

Taking into account the factors for abandonment, the perseverance support interface of S@MI-PERSEVERANCE offers to students who have just entered their studies some tools which will help them pinpoint their personal, academic and work characteristics in the form of an e-portfolio. It will also permit students, with the help of questionnaires, to identify their learning characteristics: styles of learning, learning strategies, self-regulation and motivation. S@MI-PERSEVERANCE will also propose tools which have been adapted to help and support the student's situation, for example: (1) Identify his personal difficulties: Orientation, stress in studies, financial situation, social support network, time management, personal situation overview; (2) Get his prior experiences up to date: Competencies and prior knowledge, knowledge of information technology tools, knowledge of study strategies and techniques (university level); (3) Integration into his studies: Knowledge of the university (institutional aid, language of the academy, knowledge of the program), social and academic integration; (4) Improve oral and written communications: Language mastery (French reading and writing, English reading and writing, and competencies in communications) and (5) Develop study strategies: Self-regulatory strategies, learning strategies, and difficulties. A virtual system also offers tools for Web communication as well as in real time Web communication (ENJEUX) and promotes interventions between the professors/tutors and their students in order to help and support their learning process.

The structure of the Web environment

Once a student has registered with SAMI-Perseverance, the system invites the student to create a personal approach in function with his advancement in an educational study program (Fig. 1):

- before his admission into an establishment, the student is asked to create a portfolio and choose a particular program of study;
- after the student registers in a school but before his first semester, the student will establish his learning profile and prepare for his first semester of study;
- in the beginning and during his first semester, the student will analyze what he needs help with and analyze the

Figure 1. Structure of the activities

difficulties he encounters. The student will then choose the tools he needs for help and support which will aid in persevering with the studies at hand. The student can communicate when needed with the other students with the help of communication tools in synchronous mode (ENJEUX videoconferencing) and in asynchronous mode

(discussion forums and e-mail). The student will also create a space for reflection and self-evaluation on what was learned during the first semester and also a space for the planning of future semesters;

- during the second and third semester of studies: these parts of the system will be developed during phase II of the research and according to the results obtained during the first experiment of S@MI-Perseverance.

The Tools for Help and Support during the First Semester of Studies

At the beginning of the first semester of studies, the student analyzes what he or she needs in order to persevere in his studies from a list of statements which illustrate the difficulties that students face during their first semester of study.

The proposed path relies on a series of filters in which the results generated by the choice of statements constitutes the first level of sorting. Since each statement can correspond to many different tools for help and support for perseverance, it is therefore necessary to activate other sorting filters. These filters are generated by the student's style of learning and permit to identify: (1) the treatment of information (sorting is done in function of the type of learning resource), (2) the different modes of learning (sorting is done in function of the type of media: textual, auditory, audiovisual or a mixed) and (3) the conditions of learning (sorting is done in function of the type of learning: individual, collaborative or mixed). The sorting filters activate the search in the virtual repertoire for help tools and identify the tools that correspond to the profile of the needs and learning characteristics of the student. Once this operation is done, a personalized worksheet is generated by the system which a student will be able to follow throughout their first semester.

METHODOLOGY

The research study involving S@MI-Perseverance took place in the fall of 2006 with students on campus at two universities (Universite de Sherbrooke and UQAR: Levis Campus) and at a distance education students (TELUQ: l'universite à distance de l'UQAM). The choice of research subjects, about 200, took into account the research budgets available, the type of clientele studied, and the number of variables studied. Several variables were analyzed in order to reach the objectives of our study: the learning styles, the motivational and demotivational factors, the difficulties encountered by the students and the socio-demographic variables (gender, age), scholastic variables as well as the help tools themselves.

This descriptive study is based on data gathering and an analysis process. Various instruments were administered to the test group of students. Before the experimental phase, we gathered demographic data (personal information, information associated with the family situation and the financial situation) and two questionnaires linked to: the learning styles of Kolb and to the modes and conditions of learning of Canfield. During the experimental phase and throughout the semester, a tracking system integrated into the data collection mechanism monitored difficulties encountered, tools used, types of exchanges among students and professors, etc. At the end of the experimental stage, a questionnaire on the motivational and demotivational factors was given out as well as a questionnaire on the user-friendliness, usefulness and the pertinence of SAMI-Perseverance. A semi-structured interview on perseverance and drop-out factors was also given to all students (those who persevered and those who dropped out) as well as a questionnaire designed for the professors/tutors on the means of interventions used to help students persevere in their studies.

RESULTS

Taking into account the limited number of pages, we will present the socio-economic data as well as the synthesis of our analysis of the difficulties encountered by our student sampling. To read more on the final report, we invite you to consult: http://recherche-perseverance.savie.ca.

Socio-demographic data

Three hundred eighty-nine students volunteered to get involved in the study. Of this group, 216 were attending university for the first time. Our sample was made up of 100 students at UQAR, Levis Campus, 73 at TELUQ, and 43 at the Université de Sherbrooke. The study sample was made up largely of women (87.04%) with an average age of 20 to 24 whereas the men were aged on average 35-39. The majority of the students (70,83%) were full-time, while 24.54% were part-time and 4.63% were undeclared. At UQAR 97% of the students were full-time, while 93.2% of the Sherbrooke students were full-time and 21.92% of the TELUQ students were full-time. Almost one quarter (23.15%) were employed more than 30 hours per week (61.64% of them at TELUQ, the at a distance learning university) 16,67% from 21 to 30 hours per week, 20,37% between 16 and 20 hours per week, 10,19% from 10 to 15 hours per week, and 7,87% were not employed during the semester. About 17% of the students who worked more than 30 hours a week were studying on a full-time basis. The financial situation of the respondents was 52,31% acceptable, 35,19% good, 3,70% excellent and 8.8% unacceptable. At TELUQ 27.40% of the students surveyed live with a spouse and children compared to 11,63% at Sherbrooke and only 1% at UQAR-Levis. These early results indicate that those who study at a distance are different from their on-campus counterparts insofar as the rhythm of their studies and their working lives are concerned.

Difficulties encountered during the first semester of study

Many observable facts can be seen in our analysis. First of all, certain difficulties encountered by the persevering students are the same difficulties encountered by the students who abandoned their studies: the degree of adaptation to university studies (transition between college and university or the transition from work to school), the difficulties linked to the financial situation of the student and time management in order to respond to the demands of the university while having a personal or "professional" life in parallel, and also problems arising from the offered courses (course requirements, the format of the work, group or individual work, competences of the professor, etc.) and the institution (lack of information, difficulty to find oneself in the university framework, etc.) are given as examples from the two groups. Secondly, the difficulty that seems the most important to students learning at a distance who persevere or those who abandon within the first semester is the difficulty arising from the transition between college and university or those returning to school. This return necessitates an adaptation effort concerning learning strategies and self-regulating strategies to new demands and directions for school work which seem hard to understand during a student's first contact with the university. Thirdly, the students who persevere and those who abandon, especially the older students, have developed their capacity for memorization from their anterior education which is inadequate to meet the demands of comprehension asked for at universities. The fourth point would be that of deficiencies in reading, work methodology and oral and written French. This brings us to question ourselves on the transversal competences developed in earlier education. The fifth point to be observed is the willingness to improve verbs in English. This shows us that the content of university courses have recourse to a substantial proportion of texts in English which does not seem to be a practice found in the anterior education of the student. The sixth point to be observed concerns itself with more specific difficulties such as, for example, the use of Excel or PowerPoint. This makes us question the study programs that demand technological competence from their students without offering help or complimentary education for those who have never been exposed to these technologies or software. The last point observed is that students who abandoned their studies attribute a part of their failure to a lack of effort (procrastination) and to financial difficulties.

The analysis of the variation of the difficulties in function to the variable of age shows that the more students are young, the more they are confronted by difficulties linked to learning strategies and to adapting to the demands of university studies. With greater age, other difficulties present themselves other than academic difficulties. The difficulties are more concerning work load and inadequate time management especially among adult students returning to school. These differences must be taken into account in the help and support measures offered by universities.

Other differences appear when we examine the difficulties linked to the mode of the studies. The on-campus students seem to encounter more difficulties than their counterparts that learn at a distance as it pertains to feelings of being far away and this whether on the physical plan, that of the distance that separates the student from the institution or the student's family, or on the psychological plan, the non-presence of the family as it pertains to the university or being far away from the family. The students learning at a distance, who work on the labour market,

experience more difficulties linked to professional exhaustion and to time management between work and school. These difficulties are more present in this type of student than a student that learns on-campus. Once again, the measures for help and support used by the institutions have to take this into account to assure that students persevere in their studies.

CONCLUSION

The repercussions of the high rate of abandonment of post-secondary studies are as numerous for the students as for the university and society in general. The student who abandons the school system in a definitive way sees his chances diminish for finding a good job. For others, this abandonment of studies will be looked upon as a failure which will have consequences on the development of their potential. For the university, the consequences situate themselves mainly on the pedagogical, administrative and financial aspects. The universities see a reduction in their budget when a student abandons and also feel they have failed in their task of forming new minds. For the society, the abandonment of post-secondary studies reduces the number of highly skilled workers that are needed to answer to the demands of an economy in constant evolution. This phenomenon translates directly in a loss of productivity for the society (Grayson, 2003). Since there are numerous consequences to the abandoning or to the persevering of students in post-secondary studies, it is very important that we stop and analyze this phenomenon.

For the last four decades, many research projects have addressed this problem. Studies have permitted us to group the factors for abandonment into five distinct categories. In our study, we have analyzed the principal difficulties of students who have just been accepted and registered for their first semester of university studies (on campus and at a distance) in Quebec with the help of an interactive multimedia system for perseverance in studies: SAMI-Perseverance. The results of this study supports certain conclusions, from studies by Bean and Metzner (1985), Sales (1996) and Pageau and Bujold (2000), that students encounter difficulties, in their first semester of studies, that vary according to the type or mode of their studies as well as the age of the student and that these variables must be taken into account when you implement help and support measures of perseverance in studies.

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