

Changing Behaviors: Re - Conceptualization of a Tutoring Center

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*"Give a man a fish and you've fed him for a day.
Teach a man to fish and you'll feed him for a lifetime."
Confucius*

ABSTRACT

The following article introduces a novel constructivist tutoring system, its origins, concepts, methods and its impact in the student population. To optimize the performance and strategic planning of the Center, a software has been created whose scope documents every tutoring sessions and allows to retrieve important information for student retention.

SINOPSIS

El siguiente artículo presenta un sistema novel de tutorías constructivistas, sus orígenes, concepto, métodos y su impacto en la población estudiantil. Para optimizar la ejecutoria y el plan estratégico del Centro, se ha creado un software cuyo alcance, al documentar cada una de las sesiones de tutorías, permite obtener información importante para la retención del estudiante.

I- INTRODUCTION

The Center for University Progress (Title V), at the Polytechnic University of Puerto Rico, better known by its Spanish acronym as CPU, is a constructivist tutorial center for engineering, architecture and business administration students attending their first 72 credits-hours (mathematics, sciences, languages and core engineering courses). Our first goal is to help students discover their own

learning abilities. The Center has been successfully operating since spring of 2002 and since October 15, 2003 is a member of the National Tutoring Association.

Before CPU started there were other programs offering both tutoring and counseling services in the Institution. In the past, they all followed a traditional tutoring track which, among others, lacks tutors, training programs and efficient tracking systems to fulfill the needs for a growing institution. Today the Center, relying on the help of five academic faculty coordinators, over 250% more tutors and the changing behaviors ideal assists approximately 700 students per quarter. Tutorials are conducted one to one student or tutor to four students.

II- THE NEW SYSTEM

A- BEGINNINGS

Prior to implementing a new tutoring system a study phase was undertaken in order to understand the specific needs and also to find a suitable tutoring style to address the intended student population. The following recommendations were made and used as a basis for the new system:

- 1) The tutoring sessions must be melting pots of many pedagogical strategies conceived for the classroom such as: constructivism, critical

thinking, creative writing, cooperative learning, empowerment and others adapted to the student needs.

- 2) Each tutorial session must be documented with: student's signature, date, topic or theme, interaction level (explained later) and observations.
- 3) A tutoring job description document must be prepared for the new tutoring system.

Thus, the new objectives were set so that the traditional tutor becomes a professional tutor including peers, not just teaching assistants. Computer software plays a key role in the student evaluation process and statistical analysis and an important link between the tutoring performance and the students' final grade is constantly followed. Retention and Counseling Office works side by side with the Center in the retention and progress of each student when needed.

B- THE PATH

A well coordinated promotional campaign was initiated to hire a new working force. New standards for tutoring performance were set. After several interviews and tests, various students as well as some professional people were hired to become CPU tutors. As a result, the number of tutors grew to 26 in the first quarter and continuously increases. Training programs were designed to provide them the best tools possible: starting by marketing and pedagogical strategies, several workshops including the use of manipulative tools for math tutoring, modern tutoring lessons, the handling of day to day situations, using CPU Software as an effective tool, etc...Schedules for both working hours and workshops are carefully programmed to avoid any conflicts with tutoring sessions or specific tutor needs. Also group meetings are constantly held to enrich team work and specific area enhancements.

III- COMPONENTS

A- CPU TUTOR'S REQUIREMENTS

The constructivist facilitator or tutor keeps awake the learning senses of their students by creating a stimulating and respectful atmosphere of challenge, response and validation of knowledge built up upon students' previous knowledge. Among the tutor's requirements are good grades, excellent interpersonal skills, bilingual, computer literacy, team worker, creative, discrete, willing to help their peers and commitment to tutoring. It is intended that the CPU tutors (full timers, part timers and students) constantly improve their intervention methods through continuous education, workshops, individual performance evaluations and weekly or biweekly tutor meetings.

B- FACULTY COLLABORATION

Faculty members collaborate with the Center offering specific themes, workshops and seminars to enhance tutor's knowledge and insight to their particular teaching styles. These workshops and seminars are recommended by the area faculty coordinators.

C- CPU SYSTEM 3.0

Computer software, CPU 3.0, was first designed to collect data and help in the performance evaluation. Now the software has evolved providing us more flexible and organized workspace, enhanced statistical tools and a new registration block that works as the normal class registration of the university. The software keeps track of all the information supplied by the tutor such as: student's enrollment information, attendance, interaction level and observations made during the tutoring, statistical reports, among others. Once the data is entered or through the tutor's referral, the tutoring coordinator reviews student levels report looking for those who have not reach level III or have other situations in the second week of the tutorials and make proper referrals to Retention and Counseling

Office by computer. All this has given to the tutoring a sense of formality that is widely accepted by students.

IV- THE NEW APPROACH

A- CHANGING BEHAVIORS

Some students come to the Center as traditional passive learners and our tutoring style is new to them. That is the reason why we have prepared some documents such as an information booklet, flyers plus, as part of their enrollment in tutorials, a student's contract that specifies the tutoring rules. They should show this contract to the class professor (professor signature is optional) and bring it back to the tutor for their first tutoring session.

The student's performance during the tutorial will be done by interaction levels instead of grades. After each quarter the Center will compare the final grade of every student to the mean level of tutorial interaction. These levels are explained to the student in their first visit and are as follows:

Level I (Starting point normally for first year students)

Students are required to successfully describe the specific theme or exercise that brought them to tutoring services. They were notified in the contract that without this information, the class notes and the book, the tutor can not start. Therefore, it is the student and not the tutor who determines where to start.

Level II (Students know exactly what brought them to tutoring, but they do not master the necessary skills.)

The tutor reads the examples and class notes taken by the student and works in the re explanation of the concept or theme. Then, the tutor gives them similar exercises to perform during the session always challenging the student's competencies

through pedagogical strategies adapted to the topic such as the use of manipulative instruments, critical thinking questions, etc.. When the student succeeds in each of the exercises the tutor promotes the student to the next level, if not, the student stays in level II.

Level III (Students master the necessary skills and demonstrate these in their performance.)

The tutor provides the student with more exercises to verify the new skills, points out any weaknesses the student might still have. When the student masters and shows the interest in helping his or her peers during the session, the tutor observes and decides whether to promote the student to the next level, or not.

Level IV (Students verbalize the learning process of levels II and III as they experience it.)

The students become tutors and, most important, tutors for their peers.

These levels give us important information to help students. This constructivist tutorial approach created to be suitable to any subject is one in which students competencies are challenged every time. Thus, the facilitator stimulates learning processes in each student to make them aware of their abilities.

V- STATISTICS

We consider for our statistics students that have received no less than 6 hours of tutoring. Around the 70% of our tutoring efforts are for all mathematics courses that are divided in this table to show the positive impact of tutoring in preparatory mathematics and higher mathematics versus students that have received no tutoring services from the institution.

The following table has been possible thanks to our tracking system and the collaboration of the Institutional Research Office.

Other important report is the tutoring performance index, which measures at the end of each quarter the impact of every tutor on the amount of students served by joining the mean level during the tutoring to the student final grade:

Example:

Tutor : _____ Term: _____

Levels I

C = 1

II

A = 2

B = 9

C = 3

F = 3

W = 1

III

A = 5

B = 17

C = 8

F = 3

IV

A = 8

Total of students: 57

In the case that it is shown larger amounts of F's grades, and this are in level III or even worst, level IV, it would be the time to assist the tutor. In Level I and II should be the less amount of tutored students, because the tutor's goal should be bringing the students to levels III and IV. (See level explanations above.)

VI- THE RESULTS

The results from the use of our methods leads us to evaluate Center for University Progress' efforts not only in a quantitative way (number of students tutored), but in tutoring quality itself.

A. PERSONALIZED SERVICE

A more precise dialogue with Retention and Counseling Office has been established. Counselors now follow their students' performance more accurately especially when a student has a specific academic problem or related situation and act accordingly to their expertise for the good of the student.

Particularly, for the first preparatory mathematics, tutorials are part of the course and the interaction key has been helpful detecting special cases.

B. MORE TUTORED STUDENTS AND MORE COURSES

In the first three quarters the Center for University Progress has attended a total of 2,136 students equal to 14,899 tutoring hours and offered tutoring from 27 courses to 33 courses depending on the quarter.

C. SENSE OF AWARENESS

The ideas students had about a tutor have changed from viewing the tutor as someone who does things

Table 1

Percent of Approval	Fall/2002 Preparatory Mathematics	Winter/2002 Preparatory Mathematics	Fall/2002 Higher Mathematics	Winter/2002 Higher Mathematics
Center for University Progress' students	82% (237)	78% (185)	88% (182)	85% (169)
Student population not receiving tutoring services	69% (425)	65% (368)	64% (1,284)	70% (1,244)

for them into seeing the tutor as someone who helps them know how to do things themselves.

The methods of tutoring led them realize that they are the most important and active part of their learning processes.

This sense of awareness makes them feel confident and willing to cooperate as new tutors or in other fields.

D. NEW EQUIPMENT

A new language laboratory has been acquired to strengthen communication skills and a mathematics laboratory is being improved as a complimentary tutoring tool for tutors and students. Both have access to the Internet and to our tutorial web page: www.pupr.edu/cpu

E. COMMUNITY PERCEPTION

Our tutoring program is well known through the university community. Although, we assist only PUPR students, many high school students and parents call for tutoring services and whenever possible we help them.

VII- PROJECTIONS

Our tutorial system, as a fundamental component, intends to increase institutional retention rate by bringing students the best tutoring services and opening new tutorials for gate courses. It is also projected that all tutors have computers in their tutoring class rooms to enter data of the tutorials, keep working on the web page or developing new practice exercises and give on line tutorials. We have started to share our experience with other programs as well as learn from them and will continue. We have gone a step further by organizing an event that will gather most important higher education tutorial programs in Puerto Rico with the purpose of sharing strategies, finding, learning styles, and the whole dynamic of the effective tutorials. This event was held on 21st of November of 2003.

VIII- CONCLUSIONS

The Center for University Progress as a constructivist tutoring center helps students to discover their own learning abilities and responds with flexible pedagogical strategies to the students' constant changing needs. We are a working team changing behaviors in our community. We did not invent the wheel but we are maximizing it by:

- a) Letting the students know they are in charge of their learning and that will end in the development of skills that will accompany them further in life.
- b) Changing the vision of what a tutor and a tutoring center should be. From the traditional type to a constructivist following a continuous education path that integrates also different technologies to the tutoring sessions.

Our main goal is that a student become well empowered not only of new knowledge and the ways of acquiring it, but of self-confidence and creative expressions that can serve to a better development of society.

For more information about this tutorial program, please contact Iris Miranda: (787) 622-8000, ext. 274, 331; Fax (787) 754-8450; or e-mail at imiranda@pupr.edu.

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