

How to Improve Student's Retention Rate in Science and Technology

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Abstract:

Our current economic era has been called the Information Age due to its dependence on the manipulation of information and the huge improvements in technology and science. In order for the United States to be able to compete effectively in the global economy it needs to train and graduate students who specialize in the sciences and technology. Therefore, it has become a major issue confronting the country. That is why the authors set out to find a way to keep students in science and technology programs since it is difficult to recruit them in the first place. This paper will present a general strategy toward assessing student performance and how to retain students according to those results.

Introduction:

In today's modern society, the computer and Internet have become routine in everyone's life, but how these technologies actually do what they do is almost invisible to most people.

In the past century, how subject matter was taught in the classroom and the roles of the teacher was done differently than today; students had limited information and the instructor was the main resource. Students were more committed to attend the classroom, do homework and follow the instructions provided by their teacher. Class attendance played a major part in their success, but many people were not able to attend school because of financial difficulties and lack of services in many regions.

In today's society, the classroom can be real or virtual, and the teacher can be a facilitator or instructor. This is a big difference between the past and present educational systems

and learning process. Because the cost of living especially in populated cities is higher, and the cost of higher education costs more as well; students need to work full time just to afford to enroll in college as a full or part time student. This means that they don't have enough time to study sufficiently outside the classroom. Therefore, time management becomes a very important part in student performance and retention.

Students need to retain information as much as possible during their contact hours with their instructors and instructors must provide services more than in the past. However, students need to take more responsibilities and be able to study more independently.

Assessment/Retention

In the past, some schools could use the approach that students are fully responsible for their success or failure. Their attendance and performance were not major issues for instructors. An instructor would provide a syllabus and followed the objectives of the course. It was the student's responsibility to attend his/her classes and complete the assignments by the due date. Students were left alone and the instructor would not frequently engage themselves directly in the students' success rate. This approach is no longer valid since the loss of the students who perform poorly is starting to have a financial impact on colleges.

These colleges are now aggressively trying to use a different approach to increase the retention rate of their students. Successful institutes of higher education have implemented strong retention programs which provide more services to students, like a center for student academic success. The center would concentrate on mentoring and tutoring programs, open discussion sessions and pay close attention to the student's attendance and activities.

Student attendance is an especially important area that affects student retention. Most would probably agree that if a student does not attend class then it is very likely that student will not perform well in that class. Some reasons that are addressable include student motivation and class schedule. If students are not motivated then they will be less likely to go to class and therefore they will not perform well and will be more likely to drop out.

Motivation can be low for many different reasons; not being prepared for the course work, not understanding how the education can be used for a future career, the course material is not interesting and they have outside conflicts. These issues can be addressed by assessing what level the students are when they first start at the college. If they are lacking in certain necessary skills then remedial courses should be given.

Another reason is that classes are not always scheduled to accommodate student availability, like classes being offered at nights or on particular days. Other factors that impact attendance are beyond our control, like job related issues, family issues, students may need to relocate or stop attending classes to support their new family.

Suggestions to Solve Retention Problem

In order to reduce student attrition rate, increase their success rate and improve student retention the following suggestions are offered to assist in achieving these goals.

- Orientation and entrance measurement test
- Identify students at risk before enrollment
- Identify students at risk after enrollment
- Provide group discussions or have a course discussion section
- Provide effective homework assignments instead of busy work
- Provide mini projects, close to actual projects that they can find in the work place
- Send at-risk students to tutorial sessions
- Provide a mentoring program
- Have workshops and guest speakers on how their education helped them succeed
- Keep the curriculum up to date
- Provide a strong math mentoring/tutoring center
- Follow up weekly on student attendance report
- Involve students with internship programs
- Provide “student exploration activity day”
- Improve instructor’s performance criteria
- Provide bi-weekly progress report
- Provide a financial aid assistant
- Provide career development center

Of all the factors listed above, the instructors, academic advisors and tutors may play the most important role in student retention rate. Academic advisors provide students with the resources needed to the various campus services and supply the essential academic connection between these services and the students. Instructors, mentors and tutors must develop a close relation with at-risk students and have one-to-one advisement and discussion sessions with them. Instructors may need to start working with at-risk students at a slower pace than others and increase the student’s work load later as required.

Finances are another concern. It is essential that campus representatives and advisors build strong relationships with the financial aid departments and career development center on campus. So, those students can understand how they can afford their education and how that will help them in the future. Financial aid goes beyond helping students find a way to afford their education due to its complex nature.

The rules behind financial aid can actually come back to bite the student. If a student gets a loan from lending institutions and does not get good grades, due to personal problems, then that student can’t continue to get the loan and therefore he/she can’t continue with his/her studies. For example, if a student temporarily drops out due to family or other personal problems, then the student’s lending institution will demand that loan repayment start. But, since the student hasn’t graduated and therefore does not have a better paying job, the student can not afford to repay the loan. Even if the personal problems get resolved the student will still have difficulty resuming his/her course load because the

financial aid will be cut off due to the student's poor performance during last school session which was only due to personal problems, not academic problem. For this reason all those involved need to understand the policies and procedures that affect students' financial aid as well as have a clear understanding of how to effectively advise those students in financial need.

The career development center on campus needs to go beyond their traditional role as well. They need to help students understand how their chosen study plan will learn an interesting career that pays well. If they understand their career options/goals then they will have a better focus on their classes. Career services should also organize short seminars to help students better make the connection between their academic planning and their career goals.

Another way to help make that connection is by making an industrial advisory board. Its purpose would be to show that there are jobs for them, especially in technology contrary to what they might here on the news. It can also help the school with a planning center that works on helping students find jobs, motivates them for interviews and would use students who graduated explain how well they are doing in their new careers. This all helps motivate them to continue to reach their goal of earning a degree.

Student class attendance plays a major role in student retention as well. Sometimes, students may be too busy with their job or some other important thing. They might decide that not going to class is not that big of a problem. But, it is. If they do not attend class then they will fall behind in the material, become frustrated and they will be even less interested in continuing. The student advisement center and instructors must work together to develop a strategic plan to tackle attendance problems. For example, looking at the student's attendance reports frequently and if it is necessary make a telephone call to encourage the student to continue attending their classes. When students are called this will open a door to listen to their concerns and problems which will help all involved develop effective solutions.

A student reward program is also a good tool to use for high achieving students who strongly identify with strong attendance, honor, and the highest academic achievement. These students can become mentors or tutors to help at-risk students as well. They can provide free tutoring in selected subject areas, but especially in mathematics. All students who participate in the tutoring program should be asked to complete an evaluation form that will be used to determine their satisfaction with the tutoring program, how to improve it and what future tutoring sessions should be offered. Students should be asked to indicate their satisfaction in a survey.

Another factor in keeping students motivated is to keep them academically challenged and to keep the curriculum, coursework and performance expectations updated.

The college's administration needs to buy into this as well. They must have a coordinator to decide when to intervene with at-risk students and have enough advisers to provide

assistance. Particular emphasis should be given to how well freshman students are performing.

Conclusion:

It has been proven to be difficult to attract students to choose a career in technology fields. That means that when a student drops out of college it will be much more difficult to find another to replace that student. Therefore, improving student retention is even more critical these days. This can be done by having instructors, financial aid, career counseling and the college's administration realize that much effort needs to be put into keeping students motivated, interested and focused on finishing their education.

The authors will continue to study how to improve the student retention rate. An extensive survey will be made to find additional factors that can help improve retention rates.