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Teaching Computer Science to At-Risk Students

The “at risk” student population is the fastest growing and largest subpopulation within education today. The number of students labeled as at-risk continues to grow. This is due to several factors which will be explored in further detail to come. For the sake of the American education system, it is imperative that these students be reached and allowed to overcome any challenges or roadblocks in their path. These students are the future of America and with their numbers swelling they will ultimately define the American public decades to come. The classification is a very broad umbrella term for students who are at risk of dropping out of school. They do not see school as relevant or perhaps simply cannot make time for school in their lives beyond the school doors.

Identification

Identifying students that have a high probably of dropping out has been one of the goals of the education system for over thirty years. Schools, through the years, have sought to identify those factors that make a student more or less likely to graduate with a diploma. Why is it that one student will graduate while another will not? There are several factors that have been identified thus far. The list is not definitive, but it contains those factors which research has shown will reduce a student’s likelihood of graduation.

Factors for At-Risk classification:

* Inner-city
* Low Income
* Homeless
* Limited English Proficient
* Special Needs (emotional, behavioral difficulties, learning style)
* Substance Abuse
* Juveniles Crime
* Unemployment
* Poverty
* Broken Home
* Lack of Adult Support

Causes

Many of these factors conspire against the student’s academic career, not just individually, but usually in tandem. Sociologists will tell us that poverty increases a person’s likelihood of substance abuse, or vice-versa, substance abuse can reduce a family to poverty. These factors, combined may drive the child to be self-sufficient without the aid of an adult caregiver or the family be uprooted and forced to live homeless. Being homeless make parental employment difficult, increasing the pressures on the student to *not* finish school and simply drop out. These mounting pressures can strain an otherwise healthy marriage adding yet another factor to the mounting list of at-risk factors.

The US Census Bureau has reported that the number of divorces has been steadily climbing for the past decade. This, in turn, has increased the number of students labeled at risk. As of 2004, the Bureau reports that 1 in 5 adults have been divorced at least once. Students in a broken home may not have the reinforcement of both parents being involved in the student’s success. Such cases have been well documented and their numbers continue to mount, placing schools at the forefront of this growing issue.

During the economic downturn of 2009, the United States saw a dramatic rise in unemployment. This flooded the “at risk” rosters of schools with children suddenly unsure about their current lifestyle as parents faced the reality of foreclosure or relocation.

An often overlooked label is that over learning *ability*, not just *dis*ability. Of course, students that are disabled have an uphill struggle. Unfortunately, other students that are *not* challenged – that do *not* struggle – are oft given little attention. This lack of stimulation or understanding can lead the student to feel school is a waste of time. The student takes on an “I can learn this on my own” attitude, or fails to see the relevance of schoolwork in their life. These students too can see dropping out as a real possibility.

Some students may not have any of these issues concerning them; their chief goal of growing up is merely surviving. These students may see school as a refuge from the streets they may find themselves on at night. They may see school as a place of rest and not a place of learning. Of course, these students have bigger problems than how well they may do on a standardized test, but they still need to be reached. Life’s predicaments do not dictate what a person is capable of. There are several programs in place to aid them in their academics if they choose to pursue their education.

Diagnosis

Students that may be labeled at risk are generally identified based on criteria outside the classroom. These factors may come from the counselor’s office or from enrollment data or their own in-school behavior record. Most students will come to the classroom with this qualification and little else is needed by the teacher for diagnosis. It is of utmost importance to identify these students early. The earlier they can be identified and reached, the more profound the student improvement will be. By reaching the student before it is “too late” the more chance of success the student is given.

Intervention Efforts

Misunderstanding the “at risk” label is perhaps the biggest roadblock to educators. Some educators may feel that the student is on the track to dropping out. This only exacerbates the problem. These students are not a lost cause. They just need to be excited about the content. Essentially, these students have not found their niche in school life yet. They have no found that one subject that truly excites them or they see as beneficial to life outside the classroom - this is the challenge to their teachers.

The first step of combating the at-risk problem is schools is to make a special effort to truly get to know the student and his or her interests. What excites that student? The teacher must look for ways to incorporate the varying arrays of student interests with relevant lessons. Find ways to explain how classroom lessons carry over into “the real world”. So often students never make the connection, and teachers are left having to fill the gap. Be that bridge. The student may be “at risk” for reasons beyond the teacher’s control, but what the teacher *can* control is the manner in which class activities are designed and presented.

Another problem with at-risk students is their short-sighted plans. They generally just want to get through the day. It is important that teachers get students to consider the “big picture” and get them to dream big. They may see college as impossible – perhaps it is extremely difficult for them to go to college – but they should still have a plan for life after school. Students may consider the military or have immediate career goals. Such goals will aid students in their journey. By having a target, students will be able to judge their lessons no longer based on how it will affect them today or tomorrow, but more how it will *empower* them in their future career. It is imperative that students receive that connecting bond between school and life outside the classroom.

The entire outlook on the issue centers around being attentive to student needs and desires as well as aware of personal interests and goals. There is not a quick fix. Building a relationship with students can be a long arduous process. Patience is vital in the process. The student may distrust, dislike or be ambivalent toward teachers and administrators. The teacher must stay open, ready to meet the student when the student is comfortable and truly willing to do what it takes. This attitude must go beyond the school walls. Always keep a special eye out for the student around town. Let them know you’re excited to see them outside of class and that you truly are happy to see them. A smile and “see you tomorrow” can go a long way with certain students.

Role of Technology

Fortunately, though these problems are complex and may take months or years to combat, technology can play a huge role. Technology can help in keeping students excited and will allow students to expand their horizons. They may feel trapped in their current situation, but the world of technology can break down those invisible barriers and allow them access to a larger world awaiting them at their fingertips.

Students are able to see the limitless possibilities that await them beyond the school doors. A student that may not have access to technology in any other way can find computers and other classroom technology to be liberating. Teachers must be able to find ways to encourage students to explore their own talents and curiosities. Perhaps the student’s inner drive has be stymied from lack of resources. School should be considered the *home* of resources. Remember, school is a place of learning more than it is a place of grading and assessment. Let the learning dictate the assessment.

Perhaps their entire life seems out of control, but with a computer *they* are in control. For once, something relatively predictable is awaiting *their* input. If a student begins to show interest in a particular subject, the teacher should seek input from the student to develop an innovative approach to that student’s education. Schools should be ready and willing to custom-tailored a track of education for students. Meeting the needs of individual students should be the guiding principle of every school; modifications are just one piece of many.

Allowing student control of their education will give the educators vast insight into the student’s outlook on life, goals and ultimately what motivates them. By handing over individual control, the student may feel more at ease. Perhaps the student is tired of always being told what to do, for once he or she can be treated as the young adult they are growing into. Of course, one size does not fit all when it comes to education. Some students would prefer the comfort of strict boundaries. For these students, they may have grown weary of constantly having to keep track of the day-to-day aspects of life. For once they want to take a backseat and let someone else steer. These students must also be consulted to ensure their individual needs are being met.

Students may have absolutely no desire to go into the computer or technology fields. This is where teachers need not focus on technology as a goal, but a means to an end. Computers and technology should not be considered something to be dealt with as much as a it should be considered a tool for furthering individual goals.

In the Classroom

Many times, students need to be included in a classroom setting where they feel disconnected. Active, engaging classrooms can combat this problem. Teachers should create open, cooperative and collaborative learning atmospheres. Students should be encouraged to freely explore. However, structure and scaffold according to student needs. Do no force a student to participate if they truly do not want any part of cooperation. Allow for modifications when necessary, but do not let apathy be their reason for not participating. Place students in groups based on interest, roles and personalities. Find the best fit for the at risk students in other groups. Choose activities that are not confrontational or may allow a student to take charge, be overbearing and do all the work. Give each student an opportunity. As the classroom environment builds, your students will settle into their “place” and may eventually become truly engaged with the classroom setting.

Classroom Implementation

Computers afford students the opportunities to create, interact with and produce multimedia creations. Sometimes students from difficult backgrounds can have the most to say. Their life experiences can be used to create wonderful, creative and artistic expressions. This outpouring can be useful and therapeutic for at risk students. It gives them an “out”.

Remember that computers are a tool that can further a student’s work in other fields, not just in the computer lab but in all academic fields. There are a myriad of ways in which to implement technology directly into the lesson. Perhaps the easiest method is using the computer and Internet to lead the students in research. Students should be allowed to choose any topic that they are comfortable with. Using keywords and search engines, students should be allowed to explore that field to its fullest. Students will take ownership of a project of their own choosing and the lessons learned will be personally meaningful. Do not judge the student based on the information gleaned, but on the quality of their work. Students should feel relaxed and be encouraged to learn on their own. Along the way, the student will find they may indeed enjoy research on their own and may find new, creative uses for their newfound gift. Learning is a lifetime pursuit and it can all start in the classroom with technology as the catalyst for this learning.

The opportunities that classrooms have with the Internet are limitless and heretofore unimaginable. The internet can be used as a vast, dynamic library full of projects, ideas and exploratory learning activities. It is important that the teacher display a keen sense of what is possible with online learning and how far such a tool can take the student. Teachers should be excited about using technology and students will follow the lead. Technology has the ability to change lives and it can truly show when used with at-risk students in their schooling.

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