

You Teach, Why do Students not Learn?

Try this experiment for yourself. Go ask a number of adults “What is the meaning of pi?”. The majority of them will have actually used the value when they were in school but, years later they won’t remember much about it. Is this just because they haven’t used the value since leaving school or is it also because of the way they were taught? The question of why we teach material that 99% of the students will never use is a topic for another article.

Present teaching methods based on the presentation (lecture) approach give the appearance of efficiency because the presenter covers a large amount of material. If the evaluation is then based on the return of key points of that information by the student, the method appears to work. But for the vast majority of students, this process is a complete waste of time. Ask them about any of those points 9 months to a year later and you’ll find that they remember few if any. Try that 10 years later and they probably won’t even remember taking the course or if they do remember, it will be because it was so painful.

If the lecture method is bad, why do we continue to use it? There are many reasons. It is an absolute truth that “All teachers start out teaching as they were taught”. In other words, we use the same methods and techniques that were used on us when we were in school. Another very common reason is some teachers absolutely have to be the center of attention. They love to lecture and show off their knowledge. For many, the process inflates their personal ego. Some people call this the “I’ve got a secret” method of instruction and the student has to figure out what the secret is.

In every ATech/AIPC workshop I ask this question of the participants, “What would you think if I had given you a 20 page reading assignment and a 2 page question and answer sheet as your first assignment when you came in this morning? Would that excite you? Would you want to do that? **Why do we do that to students?**” The same idea applies to lectures. While you may think you are the world’s most entertaining lecturer, it is guaranteed that your students don’t. Would you enjoy sitting there, totally inactive, while someone puts point after point on a whiteboard or projects them with PowerPoint?

I call what normally happens to the student, **PowerPoint Paralysis**. Their eyes glaze over, their brain goes to sleep, and their legs and butt become numb. Most teachers accept this and as long as the student’s eyes don’t close, this would be deemed a successful learning experience for the student.

How do you change your program? It will be a gradual process - one program section or module at a time and it will take considerable work on your part. Student involvement is the key and “hands on” and “discovery” are the techniques to use. Let’s take the pi experiment as an example. One way to incorporate both “hands on” and “discovery” would be to give a student several round items, ex. a piece of plywood cut from a 3/4 inch thick sheet with a hole saw, a soda can, a ring from a fruit jar, etc., and a cloth measuring tape. Tell them that all of these items have some things in common.

One is they are round, what’s another? Obviously, the cloth measuring tape is a hint. At this point, if a student came up with the answer that it is the ratio of circumference to diameter (pi), you would be amazed. But as your students become more attuned to the “discovery” process, they will get better. For the most part, they have never had to discover something for themselves in the educational process and should not be expected to automatically pick it up. If they didn’t know in all other classes, they asked and the teacher gave them the answer.

How do you help them adjust to discovering things? Never answer a question except with a question. Ask them the question they should have asked themselves. In our example of pi, some of the students will be completely lost. Ask them “How many different dimensions can we measure on these objects?”. Let them work with that question for some time. They must be given the opportunity to think. What’s the next question? How about “Are any of the ratios the same?”.

It is much easier and quicker to tell them pi is the number which represents the ratio of a circle’s diameter to its circumference. But for understanding to take place, they must discover this individually. Then they own it and will probably never forget it. As a teacher, this is the most difficult way to teach because you must plan each learning experience in detail but to ensure student understanding, it is the only way to teach.

Remember “**The key to a successful program is to put yourself in the place of the student.**” If you wouldn’t like performing a particular activity, why do you think the student will? Does the Education process have to be painful?



Computer Based Troubleshooting Skill Development - Part 2

The ATech 3631 has two modes of operation - Training and Advanced. In the Training mode, measurements are allowed inside components. As illustrated in Figure 1, if a high

parameters using Ohm's Law but cannot find a simple open connection in a dome light circuit.

"We Learn What We Practice" is an idea that everyone can agree with. If we practice Ohm's Law, we learn Ohm's Law. But how does the student transition that knowledge to troubleshooting? They must be given the opportunity to practice and apply the concepts of Ohm's Law to faulted circuits. In other words, practice, practice, practice. The ATech 3631 has over 60 faults in 5 different circuits. The circuits are Fuel Pump Relay, Engine Coolant Temp, Fuel Injector, Intake Air Temp, and Throttle Position Sensor. The 3631 software is the vehicle for both beginners and advanced technicians to practice using their electrical knowledge to troubleshoot actual engine control circuits. Every level of technician can dramatically improve their troubleshooting skills by utilization of the Training and then the Advanced mode of the ATech 3631.

Whether you are just starting out in automotive service or are an old hand, you will find the ATech 3631 to be challenging. At the same time you will have fun trying to troubleshoot and understand all the possible problems. The ATech 3631 even has the ability

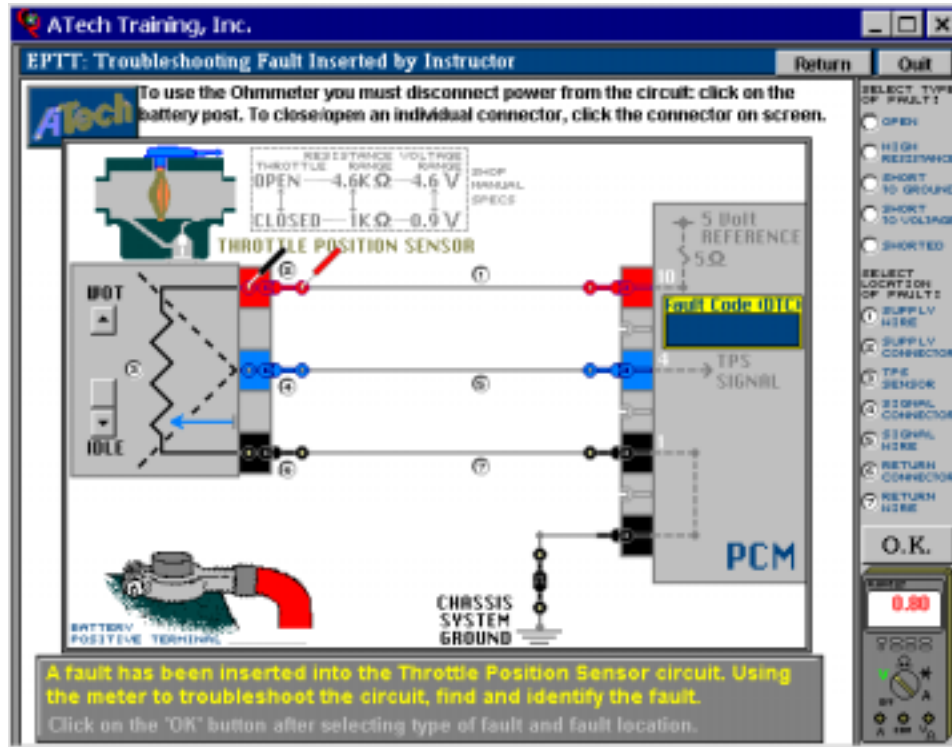
to manually insert faults, with choices from an easy to use menu. Demo download available from:

www.atechtraining.com

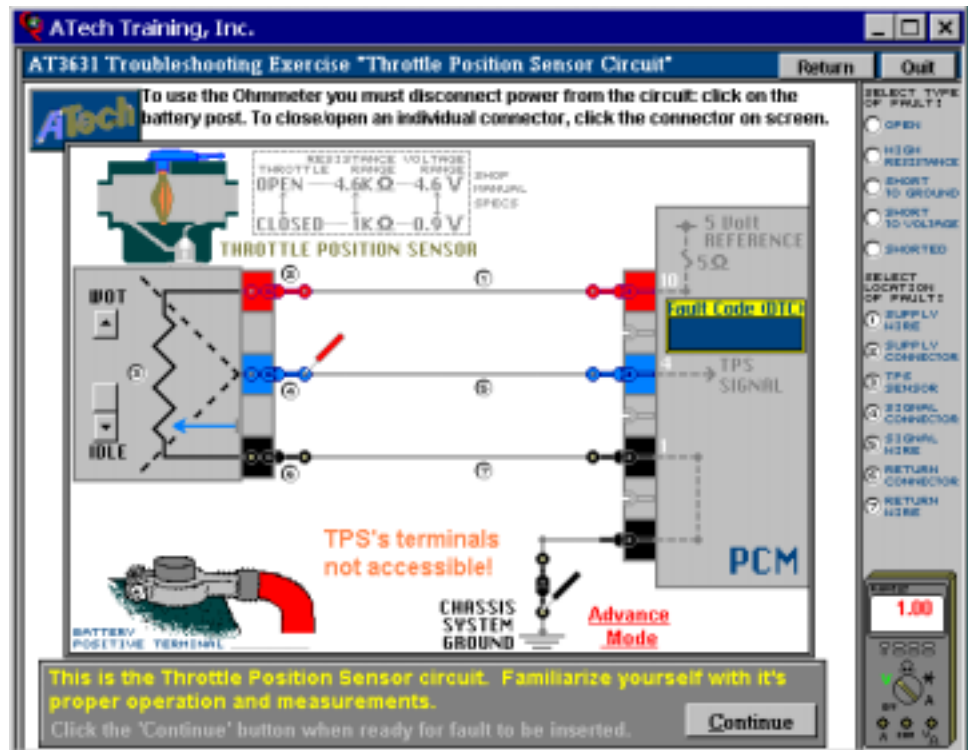
resistance in a connection is given as a fault, the troubleshooter can measure directly across the connecting pin for both voltage drop and contact resistance. This mode was included in the program to make the transition to only being able to troubleshoot by back-probing easier. The Training mode permits a student to see and measure the effects on voltage and resistance of some of the typically "hidden" faults.

The Advanced mode creates the more realistic situation of only being able to back-probe connectors. If a probe is placed at a connection point inside a component, the program will move it outside the component and give a warning message and distinctive sound indicating that the measurement point is not available. This is illustrated in Figure 2.

The major problem with most Electrical/Electronic instruction is that most of the time is spent talking about theoretical issues such as complex series-parallel circuits and little if any time is given to either theoretical or practical troubleshooting skill development. As a result, students graduate from training programs with the ability to calculate circuit



Training Mode - Fig. 1



Advanced Mode - Fig. 2

“Invitational” Instructor Workshops

The ATech/AIPC “Invitational” Workshops are conducted three times each year; April, June, and October. All expenses are paid for each attendee including air transportation, airport pickup, hotel, and meals. The location is the Belterra Riverboat Resort. Each group is selected to provide a mix of Secondary, Post-Secondary, and Industrial Instructors. Technical topics and teaching techniques emphasizing “hands on” instruction are presented and discussed. Over \$1000.00 of books and teaching materials are given to each participant. **In addition, each workshop satisfies the 20 hour annual training requirement of NATEF.**

October 2004 Workshop



Left to Right: Ron Chappell, Jerry Pflum, Rick Curlee, Moe Moin Amin, Dean Jackson, Lance David, John Easley, Ken Gordon Paul Battel, Charlie Melton, Richard Krieger, John Ball, John Albers, Dan Claus, Anthony Renaud, Dan Klecker, Lynn Tanner, Dick Ireland, John Thrasher, Brett Colston, Chuck Ginther, Pat Dixon

Lynn Tanner and John Albers Win Troubleshooting Contest



Gene Brown - ATech VP and Lynn Tanner

Comment from Participant

“This letter is a formal message of sincere thanks and great appreciation to ATech for providing a great learning experience and a great time last week at Walton and Belterra. I thank you sincerely for inviting me to participate.

The many contributions ATech has made at the National level in providing quality automotive service training to numerous educators is without equal. You are to be highly complimented for your continuing leadership in automotive technology education.

ATech Training has established itself as the premier company of its type in the Nation. Rest assured that I will eagerly encourage my professional colleagues to get to know ATech and its leadership better. Automotive service education will benefit from it.

Thanks again for your contribution of this great education experience for me, and my numerous faculty colleagues.”

Professor Ken Gordon, Automotive Technology
Pittsburg State University

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October 2004 Workshop



Electrical/Electronics Troubleshooting Session with 24 participants required a ballroom

NASTF Information presented at October 2004 ATech/AIPC Workshop



John Ball - American Honda (retired) presenting information on the Training Committee of NASTF

Brett Colston of Heart of Georgia Technical College Wins AutoTap Scan Tool



Gene Brown-ATech VP presents Brett with AutoTap Scan Tool

Rio Hondo Training Workshop



Left to Right: Jake Fortney, Antonio Casillas, Randy Scodellaro, Robert Anderson, Jose Lopez, Robert Wenzlaff, Darrell Coburn, Bob Gordon

Each August, ATech works with our training center, Rio Hondo College in Whittier, California, to provide a State accredited training workshop for high school and post secondary automotive instructors. The workshops given at Rio Hondo are very similar to the Invitational Workshops given at Belterra Resort three times a year.

Troubleshooting Contest Winners



Robert Anderson and Darrell Coburn

ATech Supplies General Motors S.E.T. Manuals

In the spring of 2004, General Motors stopped publishing the original manuals for the General Motors Special Electronics Training Program (S.E.T.). The hardware for this training system was originally designed by ATech. Due to the large number of ATech customers who have purchased the training system over the last 12 years, ATech licensed the printing of the manuals from GM. If you need student manuals, instructor guides, or any of the training system hardware, contact ATech.



Stages 1, 2, and 3 Manuals



ATech Offers Hands-On “Mode-6” Workshop at NACAT



ATech Training Inc. offered a three hour version of the ATech/AIPC Invitational twelve hour OBD II Workshop at NACAT 2004. Topics included GM Mode 6, bidirectional operation, and operation of the AutoTap ScanTool. While facilities were cramped and our location was on the other end of the campus from all other seminars, turn out was good.

“OBD II Engine Controls have been in vehicles for over eight years and most instructors still do not understand oxygen sensor, fuel trims, and injector pulse width relationships. All of the Power Point presentations they have attended have not helped.” Fred Hines, ATech President



The Valvecover Races - a Launch

ASE Donates Tool Certificates to Uncertified Schools at NACAT



ASE President Weiner discussed the importance of quality high school automotive programs both as feeders to college programs and to jobs in our industry. He pointed out that many secondary programs are poorly funded and are unable to achieve NATEF certification because of their limited resources.

Weiner asked the members in attendance to nominate worthy high school programs in need of assistance. Seven programs in the United States and Canada were selected to receive ASE Secondary School Assistance Grants of \$2000 in Snap-On tools.

- Burlington Edison High School**
- Burlington, WA** Nominated by Jeff Curtis
- Daniel Morgan Technology Center**
- Spartanburg, SC** Nominated by Rick Griffin
- North Pole High School**
- North Pole, AK** Nominated by Darrell Deeter
- Monrovia High School**
- Monrovia, CA** Nominated by Bob Wenzlaff
- Ketchikan High School**
- Ketchikan, AK** Nominated by Tony Martin
- James Fowler High School**
- Calgary, Alberta** Nominated by Patrick Brown-Harrison
- IOSCO Regional Education Service Agency**
- Career & Technical Education Center**
- Tawas City, MI** Nominated by Thomas Bremer

***Pictures courtesy of Fritz Peacock and Al Millman**

NATEF™ Recommended??

“NATEF does not endorse or support any product, tool line, training aid, curriculum, or curricular materials, nor any company or agency that produces such items.” - Mary Hutchinson, Executive Director of NATEF

If an individual or a sales representative of a company that produces tools, training devices, or curriculum for automotive training tells you that their products are recommended by NATEF, to put it bluntly, they are lying as indicated by the above quote. Most of these same companies also sell products for other areas of training such as Tech Ed, therefore you should talk to your local and State administration about the company’s actions. If a company lies about NATEF recommendation, are they likely to tell you the truth about the capabilities of their equipment, quality of their curriculum, service, or delivery times? **The easiest way to prevent future problems is to avoid them in the beginning.**

AIPC 2004 Awards Program Winners

The 2004 AIPC Awards for Excellence in Automotive Training National Winners have been announced. They are:

Post Secondary - Generic Category

North Iowa Area Community College

Post Secondary Generic Runners Up

Delaware Technical and Community College

Riverland Community College

Post Secondary - Manufacturer Affiliated Category

Sinclair Community College

Post Secondary - Manf. Aff. Runners Up

Atlantic Technical Center

KirkWood Community College

Secondary Category

Warwick Area Career and Technical Center

Secondary Category Runners Up

Miami Valley Career Technology Center

St. Croix Vocational School

Congratulations to all of these great programs. This year the Awards Dinner will include National Winners, National Runners Up, and all State Winners. See you in Las Vegas in December!

Visit “AIPC Row” at ACTE!

547	I-Car 646	AIPC Row	Greystone Technology 20'
545	ACDelco 644		A Tech Training 40'
543	American Honda 642		VRI 20'
Center on Edu & Work 541	NATEF 640		641 740

Some members of the Automotive Industry Planning Council (AIPC) have set up a special section of the ACTE Tradeshow designated AIPC Row. Winners of the Awards Program along with their winning applications will be there to discuss the application process and give tips as to achieving a high score.

AIPC Information Session at ACTE

Professor Mike Godson from Clark College in Vancouver, Washington and other members of the AIPC will be presenting an information session at the ACTE conference in Las Vegas in December 2004.

“Tips On Applying For The AIPC Award”

DATE: 12/11/2004

TIME: 3:15 PM - 4:00 PM

LOCATION: N254, Convention Center





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Automotive Industry Planning Council



News Flash

SkillsUSA has announced that the United States will not be competing in the International Competition for automotive in 2005. This comes after having won a silver medal in each of the preceding competitions.

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