

# **PARTNERING WITH HIGH SCHOOLS TO BUILD A GREATER AMERICA: A CASE STUDY**

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## **ABSTRACT**

This paper describes the partnership established between the National Center for Simulation (NCS), its industry, academic and government members, and University High School (UHS) of Orlando, Florida. The objective of this "Partners in Education Program" is to develop a secondary school curriculum with a focus on modeling and simulation to prepare students for further education or training and/or careers in an exciting, challenging high technology field.

Introducing modeling and simulation into the high school program requires not only support but a commitment by all parties. Military organizations in the area and NASA were quick to endorse the focus school concept, recognizing that some graduates enter the military, others go on to college and might also go into the service later, or there are those who enter the simulation workforce and contribute to the nation's overall simulation capability. The cooperation and resources provided by the Naval Air Warfare Center Training Systems Division, US Army Simulation, Training and Instrumentation Command, Air Force Agency for Modeling and Simulation and the University of Central Florida, including its Institute for Simulation and Training, have been outstanding. All of these organizations are in or adjacent to the Central Florida Research Park, making it very convenient for tours, demonstrations and student work opportunities.

The program to date has been very successful, serving as a template for other secondary schools and educational institutions of all levels. Teacher training, which includes classroom instruction, tours and demonstrations, has energized the faculty and fostered an exceptional interest in technology by the students. Approximately 100 students are enrolled in the program for this first year of its existence. The demand is expected to grow as the program progresses. The program expects to produce graduates who are familiar with the high technologies that will influence and even shape their lives through a cutting-edge curriculum and, perhaps more importantly, through exposure to industry professionals who have taken an interest in their development and future.

### **Biographical Sketch:**

Mr. Okraski has over forty years of experience in training systems and simulation research, acquisition and support for the U.S. Navy, Marine Corps, Army, non-DoD agencies and foreign governments. He is recognized nationally and internationally as an expert in training simulation. A visionary with a record of developing and implementing new concepts in simulation. A member of the Senior Executive Service for ten years. Major participant in creating the Center of Excellence for Simulation and Training in the Central Florida Area. He is Chairman of the Board of Directors of the National Center for Simulation and serves on several advisory boards for the University of Central Florida and Orange County schools.

Mr. Okraski holds a BEE from Clarkson University and a ME from the University of Florida. He is an adjunct faculty member at the University of Central Florida, a Registered Professional Engineer in the State of Florida and a fellow member of the Florida Engineering Society.

Ms. Diaz has served as Principal of University High School for the past two years. Mrs. Diaz has served as a middle school principal for 4 years, an assistant principal, a dean of students, a learning specialist, and a classroom teacher during her career as an educator. Prior to entering education, Ms. Diaz worked for the Department of Defense, Naval Air Warfare, in Orlando.

Mrs. Diaz was selected as Orange County's Outstanding Middle School Principal in 1998 and received the Florida Department of Education Commissioner's Achievement Award for Outstanding Leadership. As University High School principal she has implemented an International Baccalaureate magnet program and has been instrumental in designing the University High School at Research Park Academy which will gain magnet status in 2001. Throughout her career as an administrator, Ms. Diaz has acted as an advocate in the community for education.

Anna Diaz graduated from the University of South Florida in 1981 with a Bachelor of Arts in Education. In 1991 Anna Diaz became the only Hispanic Danforth Scholar in the Educational Leadership program at the University of Central Florida, earning a M.Ed. in 1993.

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## **INTRODUCTION**

Establishing partnerships has become routine throughout the high-technology industry. Not only do companies team with each other in pursuit of government and other contracts but, very often, industry joins forces with universities, community colleges, not-for-profit organizations and other entities. Very little effort has gone into working with the “supply side” of the resources and talent that emerge from secondary schools to form the labor pool. Forming a partnership between the simulation industry and a high school makes good business sense because it helps to develop the supply of tomorrow’s workforce and gives industry an opportunity to “put back” some of its energy, professionalism and know-how into the minds of our future workers and leaders. Starting the development process at that level is good for the students and good for the nation. This case study serves as a template for establishing such a relationship.

## **BACKGROUND**

In its Report to Congress of September 1998, the House Committee on Science stated: “Our K-12 education system serves three main purposes: it is responsible for preparing future scientists and engineers for further study in college and graduate school; it provides a foundation for those who will enter the workforce in other capacities; and it provides scientific and technical understanding so that citizens may make informed decisions as consumers and as citizens. To achieve these goals, schools must be able to develop curricula that are rigorous, develop critical thinking, and impart an appreciation of the excitement and utility of science.”

Simulation is perhaps one of the most pervasive technologies of modern times. We find it used in so many fields: military training, medicine, vocational training, entertainment, law enforcement and public safety, nuclear power and many more. Today’s youngsters play video games shortly after they learn to crawl. Yet, very little simulation is used in K-12 education, despite the fact that over 95% of public schools have computers in the classroom. The technology continues to grow at a rapid rate. For the military, simulation is the most cost-effective way to conduct training for individuals and teams safely. Simulation has become a very dynamic example of technology transfer. It originally went through a “spin-off” phase, where technology was transferred from

defense and space to commercial uses, and now we find the trend is more toward “spin-on”, where commercial products are being adopted by the military and space programs. This dynamic transfer, coupled with more personal dollars being spent on entertainment and other individual interests, has generated high technology demands for a better and greater skilled workforce in the area of simulation. This includes white collar, blue collar and no collar workers, representing many disciplines ranging from engineering, education, art, computers, logistics, psychology, legal and contracting, with support from drafting, technical writing, electronic technicians and more.

Central Florida is the center of simulation activity for the nation. With the presence of the military acquisition activities in Orlando, NASA on the east coast, Disney World, Universal Studios, Sea World and other entertainment complexes in the area, our youth are exposed to simulation at a very early age. This is especially true of those who live in Florida where they have opportunities to see the application of simulation from many perspectives. Further, the University of Central Florida has programs in simulation leading to advanced degrees in that field. Florida is also the home of the National Center for Simulation (NCS), a unique, growing partnership of government, academia and industry dedicated to maintaining the national superiority in simulation to benefit the military services, space program and creating high skill, high wage jobs.

The national and the Florida economies are bolstered by the simulation industry. In 1998, Braun and others found that national Modeling, Simulation and Training sales were over \$3.5B. The total impact in Central Florida was \$1.8B in output, over \$642M in earnings. The annual budgets of the military organizations in Florida exceed \$1.3B. Much of this has a direct result on the number of jobs created and tax revenue generated. It is estimated that the number of jobs supporting the military acquisition program exceeds 25,000 with another 25,000 jobs created in the secondary level. The State of Florida is acutely aware of the economic impact of simulation, recognizing that the average salary is approximately \$71K (with fringe) per year, well above the state and national averages. The requirement for skilled labor is felt throughout the country and around the globe. Nowhere is it more obvious than in Florida. That is what prompted

NCS to establish a partnership with University High School (UHS) to begin to offer a program of study in Modeling and Simulation that would prepare students for exciting and challenging careers in that field and introduce the technology into the classroom as a tool for learning.

University High School is located in the northeastern corner of Orange County, Florida, one mile west of the University of Central Florida and the Research Park Complex. The school encompasses 95 acres housing 136 permanent and 50 portable classrooms. Other features include a closed circuit television production studio, a state-of-the-art performing arts center, specialized vocational and technical laboratories and an agribusiness complex. Athletic facilities include a 5,000 seat stadium, a dance studio, two fully-equipped weight rooms and a 1,900 seat gymnasium.

Completed in 1990, University High School was built to serve the rapidly growing population in east Orange County. The school opened with an enrollment of 1,500 students and has gained an average of 400 students every year since its inception. Enrollment in October 1999 was over 4,100 students. Permanent building capacity was designed for 2,030 students. Overcrowding has placed a tremendous strain on the main campus facilities. During the 1997-98 school year, the campus expanded to include the former Discovery Middle School facilities. This increased the capacity to 3,600. Although this has eased overcrowding to an extent, growth is still projected to continue at the rate of 400 new students each year until the new University relief high school is completed in August of 2001. A significant challenge for the immediate future will be maintaining the safety and security of the campus and the integrity and quality of the curriculum.

The student body is a reflection of the ever-increasing diversity in the community. Current demographics indicate the student body is 57% white, non-Hispanic, 30% Hispanic, 8% Black and 5% Asian or other. Approximately 27% of our students are enrolled in the free and reduced school lunch program. The mobility rate is approximately 40%. In 1990, the school served a largely rural community. Major development has caused a substantial increase in the number of middle-sized communities in the area and is beginning to encroach on the once plentiful rural areas surrounding the school.

University High School continues to be the center for many educational and recreational activities in east Orange County. The campus provides extensive classroom space for the University of Central Florida, conducts a large community school and allows community youth athletic groups to utilize the facilities. The performing arts center is in constant demand bringing a wide range of cultural activities to the community.

During the past five years, University High School has evaluated many educational issues facing public schools today. It recognizes that if graduates are going to be successful in today's competitive and global economy, students must receive a significantly better education than achieved by any previous generation. An evaluation of achievement statistics and curriculum indicated that students needed the opportunity to take more classes and needed more time to apply what they were learning to real-life situations. Additionally, teachers needed more time to plan, evaluate lessons and interact with students, parents and peers. Consequently, in the 1995-96 school year, University High changed its schedule from a traditional six period day to a non-traditional 4x4 block schedule. Implementing this type of schedule allows students to earn more credit in a school year, provides time for teachers to implement more hands-on experiences and expands the curriculum to better meet the needs of its student population.

During the 1997-1998 school year, University High School earned the prestigious National Blue Ribbon School Award. This award is bestowed upon schools that excel in teacher training, extracurricular activities, the use of technology, parental involvement and student achievement. Only about 4,000 schools have won the award, or about 3% of all U.S. schools.

Current restructuring involves reorganizing the curriculum to focus on high level applied academic instruction and career planning. Students may follow structured programs of study that will enable them to focus on interest areas and plan for the future. The restructuring affords students the opportunity to select a focus school in which teachers plan the curriculum based on topics of interest and cultivate partnerships with community resources. University High School offers the pre-International Baccalaureate program to a select group of freshmen and sophomore students. The program will expand to include an additional grade level each year subject to approval by the International Baccalaureate Organization. As part of the curriculum for next year, University High School will be adding Pro-School and year two of UHS @ Research Park. These options are designed to assist students and parents in selecting courses that will allow a student to take full advantage of high school opportunities and to personalize educational programs.

University High School will face numerous challenges in the future. Clearly, the tremendous growth and mobility rate in east Orange County will continue to impact the facilities, programs and curriculum at University High School. An increasingly multicultural population will require the school to be resourceful in meeting the academic and cultural needs of its students. In order to provide students with the necessary knowledge and skills to keep pace with changing

technology, University High School will need to change the way in which it organizes time, space and delivery of instruction. Meaningful partnerships will need to be fostered from surrounding private and government agencies. Increased expectations, graduation requirements and demands for accountability from the business community will impact the delivery and assessment of instruction.

The changing family structure will require University High School to meet the multifaceted academic and social needs of its students. Given increased student enrollment, University High School will continue to provide a formal drug and violence prevention program to ensure a safe and secure learning environment for all members of its learning community.

Most importantly, addressing the successful completion of all graduation requirements will continue to be a priority as the school seeks to reduce the number of students who drop out. The administration and faculty are committed to providing the academic support that will best meet the needs of its students and the community and will continue to use the school improvement process to provide a structure for positive change.

### **FOCUS SCHOOL CONCEPT**

The objective of the UHS focus school concept is to prepare students for tomorrow's challenges through an understanding of technologies that will influence and shape their lives, and prepare them for high technology careers if they choose to follow that path. The model presented (Figure 1) shows the military acquisition activities as the "engine" that has energized the simulation industry to provide products and services in support of defense. The workforce comes from the universities, community colleges, technical training centers and directly from secondary schools. Many of the graduates from UCF tend to take jobs in Florida, several with simulation companies. Those same companies who provide products and services to the military and NASA have diversified over the past ten years to cover other blossoming markets. These are shown in the figure. A recent study has estimated that the growth of the non-defense users of simulation technologies is about 8-10% per year. In the Florida Model, UHS is revising, or rather adding to, its set of program offerings, a program in Modeling and Simulation to answer the challenge of the growing demand for skilled individuals.

To achieve the goal of a focus school, commitments on the part of NCS and UHS are necessary. Early in the relationship, the UHS Principal and NCS Officials determined the level of effort and activities each party was willing to give to the partnership. NCS and its member organizations pledged to do the following:

- Provide teacher training
- Assist with curriculum development
- Provide subject matter experts
- Assist in laboratory planning
- Sponsor internships
- Assist in securing grants
- Provide and coordinate tours and demonstrations
- Provide speakers
- Assist in web site development and support
- Provide membership on UHS Advisory Board
- Sponsor science fair awards

UHS agreed to pursue the focus school, which led to an "academy" designation, and eventually will become a "Magnet School" by accomplishing the following:

- Identify teachers who have an interest in being the initial cadre
- Develop a curriculum, starting in CY 2000 (Fall Semester)
- Provide time for teacher training
- Advertise throughout Orange County
- Gain support from the Superintendent of Schools (Orange County)
- Screen and select students for the program
- Offer new courses as necessary
- Conduct an assessment of the program
- Schedule courses
- Provide administrative support
- Begin the program with students in the 9<sup>th</sup> grade

It should be noted that this effort involved an integrated team. The NCS participating members were from industry and from the Naval Air Warfare Center Training Systems Division (NAWCTSD), US Army Simulation, Training and Instrumentation Command (STRICOM), Air Force Agency for Modeling and Simulation (AFAMS), National Aeronautics and Space Administration, Economic Development Commission of Mid Florida, University of Central Florida and its Institute for Simulation and Training. Not only did these agencies donate their resources to this effort, many individuals worked on their own time. UHS teachers were enthusiastic about getting the program underway. They worked many hours to ensure success. Parents were also involved in carving out this new idea of education. Throughout the development of the program, team members worked together to structure a program that is feasible, meets the needs of the "technology worker of tomorrow" and can be easily integrated into the UHS program. Moreover, the program had to be open to all those interested. It is not meant to be a program for only a select few.

# Florida's Simulation Excellence Begins with High School Graduates

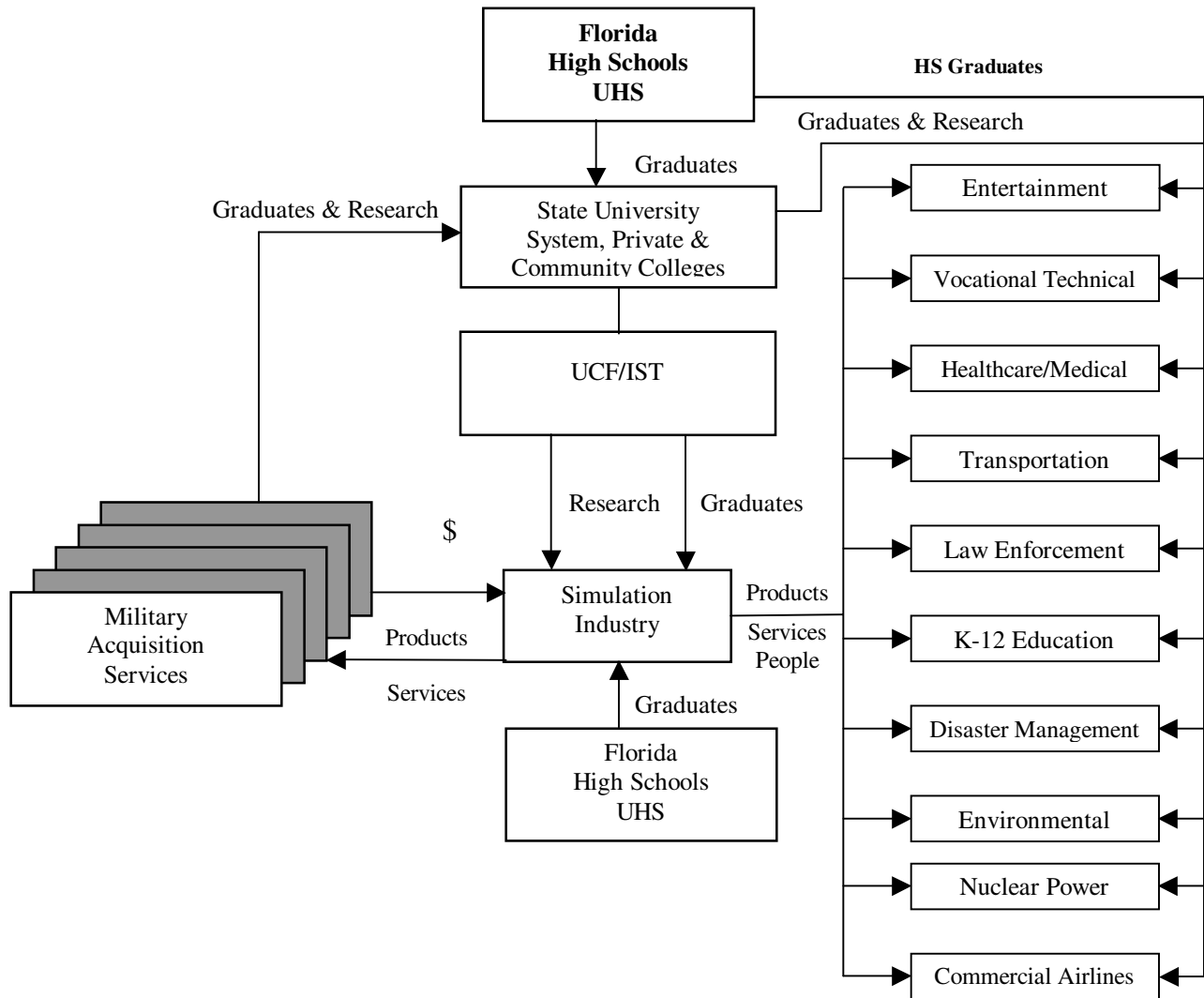


Figure 1. Role of the simulation focus school.

## SETTING THE AGENDA AND GETTING READY FOR THE BELL TO RING

This unique initiative began with a briefing of the cadre of teachers and administrators by the UHS Principal where she presented her vision, plan for accomplishment and guidance.

University High School at Research Park Academy grew from a desire to encourage student's appreciation and knowledge of current scientific research and technology. Teachers, parents, field experts, administrators and students were encouraged to work together to develop curriculum that would pave the way for students to enter the high tech worlds of modeling, simulation and training; laser optics and photonics and information technology.

The goal of University High School at Research Park Academy is to provide opportunities for students to gain proficiency in cutting-edge technologies of the twenty-first century in order to prepare them for post-secondary study and/or employment in three areas.

Teacher training began with a presentation by NCS on the topic of "Simulation". It covered the history, evolution of the technology, applications, skill sets required, techniques and methods of simulation. This initial exposure was meant to wet the appetite of the teachers and administrators; which it did. This was followed later by a more in-depth treatment of simulation presented by the Institute for Simulation and Training. What made this a particularly interesting short course (one day) was that it was conducted by instructors who have taught this material before and it was presented at the Electronic Classroom of NAWCTSD. The course covered the following topics:

- Overview of modeling and simulation
- Applicability to teaching and learning
- Definitions of modeling and simulation
- Examples of models
- Types of simulation
- Fidelity vs Resolution
- Simulation time
- System dynamics
- Uses of M&S in teaching
- Example: Predator-Prey Simulation
- Stella Software
- Stella and systems thinking
- Other examples of simulation (Earth/Space Science, Biology/Human Form, Math/Economics, Multidisciplinary)
- Computing power
- Predicting the future
- Hardware trends
- Software trends
- Speech recognition

- Intelligent agents
- Service trends
- Virtual reality
- Economic impact of modeling and simulation
- The future

Because of the close proximity of UHS to the Central Florida Research Park, teachers and administrators were given tours of the companies, university and military laboratories located in the park. Teachers were immersed in the virtual world of submarine piloting and navigation, experienced the thrill of a simulated roller coaster ride, watched a human patient simulator react to medical treatments and observed new technology such as distance learning in-the-making. Throughout the tours and demonstrations, teachers typically asked: "what kind of preparation is required to do what you are doing?" They gained tremendous insight by actually seeing what can be done with simulation. This helped, later on, in the crafting of a tailor-made curriculum.

Two other events were scheduled that gave the teachers a significant lift. One was a stimulating and informative lecture by NAWCTSD on "Team Building". The second event was the briefing and subsequent support of the Orange County Superintendent of Schools, Dr. Dennis Smith. Dr. Smith was impressed by the technologies resident in Orlando and the enthusiasm of the members of industry, government and academia in providing assistance to UHS. He gave his full support and commitment to the partnership.

Now that the teachers are excited and extremely motivated, the next activity is to bring students into the world of simulation as we know it. NCS, working with the National Training Systems Association (NTSA) and the Interservice/Industry Training, Simulation and Education Conference (IITSEC) staffs, arranged to have UHS students tour the IITSEC exhibits. These are students who have done well academically and would be potential participants in the focus school program. To make the expedition through the exhibits more interesting, they were asked to go on a "hunt for technology". The "hunt" challenged them to match exhibitors with technologies. Students were given a list of items such as computer graphics, virtual reality, motion systems, networking, entertainment, medical, space, flight, etc. and their task was to find and record the names of exhibitors who had the technology or application. With their eyes opened wide, they scurried through the exhibit halls in pursuit the simulation "prey". What was especially gratifying to the students and the authors was the warm reception given them by the exhibitors. They answered such questions as "What made you choose a career in this field?" or "Do you have to like math to do all these interesting things?" Students left the conference in a very "up-beat" mood, sold on simulation, as reported by the teacher-escorts.

## DEVELOPING THE PROGRAM AND CURRICULUM

Dedicated teachers and members of the simulation industry (including government and industry) spent countless hours crafting a four year curriculum for Modeling and Simulation. It was interesting to observe the contributions, often quite spirited, made by individuals of various backgrounds, all focused on success. The team worked very hard, sorting out theory and practicality, and converged

on a proposed curriculum. (Figure 2) One of the objectives of the curriculum is to produce a “well- rounded” student who is not simply a “technologist”. Consequently, emphasis is placed on Language Arts and the students have many electives to choose from that complement their technology training and help develop the complete individual.

<b>Class of 2004: University High School @ Research Park Curriculum</b>							
<b>Simulation &amp; Training Group</b>							
9 <sup>th</sup> Grade		10 <sup>th</sup> Grade		11 <sup>th</sup> Grade		12 <sup>th</sup> Grade	
<b>Language Arts:</b>							
Eng I/Critical Thinking & Adv Reading (2 credits)		Eng II/Technical Writing (Research Park Cohort Group) (2 credits)		Eng III American Literature (1 credit)		Eng IV/British Literature with Senior Project linked with Senior Internship (1 credit)	
<b>Mathematics:</b>							
Algebra I (Integrated with geometry.) (term1, 1credit)	Geometry (Integrated with Algebra I.) (term 2, 1 credit)	Algebra II (1credit) (term 1)			Analysis of Functions or Pre-Calculus or Trigonometry- Analytical	Trigonometry- Analytical or Calculus	AP Calculus
<b>Science:</b>							
Integrated or 9 <sup>th</sup> Grade Science/ AB Block with World History (1 credit)	Same	Chemistry A/B Block with American History (1credit) (term 1)	Biology (1 credit) (term 2) Same	Physics with Optics or Principles of Technology (1 credit)	(some students may opt to take) Physics II or AP Physics	Principles of Technology II	CASE (new course) Comprehensive Applications in Science and Engineering aka Internships
<b>Social Studies:</b>							
World History AB Block with science.(1 credit)	Same	American History A/B Block with chem. (1 credit)	Same	American Govt. and Economics (1 credit)		Internship Skills (.5)	
<b>Required and Recommended Electives:</b>							
Required: *New – Introduction to Simulation and Training (1 credit) *(State course is 0103330, Graphics 3D Design) LMS (.5 credit)	Recommended: BST 1 (1 credit) ROTC (1 credit) Other...Ex. 2D Computer Graphics and Simulation, 2D Format, 2D Basic Drawing, Other...band, chorus,	Required: PE (.5 credit)	Recommended: BST 2 (1 credit) ROTC (1 credit) Other.....Computer courses or <b>World Language</b> or Debate or Art Courses	Required: Additional Computer courses – Multi-Media Technologies, Web based tools &Interactive CD or Visual Computer Modeling 3-D	Recommended: Psychology (focus on human factors related to simulations) or Portfolio Development or <b>World Language</b> or Debate	Required: Internship (.5)	Recommended: <b>World Language</b> or Statistics or Speech or Debate or new course Science of Ethics
<b>Internships: Provided through Research Park</b>							

Figure 2. University High School Curriculum

Parents and teachers can look at the curriculum for the simulation track and comment that it bears little semblance to what they had when they went to high school. There is definitely a technology focus, but one can observe that the curriculum is well balanced. What is not revealed, by glancing at the curriculum, is perhaps the most revolutionary feature: the incorporation of simulation technology in most, if not all, of the courses. This is where the simulation experts work with the teachers to employ that technology effectively in the new “learner-centered” environment. Education experts agree that students learn more and better by actually participating in the learning process. If the subject is physics, for example, a simulation of two bodies colliding, where the student controls the mass and velocity of the objects, can impart more knowledge than simply getting a lecture on Newton's Laws. Education of tomorrow will be more “learning by doing” rather than “learning about”, and simulation is the tool that will provide the means to experiment and visualize concepts, ideas, processes and new environments. Imagine a virtual reality tour through the magnificent Hermitage Museum in St. Petersburg, Russia where the student can select the art to be studied and discuss it in “real-time”...what a powerful concept! Inserting simulation into the courses is no trivial task and is not expected to be totally accomplished in the first year. However, the team will work to bring commercially-available software into the classroom and they expect to develop small simulation programs as time goes on. In essence, we are extending the imagination and heightening the senses of the students through simulation, rendering education a “contact” experience rather than a “passive process.”

One concern that the curriculum developers had was the importance of introducing students to the world of simulation early enough in their course work so that they can have a good grasp of the field and make up their own minds regarding a career. As a result, an introductory course is offered to 9<sup>th</sup> grade students entitled “Introduction to Modeling and Simulation”. The outline of the course is as follows:

- Definitions and examples of modeling and simulation
- Why simulation?
- History of simulation
- Principles of simulation
- Basic building blocks
- Applications of simulation
- Aircraft flight simulators
- Engineering design simulations
- Spacecraft and space simulation
- Entertainment
- Healthcare/Medical

- Public Safety
- Vocational/Technical training
- Environmental
- Planning
- Careers in simulation
- Preparing for careers in simulation

This course is a simplified derivative of a similar one given at the University of Central Florida, without the theory and mathematics. The course includes field trips to local simulation industry, government laboratories and universities. Guest lecturers will be scheduled throughout the course. Access to the internet will give students opportunities to explore simulation further.

### IMPLEMENTATION

Through the Executive Internship Program at UHS, students have the opportunity to intern in community businesses for one semester of their Senior year. Students intern four days a week and spend 12 hours weekly at their placement. Students interested in the program must go through an orientation program and an interview process. They learn a great deal about the work environment in industry and what is expected of them. Students are taught to be well-groomed, maintain a good attendance record and, perhaps most importantly, have a good, positive attitude. Students receive credits and grades for their internship period. In the simulation program, four students were initially selected and placed at the Advanced Engineering and Research Assoc., Inc. (AERA) in Orlando. Here is what Chris Addison, Vice President, had to say about the four youngsters he willingly hired: “We could not have been more pleased with the UHS student interns. They were very bright, highly motivated (working even during their holiday period) and fit in well with the team environment here. Each of the students worked in support of graphic arts or programming for several computer-based training projects and one website design effort. The best indicator of their performance is that I would consider every one of them an outstanding candidate for full time employment once they complete college.” As indicated earlier, students learn a great deal more than just the simulation technology. With the proper guidance they begin to develop a work ethic and a professional attitude.

With over 50,000 new tech-related jobs and 160 companies along the high-tech corridor, laying in our own back yards, students interested in pursuit of a career in this field are quite naturally curious about the new focus school. UHS at Research Park was created to enhance curriculum by preparing students to meet the industry needs in this area. It all began with curriculum

fairs at local feeder schools where students were exposed to videos and invitations to visit our school. Then students were enticed by exciting, student-created videos and projects at our open house in September. Students were mesmerized. So were their parents. The thought of doing something fun and exciting while learning cutting-edge technology hooked them immediately. But upon entering UHS, the focus school seemed to take a back seat to every other form of neologism on a campus of 4,500+ students. They began to wonder what they had gotten themselves into. But the fear of being labeled a *computer-geek* or a *braniac* soon gave way to great friendships and camaraderie. Parents were enthused about the support provided to their child by having them served by a small cadre of creative tech-literate instructors who work as a team. They saw it as a chance to help guide their child into sound educational choices based upon his or her interests. Students knew what was expected of them from their induction into the program. No one was turned away, but as the 2.5 minimum GPA loomed over them, they rose to their expectations and realized their potential. "At first it was like all the other classes," said Kevin Wright, a freshman "Then we started talking more about simulation, and it seemed easier because it was more interesting. Those field trips were tight!" The rigorous studies they once thought were reserved for geeks and brains were now made more exciting through the use of simulation exercises and technology throughout the curriculum. Students developed teamwork, and projects were more fulfilling by meeting students' needs and learning styles through the use of computers. To enhance studies, students had the opportunity to participate in "interest boosting" field trips to: I/ITSEC, Silicon Graphics, Inc., and a laser show produced by Laser Fantasy International in our very own UHS Performing Arts Center. Students were also encouraged to participate in the Physics Fair at Seminole Community College in the spring. Goals were set, and tenacious students produced more than the minimum. With the high-tech corridor and the plethora of jobs that are associated with it barely on the horizon of the 21st century, UHS is taking a pro-active step in preparing students for the careers of the future. This fall (2000), twelve teachers and 60-80 students are embarking on a new and exciting journey into the world of simulation.

## CONCLUSION

The partnership created between UHS and NCS represents a major step forward in introducing simulation technology into the classroom. The objective to create a "Focus School" and "Academy" at UHS is being realized through the dedication of spirited teachers, administrators, military, industry and

academia. The program at UHS could be emulated across the country, not only in the field of simulation but other disciplines as well. The House Committee summed-up the end result of such partnerships: "In a technology-driven economy, jobs that require a scientific or technology background will gain increasing importance for our economy. We must ensure that we instill in younger generations the motivation and desire to obtain those jobs as well as the fundamental skills and knowledge to be able to perform them. Those who hold such knowledge control a precious resource-intellectual capital-of which we must ensure a plentiful reserve."

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