JUMP STARTING KIDS IN COMPUTER GRAPHICS

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Abstract ? *Jump starting kids in Computer Graphics at an early age can stimulate their interest in this field. This paper discusses the planning and potential implementation of a week-long summer computer graphics day camp. The author illustrates the structures of daily lesson plans in the areas of Computer Graphics, Fine Arts and related topics and potential outcomes of each activity. Besides hands-on instructions, the students will participate in other events that can reduce their anxiety in a computer laboratory environment.*

INTRODUCTION

The Purdue University - Computer Graphics Technology Department prepares visually-oriented students who are interested in creating and managing the production of computer graphics for a wide range of industry. Students enrolled in the Computer Graphics program can select from the following disciplines: Construction Graphics Communication, Interactive Multimedia development, Computer-Aided Design, or Computer Animation. The department consists of nineteen faculty members at West Lafayette, the main campus, and five more faculty at the Purdue Statewide Technology Programs throughout the state (see Figure 1). There are approximately 500 undergraduate students enrolled at West Lafayette, 45 graduate students, and 175 undergraduates in the statewide system. The Department of Computer Graphics strives to prepare students to be the nation's best practitioners, managers and leaders of applied computer graphics. The department is also recognized as a national leader through its diverse faculty, staff, and students, and its excellence in learning, discovery and engagement.

This paper is a proposal (white paper) for a summer graphics day camp for early elementary age children at Purdue University School of Technology at New Albany. This camp is intended to provide students with hands-on sessions in fields such as 3D modeling, page layout and design, web development, illustration and many other aspects of computer graphics.

COMPUTER GRAPHICS SUMMER DAY CAMP

The goal of the camp is to attract students at an early age to Computer Graphics. Exposing students ages eight and nine years old to the software and teaching them some basic skills

FIGURE. 1
PURDUE UNIVERSITY, WEST LAFAYETTE (CIRCLED) AND THE STATEWIDE TECHNOLOGY PROGRAMS.

will hopefully jump start their interest in Computer Graphics and the desire to learn more on their own. During the week, the students will be introduced in a stress-free non-competitive environment to software such as Microsoft Photo, Microsoft Office, Rhinoceros, Photoshop, FreeHand, as well as a variety of other tools. Finally, the students will be challenged in each classroom to create projects that are outlined by their instructor.

The day camp would be geared towards early elementary school students, basically students who have complete second or third grade. Each camper should be able to read and follow verbal directions along with a basic knowledge of computers. By following these general guidelines a student enrolled in the camp should be able to follow the demonstrations, participate in discussion and complete the given projects.

SCHEDULE

The camp, which would be scheduled during summer break, would be held for one week (Monday – Friday). The students would be divided into two groups of sixteen, the number of computers in the Purdue computer lab. Each group will have four sessions a day lasting approximately one hour each with a noon lunch break and a snack break between the two morning sessions and the two afternoon sessions. Since this will be the first time that a graphics camp is taught at the New Albany campus the schedule

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would be flexible to accommodate any unforeseen circumstances. (See APPENDIX A)

This age group of children is typically energetic, so balancing educational sessions and physical activities will be an important aspect when planning the camp. The snack and lunch breaks provide time for the campers to take a walk around campus, play an outdoor game, or run and yell with their classmates. [1]

During the week at camp, students will participate in computer and fine arts sessions, rotating through a series of topics that could consist of:

Computer Sessions

1. Introduction to Microsoft Paint
2. Introduction to the Internet
3. Introduction to flipbooks in Flash
4. Introduction to Web development
5. Introduction to PowerPoint
6. T-Shirt Design
7. Introduction to 3D Modeling
8. Introduction to Photoshop
9. Introduction to FreeHand
10. Digital Photo editing in Photoshop

Fine Arts Sessions

1. 3D Sketching
2. Character Sketching
3. Flipbook Sketching

Other Opportunities

1. Tour the Theater Department
2. Tour the Music Department
3. Tour the Fine Arts Department
4. Physics or Chemistry Demo

Each session that would take place in a computer laboratory setting will have all the necessary software and hardware to complete the projects presented by their instructor. All of the students will be provided with disks, binders, copies of projects, sketching paper, black Prisma pencils, and any other miscellaneous items that will be needed in the classroom.

With this age group all of the sessions will be introductory in nature. The campers will be expected to have a basic knowledge of computers before coming to camp and be able to read and write. Each session will walk a student through a project that will be appropriate for his age group and the time frame allotted.

A Sample Introduction to the Internet Session

During a designated session the instructor would introduce Internet Explorer to the students. First on the agenda would be to inform the group what the internet is and how it works. After a quick overview the students would then be introduced to search engines. Once the campers gain a working knowledge of search engines, the instructor can demonstrate how to save images to the hard drive. A web seek-and-find could be used to direct the students in searching for topics or photos for the rest of the session.

A Sample Introduction to the 3D Modeling Session

3D modeling would be the most technical session offered at the camp. The instructor will introduce a software package called Rhinoceros (Rhino). Rhino is a 3-D NURBS modeling program for Windows that is extremely easy to learn and use (www.rhino3d.com). First on the agenda is to introduce the interface and the transformation tools. A file containing a few primitives is given to the students. Using this file the students are asked to move, copy, rotate, and scale the objects. This task allows them to become acclimated to an interface containing a top, front, side and perspective view of the objects in the scene. After a quick introduction to the interface and the transformation tools, the students start working with solid geometric figures like spheres, cubes and cones. They are encouraged to use the primitives to create a rough shape of simple objects like castles, trains, robots, and spaceships. The final task in this session would be to teach the campers how to render and save their final images.

A Sample Introduction to the Character Fine Arts Session

The Fine Arts sessions will be in a lab containing tables instead of computers. This session will concentrate on drawing by hand rather than on the computers. Being able to sketch out by hand what you are thinking is an important step in the process of design. The goal of this session is to introduce an alternative method to stick people. In the character sketching session the students will be taught how to break down the human figure into simple shapes like circles, ellipses, and boxes. Once the body is broken down into shapes, the instructor will cover the skill of drawing in correct proportion. By the end of the session, the campers should have a character that they sketched to take home with them.

Other Opportunities for Sessions

In addition to the classroom sessions the campers should be exposed to other opportunities that are offered on the Indiana University Campus and should observe how graphics or computers are used in these different areas. The Theater Department can give the students a tour of the stage and explain briefly about stage lighting which is similar to what is done in animation programs. Digitizing music and sound can be demonstrated by the Music Department. The Fine Arts Department can walk the students through their studios and present sample projects that have been produced by university students. While visiting the Fine Arts or Theater Departments the students could also tour the Campus Art Gallery. Finally a Physics or Chemistry demonstration could be presented by the Physical Science

Department. This show would highlight some of the Laws of Chemistry and Physics at a basic and understandable level for this age group and demonstrate how it relates to graphics.

Finally, the week would be wrapped up with an Open House that the students' parents, friends, and family are invited to attend. The camp staff would show a slide presentation of photos that were taken throughout the week to give the attendees a chance to see the activities in which the campers participated. Each student who successfully completes the week at camp would receive a certificate of completion and would be entered into a drawing for door prizes to be given away during the Open House.

ROLL CALL & CAMP GUIDELINES

Keeping track of 30 second and third graders will not be an easy task. All students must attend each and every session and activity at the camp. In order to ensure that all campers are in attendance, roll call will be taken at each session. With this age group it will be imperative that there are sufficient responsible adults to care for and help with the camp. The goal is to provide a student to adult ratio of *at least* four to one, not including the instructors. During the week safety will be the number one issue, but we also want to provide enough help in the classrooms to ensure that the students get help when they need it. At the beginning of the week the Director will review the rules and safety regulations for the camp. The main rules are:

1. All campers must attend each and every session at the camp. In an effort to ensure that any camper who does not report to an event is safe, the Indiana University Southeast Police Department will be notified immediately it is discovered that the camper is missing.
2. Proper use of the internet is expected.
3. Misconduct toward another member of the camp or a faculty member will not be tolerated. Violators will be excused immediately from the camp for the remainder of the week.

After the rules of the camp are reviewed with the students, there will be no hesitation by the camp staff to take appropriate actions if a discipline problem arises.

RAMPING UP FOR THE CAMP

The initial planning of the camp is in progess. This paper is the original proposal for the camp. The planning will be continuous for the next couple of months. The overall interest of the non-credit division here on the Indiana University Southeast Campus is overwhelming. They would like the camp to be held in July of 2003. Some of the initial questions that need to be addressed are:

1. How much do we charge for a week-long day camp?
2. Who is going to teach the sessions and help during the day?
3. What additional supplies are needed?
4. What will the campers be able to take with them from the camp? Software? Sketches? Color Prints?
5. What will be served for lunch and snacks?

All of these questions will be researched and brought back to the committee for review before the advertising is sent out to the local grade schools.

ASSESSMENT

Since this will be the first time a day camp will be offered by Purdue University School of Technology at New Albany, the students will be asked to fill out a survey. From this survey the camp staff will be able to evaluate the strengths and weaknesses of the program: what sessions were most enjoyable? How were the lunches and snacks? Was the time spent outside of the labs fun? Based on the comments of the students, changes could then be implemented for future day camps. (See APPENDIX B)

CONCLUSION

The Purdue University Computer Graphics Department is taking the initiative to introduce computer graphic to grade school students in a structured but stimulating atmosphere. The mix of education, social interaction, and promotion of other areas on campus will stimulate the minds of this age group. The summer camp will give everyone a chance, instructors included, to learn and grow from the experience. Some of the students will come to the camp with more skills in a particular area, but they will quickly discover a lack of general overall graphics knowledge. The camps' diverse opportunities will allow the students a flexible learning environment to develop graphic skills. The camp organizers know that most parents will be concerned about their children's welfare, education and future success. It is logical that they would select a summer activity that promotes social interaction and an interest in computer graphics, a growing technology with many future possibilities.

REFERENCES

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