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Cougar swing: A web site model curriculum devoted toward improving hitting productivity for varsity baseball competition

Jake Nathan Gansereit

COUGAR SWING

A WEB SITE MODEL CURRICULUM DEVOTED TOWARD IMPROVING HITTING PRODUCTIVITY FOR VARSITY BASEBALL COMPETITION

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

in

Education:

Educational Technology

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ABSTRACT

This project is a multimedia web page curriculum to help students at Canyon Springs High School who participate in extra-curricular baseball. The curriculum is on hitting instruction. It was designed because there was no curriculum for such material within the state frameworks. The curriculum includes concepts related to hitting a baseball. Each concept is linked to information and visual cues to aid students in the body movements of hitting a baseball. Drills are included to reinforce the concepts included in the project. This project can be used on the field of play, in a classroom, or at home as long as the proper video and computer equipment is available. In addition to the instruction within the project, students will have the ability to correct flaws in their hitting stroke by using the hitting evaluation checklist included in the project. Students can correct mistakes themselves or seek a coach's help in developing an individual educational plan for practice that day, or over a sequence of days.

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CHAPTER ONE

INTRODUCTION

California Physical Education Curriculum Design

The California State Frameworks have no extra-curricular sports curriculum. Coaches must develop their own curriculum for the sport they coach. This presents many problems. One such problem is no curriculum with established objectives exists. The only recourse for schools and coaches is to develop their own curriculum. Many school districts have done this in their own Physical Education frameworks. Many school districts have added a final period course which students may take, providing they have made an extra-curricular team. Another existing problem is that many teacher-coaches have little or no time for going to sport specific clinics or conferences. Finally, few instructors have the time to develop curriculum on their own for all the skills necessary for their student-athletes to attain after school. Most instructors or coaches simply do the best they can based on their previous knowledge or experience.

Statement of the Problem

Because there is no curriculum or material being used to enhance the skills of our extra-curricular athletes, this Master's Project has been embarked on. Currently, all instruction of hitting is done on the field with very little feedback or reinforcement for students. Many students miss the material the first time it is covered. There are many reasons for this. One reason is that there are different types of learners. Hitting is a difficult skill to master. If hitting instruction is missed orally, visually, or kinesthetically, it is often difficult to comprehend. Also, we often have students miss instruction due to absenteeism.

It is difficult to evaluate student's skills even though they are video taped. Often sports compete for the lone video room on our campus. Baseball is so time consuming, evaluation rarely takes place. Because the coaching staff at Canyon Springs High School wants students to be as successful as possible this project was created.

As previously mentioned video is used to help students decipher hitting faults. We have encountered many problems with the use of video. Problems such as lack of storage space, lack of high-speed video equipment, access to the

video room, and a lack of time has made it difficult to use video as an appropriate source of instruction or evaluation.

This project establishes a curriculum for the instruction of hitting. Materials were designed in the past. The materials were not successful. There was no kinesthetic element to the curriculum. There was no process for evaluation.

A web page which could be posted on the Internet and the school's Intranet was created. The web page is used for instruction and reinforcement of the material for hitting. Instruction can take place on the field, in the classroom, or at home using distance learning techniques. Each student will be videotaped. The students will be taught how to maneuver inside the Windows NT environment. After becoming proficient in Windows, students will be transforming their video into mpeg files using the Dazzle® scan conversion software. There will be evaluation on the field, in the classroom, and via email.

There are many goals to this project. The first goal is that learning becomes more student-centered. Too much dependence is put on the message coming across the first time from the coach. This project eliminates that problem.

The development of curriculum and materials is another of the goals of this project. Teaching, feedback, reteaching, and reinforcement of the hitting skills could be done using this curriculum. However, coaches could adapt any sport to this web curriculum model.

Project Significance

While the project is convenient for coaching, it is really establishing a means for using the computer in an educational setting for students. All different types of learning will be broached in this project. The project gives coaches an instructional framework to work with. It gives both students and coaches timely access to material for both instruction and evaluation. The project will constantly reinforce instruction and give feedback to students who desire the feedback.

Project Overview

The project will use computers, the Internet, and a networked Intranet as an instructional tool. Students will learn to set up video digitizing hardware. The student will learn to use scan conversion software.

The process is simple. Students will be instructed using the web page. Visual and kinesthetic instruction are

used to enhance hitting skills. Each student will be videotaped at either a practice or a game. The student will scan the video into a mpeg file using the Dazzle® scan conversion software. The student evaluates the video based on a frame by frame sequencing of the mpeg file based on an evaluation chart given to them by the coach. The student and coach identify areas of improvement needed, and develop an individualized practice plan for the next series of practices. Students will take plans, and practices drills necessary to improve the skills where they are deficient.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The review of the literature establishes the use of computers in a learning environment. It discusses how to use computers in a classroom. It looks at what type of curriculum needs to be set up for students operating in my project. It establishes the use of video and how it is used in physical education classes, and how it is currently being used in physical education. It discusses how the use of video has developed over time into the use of Computer Assisted Instruction (CAI). It contemplates how physical movement should be video taped. It establishes the role of both the student and the instructor. Finally, it establishes how distance education can play a role for the motivated student and instructor.

Using Computers in the Classroom

The article written by Ross (1991) explains why computers are now being used in the classroom. Ross discusses three reasons why he believes computers have found their way into schools. First, is that computers are

part of our daily lives. This is true in education and industry. Computers are becoming part of the American culture. Therefore, schools have received a windfall of monies earmarked for the purchase of computer technology. Educators are beginning to accept the computer's value in the classroom.

Despite these positives, there lie problems ahead for using computers in the classroom. One problem is that the computers are used very little even when in the classroom. This is true for many reasons. Fear is a common reason for not using computers in class. Another reason for not using computers is that computer time would take time away from the basics in the existing curriculum. Ross (1991) states other reasons why the educators do not move more rapidly into computerized instruction. Reasons such as: lack of administrative and instructional support, lack of developed software, lack of access, and lack of training.

Ross (1991) mentions educators resisting the use of using computers. He finishes the article by mentioning ways teachers can use computers in the class. Cooperative groups can be an excellent way to use computers, especially when there isn't much equipment available. In addition, using technology centers may be advantageous. Tutorials on

the software are another advancement in computer education. Finally, Ross (1991) mentions students are motivated by playing simulation or role playing computer games where the action is student controlled.

Crane (1993) states that technology is the future. Crane believes we live in an ever-changing world. Using computer technology allows educators to teach to the state frameworks in regards to basic skills, critical thinking, and relationships based on facts and evidence. Technology allows the current information to make decisions on. Crane recommends that the curriculum remains student centered, and open ended with instructional guidance when needed, making sure objectives are known and clear.

Crane (1993) reviews the computer hardware necessary to implement using computers in the classroom. A computer system should have the following elements: central processing unit, monitor, keyboard, mouse, a modem with communication software, and a CD-ROM player on each system.

Crane (1993) discusses the different communication software and why they will be important to information technology. The use of electronic mail, or e-mail, allows the student and the instructor a medium for feedback and interaction. Crane notes there are not many economical

factors that inhibit use of e-mail. Crane mentions using the Internet. The Internet is a large database of the most current information available to the general public. Crane mentions that recent information is useful in all types of classes, and for multimedia projects as well. The challenge of the Internet is filtering relevant versus irrelevant information. Finally, Crane mentions the use of CD-ROMs. There are encyclopedias, newspapers, and other sources of information. All this information is quickly accessible for the student using CD-ROMs. Students enjoy using the CD-ROMs as well. CD-ROMs allow the use of multimedia in any presentation or project.

Ross' (1991) article really emphasizes the fear that educators have in using computers in the educational process. The article attempts to show how teachers can overcome those fears. However, the author explains why computers are going to be used in the classroom. The Crane (1993) article shows how using computers is a step into the future that all educators and students must embrace as we enter the Information Age.

Crane's (1993) article left off where Ross' (1991) did. Ross' article left you wondering why use computers. Crane answers that question. The answer is in the use of

information. Students have the access to information quickly. The students can use this information. The students would spend more time at the top of Bloom's Taxonomy (1956) rather than at the bottom. Analyzing and synthesizing information is what the real world is about. Using technology allows the student more real world experience when used in the educational process. The problem is how to use computers in the classroom.

How to Use Computers in the Classroom

Mills (1994) says that integrated learning systems (ILS's) are the wave of the future. Mills believes using the computers in the classroom has already been established as necessary. Mills believes that the next step in computer education is in developing programs that teach students necessary content. The approach is called Integrated Learning Systems. Mills states an ILS does three basic things. Number one, and ILS accomplishes educational goals by giving the student the necessary course content (usually in CD-ROM format). Secondly, an ILS monitors a student's performance in meeting educational

goals. Finally, an ILS allows for adjusting to different learning styles.

Mills (1994) states the instructional strategies of an integrated learning system. The three strategies are to use higher and lower skills as referenced in Bloom's Taxonomy (1956); to have student interaction with students and instructors alike and to monitor a student's progress in a course of study. Mills discusses the management system of an ILS. The management system of an ILS would track time spent by students on the learning materials. Mills states different trends in the area of Integrated Learning Systems. Windows and the Macintosh platforms will both benefit from the ILS's that come out. Educators will find educational CD-ROM's available for different units in their courses. Networking will become a crucial part of the management system of an ILS. Mills states that all subject areas will benefit from these systems.

Marchionini's (1988) article combines hypermedia software programs and student learning. Marchionini explains what hypermedia is. Hypermedia is the use of images, text, sounds, and hyperlinks (like on the Internet). Hypermedia software should be used in a

student-centered environment due to its non-linear features.

Education will see many benefits from hypermedia when it is connected with learning. One benefit will be students controlling their own learning environment. Learning will be student centered. Students will be able to have large collections of data at their disposal that can be accessed in many different medias. This is great for many different learning styles that exist. Interaction will play a major role between student and instructor with hypermedia.

There are some problems that will invariably occur. One problem using hypermedia is that it is largely visually based. This presents a problem of basic literacy for some students. Another problem is that students become disoriented to other modalities of instruction. Students tend to get distracted. Also, many possible technology breakdowns could occur and disrupt the educational process.

Marchionini (1988) spends a great deal of time on how the role of teacher is changed by using hypermedia in learning. Like many of the authors mentioned before hand, and to come, the Marchionini stresses the importance of good objectives in hypermedia learning projects. Another

important skill for teachers to develop is as an information manager. The teacher will have to give some autonomy to the students. The teacher will facilitate learning rather than be the "sage on the stage."

Mill's (1994) article establishes that software is being designed for use in an educational setting. Mills establishes the parameters for software used in education, such as a student management system. This will prepare the way for retail designed software, much like the Dazzle® software purchased for this project, and how it is used educationally.

Hypermedia software has become popular within the technology society. Business professionals use it. Students are beginning to use it. While there are problems with literacy, the uses far outweigh the problems with using hypermedia as a learning tool. Also, the primary use for this project will be visual media. The basis behind this project is to use a web site to instruct and analyze the swings of high school baseball players. What has been discovered is that once the information is accessed, students can analyze their swings for themselves. The instructor will assist in the learning process. Because

the instruction is student centered, distraction and disorientation shouldn't be a problem. After establishing hypermedia as a useful tool to use in an educational setting, one must decide how to design using it for different learning objectives.

Curriculum Planning

Kapfer and Ovard (1971) set up a curriculum for individuals. If student learning should be student centered, each student should have their own curriculum based on their learning modality. This curriculum is called a Individual Learning Package in Kapfer's and Ovard's book.

Kapfer and Ovard (1971) discuss establishing objectives, learning materials and activities, and pre and post assessments within a curriculum. The first chapter deals with material that will be learned. Students should receive the concepts with new material and develop the skills necessary to complete tasks. Chapter two deals how changes will occur in the learning process. This is done largely through concise instructional objectives. These objectives are facilitated through learning materials and learning activities. The fourth chapter deals with

establishing pre and post-assessment tests on the material covered in individualized learning packages. Assessments, such as tests, are the tools of evaluation for the instructor using Kapfer and Ovard's (1971) ideas. This is done to assess whether learning is taking place. The final chapter deals with putting the entire process together. This is called the quest.

Kapfer and Ovard (1971) explain the three different modules used in individualized learning packages. The three modules are presentation, guided discovery, and exploration. The reason behind using these three modules is due to multiple learning styles.

Stables' (1997) article looks at three different issues. One issue is that of including technology in curriculum planning. In a technological world, students need the opportunity to work with technology. The younger students are exposed to technology, the more enthusiastic they are. Likewise, students will be less inhibited toward new technologies if they are introduced to new technologies at a younger age, even in elementary schools.

The second point Stables (1997) makes was to nurture technology capabilities. This is done in a three-fold process. First, students must learn through practical

experience. Second, students must be able to learn in an environment that makes sense to them. Finally, students must have the ability to learn within a social context.

Stables (1997) discusses appropriate models for teaching, learning, and assessing the use of technology within the curriculum. Most important in the author's argument is to infuse into the curriculum the idea that students learn as active learners. Active learning is defined as having the ability to learn using student-centered learning concepts. This may include the use of topics or themes as used in this project. Stables states the curriculum should concern itself with educational needs of students. Activity within a curriculum should be assessed, or on a "needed to know" basis. The ability for students to solve problems via technological means should be included in curriculum design for technology. Hands on exploration should be encouraged in order for students to be able to model to instructors what their thinking processes were while doing projects.

The third aspect of the article was addressing the needs of the teacher. Teachers need to be taught what technology education is and what it can do. They need to be shown that what they do now can be done by using

technology, and that it would be easier on them in the long run. Teachers need training in order to gain confidence in their technology skills. Teachers need time to prepare for the use of technology in their classes.

Lewis' (1999) article discusses industrial arts curriculum. Lewis discusses whether content or process is more important to any curriculum. The argument for content is that the content has always been taught. However, with the advent of the information age, content is giving way to process. Content referred to the subject matter involved. For example, an automotive course being offered would have a certain curriculum, of which may have included rotating tires.

Now with a process outlook on automotive curriculum, students would be allowed to pick which part of the car they wanted to fix. Lewis argues that this is an approach to curriculum that is student centered and not teacher centered. Students will buy into the content if material is student centered. The teachers job, at this point is primarily concerned with planning and organizing the process for the student.

In the Stables (1997) article, the idea of putting technology into existing curriculum is discussed. In this

project, there is no existing curriculum. The curriculum is being developed in this project with technology in mind from the beginning. Teaching students to teach themselves is vital for this to happen. The "need to know" curriculum is what this project has in store, as Stables (1997) discusses in her article.

Kapfer and Ovard (1971) give a skeletal framework for a curriculum for this project. A checklist can be put together for each players swing, prior to and after their individualized learning package. These learning packages were the early stages of individualized educational plans. They will work well within the framework of a Physical Education type of project.

In Lewis' (1999) article the ideal of themes, or being able to pick a sub-topic within a subject matter seems to be prevalent. This supports the premise of the web site portion of this project in the sense that the project is set up for learning themes. A student may pick any part of the curriculum within this project at any given time. If a student seems more interested in what the arms do in contrast to the legs during a swing, they may go to the section (module) of arm action, and skip both visual content and the leg action content.

Video in Physical Education

McKenzie and Croom (1994) state there is an increased use of video for enhancing learning in physical education. Croom and McKenzie believe that the best uses of video are those that are student centered.

There are many instructional applications for the use of video in the physical education classroom. McKenzie and Croom (1994) give a process for the use of video in the physical education class. They first suggest getting to know your students. Videotaping the skill in question should take place. Videotapes should do things such as demonstrate a skill, show the sequences of skills on a still camera, modeling a skill, guest speakers, and additional topics as the students request them. The third step in using video for instructional purposes is actually getting the funding for video equipment. The authors suggest using videos of facility or program accomplishments to get some of that funding. Video should be used to show improvement of student skills, changes in facilities, schools athletic offerings and accomplishments. McKenzie and Croom suggest time is put into student training to utilize video to it's educational potential.

There are many suggested student applications. One application is to use video to give individual or group feedback (depending on sport or skill). Another student application is a video research assignment. Students can produce video commercials and skits. Finally, students can use video to produce a school sports orientation video.

In the past and present in physical education, instruction has occurred frequently with the use of video. Video was used to instruct, demonstrate, and give feedback to students. Traditionally, teachers have directed video instruction. Students have been passive learners. The teacher tells the student what to look for regarding motor skills and strategy development. Jamison and Weekes (1995) emphasize that for many students this method is largely successful. However, other students might be distracted. Mostly this distraction happens when students believe that other events in a video are more significant than the events a coach is pointing out. This obviously causes problems and conflicts in the use of video for instruction.

A student centered video instruction technique called Interpersonal Process Recall (IPR) was developed for these conflicts. In Interpersonal Process Recall (IPR), the teacher takes the role of facilitator, asking questions

that prompt the students to focus on motor skills or strategy development. This is an advanced organizer. However, the student is still allowed to acknowledge skills and strategies that may be important to them. This technique helps students recognize associated cognitive processes during the physical activity (such as anxiety).

There is a three step process to the IPR's. While watching video, students are allowed to stop the video where they feel it is significant in the skill or a game. The student explains why they stopped the video and what they see. Finally the teacher asks questions like, what could you have done differently or what were you thinking. Jamison and Weekes (1995) state the idea behind the questioning is to get he student to think about the correct process of a skill or strategy.

The IPR method was tested against the coach's direct instructional methods. The IPR method was preferred by physical education students. Jamison and Weekes (1995) conclude saying the IPR method is a time consuming method of video instruction. However, the rewards far outweigh the time spent. Jamison and Weekes conclude by stating that this approach works for any sport.

The McKenzie and Croom (1995) article verifies that video instruction is useful in physical education courses. This is a premise for this thesis. Video can be taken to the practice fields of any sport (in my case, baseball). McKenzie and Croom give many ideas on how instructors and students can use video for learning purposes. The McKenzie and Croom article did just that. In the research, students who are motivated will learn to use video if it enhanced their performance. Baseball students already have video access for specific skills used in hitting.

The IPR method seems similar to an advanced organizer. The student has a lot of control in the use of the video. There are limitations to this. One such limitation is that students are unsure of what skills they should be looking for. However, the prepared teacher has those questions focused enough to get the students to find skills or game strategy necessary for learning. The method seems appropriate for the research in this project. Questions will be designed in advance so students can check off on items they need work in. Included with the questions, will be specific drills to enhance the skills that need work. After establishing the use of video in computers. The project should combine of the use of video and computer

instruction. This can be done with scan conversion software. Dazzle® scan conversion software has been selected to do this. Scan conversion software has been chosen due to its cost effectiveness. Ideally, high speed video equipment would be used to analyze the swings of a baseball player. However, on a high school's budget, that kind of equipment is not available. For $100, scan conversion software can be purchased and used with existing computer systems, compared to spending thousands of dollars on video equipment.

Software Used in Education

Smith and Andrews (1989) explained the benefits and pitfalls of Computer Assisted Instruction (CAI). CAI makes a good classroom tool due to it's multimedia effects, student interaction, and it can be student and teacher centered. Smith and Andrews give the history of CAI dating back from teletypes to current day software. Earlier CAI software was behaviorally based, but today's software is more student centered and interactive. The new emphasis in CAI is on THE APPLICATION OF cognitive psychology.

There are many forms CAI takes. One form is film or videotape instruction. These forms are used for linear

visual lessons. Video is good for teaching procedural tasks due to its capability to be seen frame by frame. Videodisc is another form of CAI. Videodisc has slowly replaced film. It allows for random access. Storage is easier and cheaper than video. Today's CAI takes video presentation and enhances it with student interactivity.

Some of the promises of CAI was that it make learning seem more like the real world. You can get instant feedback using CAI. CAI is interactive for each individual, allowing for the isolation of specific performances, adaptive for varied learning styles, and is motivational due to it's graphical nature.

The pitfalls mentioned were few. Cost is the biggest pitfall toward CAI systems and software. Another major pitfall was in teacher fear of unfamiliarity of such programs. Some CAI cannot be changed due to its permanency (such as CD-ROM's). Finally, it takes a lot of time to plan CAI into a daily schedule for classroom use.

O'Sullivan, Stroot, Tannehill, and Chou (1989) say that physical education courses are built ready to use interactive video technology. CAI is considered a superior method of instruction in physical education. CAI is considered good due to meeting different learning styles.

It explains the long process it has been to have easy to use non programmable CAI software.

Interactive video in physical education is necessary to master fine motor skills. This is because it takes close observation to evaluate those skills. Video is now used because of this. Video allows for instant feedback and instruction. O'Sullivan, Stroot, Tannehill, and Chou (1989) state that the everyday teacher does not work with interactive video because it takes too much time. Training is recommended as the answer for this problem.

Instructional design for video interaction is vital. Specific goals and objectives must be set for students. It is important to get good footage selection and good shots. It is important to select good software. The benefits of interactive video are the ability to design programs for multiple modalities, student control, and the diversity of video samples. O'Sullivan, Stroot, Tannehill, and Chou (1989) explain the importance of having a clear instructional program for the students to follow.

Molnar (1995) discusses teachers using video scan conversion to tape student projects. These projects always involve motion. Since motion is hard to see on low cost video equipment, scan conversion software is used to slow

the motion of the projects down and for students to gain a deeper understanding of the physics of motion.

Creating video clips used to be expensive. Now through the use of multimedia applications, graphical manipulation has become easier. Scan converted video allows you to create your own multimedia clips. Instructors and students are only limited by their imagination.

Another nice feature of scan converted video is that it allows large amounts of information to be held and to be accessible. Each student can have his or her own video library portfolio. Instructionally, video can be integrated into simple word processors.

The key for video is that the scan conversion software must have at least 15 to 20 frames per second for rapid motion activities. Another benefit of using scan conversion software is that useless frames can be removed from clips and that you can tie clips together to edit video clips.

Escalada and Zollman (1997) believe that physics without laboratory assignments is useless for the education of students. They believe that laboratories support interaction among students, a connection between facts and

student belief, allows for applying new concepts to new problems, to solve problems, and to make decisions based on their findings.

Escalada and Zollman (1997) researched using scan converted video in the classroom laboratories. Again, they used the video clips for motion studies. They were testing for whether students develop cognitive relationships to what they hear and see to what they do in labs. The authors ran ANOVA and t-tests to test their hypothesis and found that it is worthwhile to use digital video in the classroom as a learning tool.

Students had a very positive attitude towards hands on student centered learning. Escalada and Zollman (1997) do say that there is a small learning curve for the students when dealing with new software.

It is easy for students or teachers to see that computer systems are a valuable classroom tool. The major drawback to most CAI was the cost. Another major obstruction is the time it takes to break down video and convert it digitally. Like most passions, this has to be a labor of love. It should be an intrinsic part of teaching in the individual student using CAI. However, it should be

mentioned again that student-centered instruction helps alleviate some of the work for the instructor.

Video scan conversion can be used in the classroom. You must look at using video in a setting where motion is slowed down. A physics laboratory was the perfect setting for such research. The Molnar (1995) article explains facts about CAI already covered. However, the idea of a video portfolio was an interesting idea. A video portfolio might include video of each player. A portfolio may include jpeg's or mpeg's of ideal swings used by major league baseball players. The Dazzle® software produces at 33 frames per second for mpeg files which is more than what the article suggests. Therefore, Dazzle® was a good choice of scan conversion software. In the next article scan converted video is compared to book knowledge students were receiving in the classroom.

The Escalada and Zollman (1997) article proves that there is statistical significance that scan converted video is a successful classroom strategy. Again, students are using video to break down the physics of motion using the scan conversion software. For this project, it is important that a correlation between book learning and

hands on scan conversion as a learning tool be shown, especially when student centered.

Student Learning

Russell (1975) focuses on changing from teacher centered instruction to student centered instruction. Teachers tend to lock themselves into teaching all kids the same way, trying to emphasize the same content. Russell suggests a modular approach. A modular approach allows students to choose which unit they want to study. Students are coming to teachers from a variety of backgrounds, therefore Russell suggests having a "bank of modules" available to students. Each module has specific objectives, student projects, and instructional formats (such as group presentations, demonstrations, small group discussions, etc…). According to Russell, this is the premise of student-centered instruction and learning.

Modules are offered to students in an outline form and the students choose the topic or unit that interests them. Objectives in the modules need to be specific, as do any projects. Most objectives and projects will focus on the lower level of Bloom's Taxonomy (1956). Learning activities (such as group work, guest speakers, games, role

playing, video tape, etc…) should be used in conjunction with the projects and objectives. Grades are simply based on the objectives. Did the student meet the objective or not? Russell (1975) believes student achievement is higher with a modular approach. Felder and Brent (1996) compare student centered versus teacher centered instruction. According to the Felder and Brent, student centered instruction is a substitute for lectures. It contains self-paced, cooperative groups, open ended problems, reflective writing, simulations, role playing, and creative thinking exercises all rolled into one. Student centered instruction increases motivation for students to learn. Research suggests this is true. There are two camps on instruction: teacher controlled and student centered. It is a difficult transition to go from teacher controlled to student controlled.

According to Felder and Brent (1996) students have trouble with non-traditional teaching methods. Initially students are shocked, or in denial, and there is great resistance and withdrawal. Felder and Brent (1996) believe this is natural. After a period of time experimenting, both teacher and student will struggle while exploring, gain some confidence, and succeed.

Students are more adaptable to change than teachers are. Teacher's concerns are many. Concerns such as: getting through content, loss of control, materials not covered in lectures, finding the right answers to open ended questions, dealing with cooperative groups, hitchhiking students exist in most classrooms. Felder and Brent (1996) give many different suggestions for each of those fears. Felder and Brent acknowledge those fears are justifiable, however, when teachers use prudence and alternative learning activities, the end result is improved learning by the students. The real key to instructional method is on your student's learning styles.

Seymour (1994) wrote about computer learning and cooperative learning. Cooperative learning allows students to learn together in a group amongst their peers. This has shown an increase in student achievement according to Seymour. The review of the literature deals with cooperative learning and student achievement. In Seymour's literature review, she states that student achievement increases 63 percent when using cooperative groups exclusively. Seymour states that cooperative learning affects other areas beside achievement. For example, Seymour writes that besides more academic achievement,

students learn to be synergistic, or work together well in groups. Seymour reviews the use of computers within cooperative groups. According to Seymour, this is an easy task, because students grossly outnumber the number of computers in most schools. According to Seymour's research, students have a natural tendency to collaborate at the computer rather than work individually, particularly when working on new material.

Seymour (1994) completes quantitative research on the use of cooperative groups in teaching Computer Aided Drafting (CAD). Seymour finds no significant difference between students who worked alone versus those who work in cooperative groups. Seymour does discover that students who worked in cooperative groups felt better about their ability to socialize and solve problems as compared to students who worked individually.

In the article by McKenzie (1998) the topic of student centered learning is discussed. In the beginning of the article McKenzie broaches the topic of the use of technology. McKenzie states that there has not been a radical transformation of student learning since the Internet was infused at her school. What is mentioned is that teachers need to understand how to facilitate students

in order to assemble the array of information available to students on-line. This is done through teacher training.

Seymour (1994) offers options to the Internet as a source of information, particularly for younger student. Different Compact Discs are suggested for use. The idea of data storage is discussed. Network administrators are warned to make sure networks have enough storage available for big student projects.

McKenzie (1994) discusses the arrangements of classrooms. McKenzie recommends using laboratories and not spreading the wealth of new technology amongst many classrooms. This allows for what she calls, "Screensavers Disease." That is to say, too many computers sitting on desks not being used. McKenzie suggests being flexible in the design of your computer layouts. Allow for "learning centers" with your technology.

Modules work extremely well with the swing of a baseball player. Different parts of the body can be isolated and looked at separately or at the same time. This would be a simpler approach to instruction. As for this project, the prior instruction of the movements of the body could easily be taught in units or modules. The key is putting the learning into the student's hands. Let the

student choose which aspect of their swing needs work based on instruction that has already taken place.

The Felder and Brent (1996) article was a good one for this project. According to Felder and Brent being a "sage on the stage," is not prescribed. Instruction should be given using various delivery methods. All students need instruction in lecture or demonstration mode, especially in computers when they first start. However, once students learn some basic skills on the computer, they can often go into areas or modules on their own, without much assistance other than direction from an instructor. This is true in the classroom according to Felder and Brent. Teachers have become less tired, and students, take to this form of instruction well. In my project, once students know how to use the scan conversion software, they can break film down for themselves. And when guided with a checklist (set of objectives), and prior instruction on what to look for in a swing of a bat, students can learn for themselves what it is they need to know without having to be "coached." The student can self-evaluate in almost all cases. Self-evaluation presents many opportunities for a student using technology. A web site could be set up using e-mail for feedback to enhance student learning. Setting up a web

site and interacting with e-mail takes the project into distance learning.

In the Seymour (1994) article, it shows that students do not learn more by working either individually or by working in cooperative groups. However, student morale does increase by using computers. For this project, students will often collaborate together to "coach" each other. Often students will not have a great coach to student ratio. This means paring students together in groups could be advantageous. Students can constructively criticize each other, gaining feedback immediately. Based on Seymour's findings, cooperative group instruction would be easy to do on the field. Students could learn different aspects of swinging a bat in learning centers, much like in the classroom.

In the McKenzie (1998) article, different layouts for student centered learning are discussed. Within the realms of this project, the Canyon Springs High School is set up with computers in each room, and access to computer laboratories throughout each wing of the school, following much of what McKenzie has suggested for the use of student centered use of technology. Additionally, e-mail evaluation is available to the students.

Distance Learning

The Schrum and Lamb (1997) article was about the United States Air Force Academy using a networked classroom lab for one of their classes. The premise behind using a network and the Internet to teach a class is that distance learning will become part of the everyday education process in the future.

Schrum and Lamb (1997) used a group ware software package to network a campus. The idea behind this, according to Schrum and Lamb, was to be able to schedule meetings on line, have synchronous (chat room style) and asynchronous (e-mail style) interaction and assessment. This allowed students to create and edit documents outside the classroom environment.

There are many different applications to having a networked campus. Different applications exist in a networked environment such as: teach one class at multiple sites, cutting teacher and student training costs, cuts travel costs, allow for more time, allows for group work, and allows for different instructional techniques.

Schrum and Lamb (1997) ran two pilot tests of the network. In the first pilot test the entire network crashed, yet work was still completed by using some student

centered techniques. In the second pilot test they found networks were able to do the following things once the software and hardware glitches were worked out: enabled group activities and interaction, leadership roles emerged, each group found different ways to solve the same problem, all students must participate for ownership to occur, and there must be some mandatory basic technology skill prerequisites.

Egan and Gibb (1997) designed a distance learning course in order for student-centered learning to take place. There are many variables to be concerned about in planning such a course. Egan and Gibb mention that one variable incurred is that student-centered learning allows for discovery of student learning styles. It may give the instructor a clue into how a student best communicates, what a student's interests are, and what motivates a particular student. However, the most important variable is that distance education engages students in active learning.

Clarity in a distance learning project must be well organized and planned. An online course should have a set of detailed objectives and study guides for learning to take place. In Egan and Gibb's (1997) study, if a student

understands the objectives, 52 percent of all variance is eliminated in student achievement. The objectives must be precise. Content must be open-ended. Short lessons should be designed for the students with learning difficulties. The use of multimedia can only enhance the presentation and should be used according to Egan and Gibb.

According to Egan and Gibb (1997) you should have an idea of what the student knows prior to coming into any unit by using pre-assessment tools. Understand why the students are taking the course. You should get to know your audience. For example you should know if they have entry level knowledge, skills, or course related interests. This will only help in instructional delivery.

Insuring the above mentioned material will stimulate motivation within your students. In addition, study groups should be developed in order to foster interaction. The final piece of the puzzle in student-centered distance education is teacher feedback. Feedback should be given to promote learning. The feedback must be timely and specific. Student surveys should be used to gage feedback effectiveness.

Goodwin (1994) studied using electronic mail (e-mail) in the classroom. E-mail was a critical element to this

project. Goodwin gives some background to the history of the Internet and to the use of electronic mail. E-mail was used to deliver class notes, lectures, small group conferences, and a source of communication between the student and other students as well as the student with the instructor.

Using e-mail was a challenge in the Goodwin (1994) study. Goodwin found that e-mail may not be the best medium of delivery for instructional material. Delivery of instructional material to Goodwin's classes was often indistinguishable because text was unable to be parsed on several different systems. The difficulty didn't end in the delivery however. Goodwin found it difficult in working with the local area network of computers on that campus. A solid knowledge of the university's computer systems and LAN's aided him with difficulties the students had using the e-mail delivery system. If a course is offered using e-mail or electronic delivery, it can be difficult if there is a natural disaster such as a hurricane or earthquake that would disrupt the flow of e-mail, sending e-mail into computer "never-never land."

Goodwin (1994) discusses the management of an e-mail course. Students often forget passwords, may not have

university accounts or home access to e-mail. Students can take too long to establish accounts, making the first three weeks of a course a time to catch up on missed material. In the management of an e-mail course, students should be given "slack" time to establish the management structure of an e-mail course.

There were many pedagogical problems identified as well. One problem was the inexperience of some members of the class with technology. Goodwin (1994) suggests that students with less experience should be teamed up with students with more experience. Goodwin maintains that students with less experience should be encouraged to use technology, and not on the quality of the projects worked on. This is only the case early in a course however. Instructors may want to spend time with special tutorial sessions with students with less experience.

In *The Internet as Curriculum* (1997), support of existing curriculum should be the main goal for each school. The article discusses the derivation of curriculum. The development of curriculum should be based on desired learning objectives, and not based in a textbook the district may have purchased. In other words, the

textbook should follow the curriculum, and not the other way around.

The Internet as Curriculum (1997) discusses curriculum as a journey. The journey should be based on student discovery. Less emphasis should be put on designated issues, although the article acknowledges certain topics must be covered. However, with the vast information at the hands of students, other sub-topics should be broached and not hindered.

Information on the Internet is in the form of a jungle according to the article. Time needs to be taken to find relevant information on the Internet. Once the relevant information is identified (via web addresses and the such), there should be relevant exercises that go with the information covered.

The second big area of concern with the Internet inside the realm of curriculum is prospecting. Prospecting is when students lose focus while researching the Internet. In the past education has been designed for structured research experiences. The future should offer a varied look at different events or information. However, developing basic skills before students are free to discover on their own is mandatory.

The third area of concern with using the Internet as part of the curriculum is to develop a new research infrastructure. This infrastructure should include questioning, planning, gathering, sorting and sifting, synthesizing, evaluating, and reporting of information.

The Schrum and Lamb (1997) article was excellent in warning an instructor in the caveats of distance learning. There are many things to fear. There is no greater fear than a hardware or software glitch in a network. However, if there is a glitch, a contingency plan must be in place. If a web site was available to all baseball players, there must be files at the school that can be accessed as well. This is true because not all students have Internet capabilities. Also, we see it is important to have basic knowledge and vocabulary down before proceeding with such a project. However, there are definite benefits to a distance education course or unit for hitting. One such benefit is that students can practice their skills at home on their own. Often this is the recipe for success anyway.

Goodwin (1994) gives many clues to instructors trying to use technology instructionally. He warns about student inexperience with technology. He warns that there will be a learning curve of about two to three weeks for

beginners. E-mail should be used in several ways. One way is as an instructional delivery method. Another is for feedback and communication between the students and the instructor. This is a vital part of this project. This project will include teaching students to use a scan converter within the curriculum. Also, knowing that students may not comprehend the concepts involved in scan conversion should help any instructor in planning for his or her project.

In *The Internet as Curriculum* (1997), many pertinent issues of my project are covered. The idea of using the Internet as a method of instruction is not new. *The Internet as Curriculum* has identified the need for well designed and planned units of instruction when using the Internet as a method of instruction. This project has been designed with this concept in mind.

Baseball Literature Review

Hitting a baseball has as many hitting theories as individuals playing the game. It is important to take subjectivity out of the teaching equation and deal with what we know to be true. Therefore, The Physics of Baseball by Adair (1990) deals strictly with the act of

hitting a baseball. Adair explains the mechanics of swinging a baseball bat. Adair likens swinging a bat to swinging a rope with a weight on the end of it. Adair states power in a swing comes from the hands, legs, and torso. Adair gives information on different types of hitters, such as pull hitters (hitters that hit the ball primarily to the side of the field that they are standing on in relationship to home plate). Adair gives information regarding the ball/bat collision, and the effects of both the bat and the ball during such a collision. Topics such as the center of percussion (in the bat), bat and ball distortion, and the coefficient of restitution are covered at great length. All this information is important. However, when dealing with the swing of a batter, one does not need to concern themselves with topics in these pages of the book. Those topics are more concerned with the manufacturing of the materials used to hit a baseball.

Adair (1990) deals with the spins of a batted ball. Adair states that regardless of the spin of the ball, prior to hitting it with a bat, the spin will be different after contact with the bat. This leads us into hitting theory. There are two predominant hitting theories: The Rotational Theory and Weight Shift Theory. All hitters in baseball

use some variation of either theory, or even parts of both theories. Most theories agree wit the book that backspin is the most desired spin of the ball coming off a bat. Backspin is necessary because of its effect on the flight of the ball. Both hitting theories have results similar to each other. The Weight Shift proponents want to produce line drives (an airborne hit). The Rotational proponents want to produce long fly balls, both of which are created with backspin. Even with the same results being desired (a ball in the air), the process on how to do this is much debated in baseball. Adair (199 spells out for the recreational baseball fan, the desired result of any swing (backspin). According to Adair (1990), bat angle and its margin of error is the main contributor to backspin. The book used two players as an illustration. Rod Carew, a weight shift proponent, says the swing should start down, level out in the hitting zone (the plane the ball is traveling in), and finish with a ten degree upswing. The benefits of this approach are cutting down on striking out and hitting for a higher average. A disadvantage of this theory, is that players will produce fewer home runs. Reggie Jackson, a rotational proponent, argues that the angle you finish swinging up with should be a 25 degree

angle. This angle would produce more homeruns. This is the main advantage of the rotational theory. The disadvantages of it are more strikeouts and a lower hitting percentage.

The *Louisville Slugger Ultimate Book of Hitting* covers hitting from the ground up. Monteleone and Gola (1997) have a section on both the grip of a baseball bat and different stances hitters use to hit with. Montelone and Gola explain commonly accepted grip as aligning the knuckles in the fingertips and not in the palms of the hands. Monteleone and Gola discuss the three different stances used by hitters today.

Monteleone and Gola (1997) establish the motion back a hitter takes. A hitter must first go back in order for their weight and momentum to go forward in their swing for maximum bat velocity. This is likened to a boxer by comparing the force of an uppercut in a boxer's swing. The motion back is with the hands and slightly with the weight going onto the back foot.

Monteleone and Gola (1997) discuss the flight path of a baseball. The strike zone commonly used by most umpires is identified. Also identified, are the best hitting zones for left handed and right handed hitters. Moneleone and

Gola summarize vision tracking of the baseball with the eyes.

Monteleone and Gola (1997) spend time discussing two theories of hitting. Both the Rotational hitting theory and the Weight Shift hitting theory are discussed. There are advantages and disadvantages of both theories. Monteleone and Gola discuss the different levels of ability. Different roles are available for different levels of ability. For example, students that do not have a lot of ability, might best serve a team as a pinch hitter or pinch runner. Monteleone and Gola discuss situational hitting. Situational hitting is hitting which is done at different points in the game. For example, if a firstbaseman is holding a runner on at first, it opens up a hole in the defense on the first base side. Finally, Monteleone and Gola discuss the mental side of hitting. Issues such as handling failure and pre-swing routines are discussed in this portion of the book.

In *Baseball Coach's Survival Guide* by Alston and Weinstein (1998) a short section on hitting is covered. The majority of this hitting section covers mental hitting. Physical attributes of hitting are covered. Items such as the stance, the eyes and ball movements, hitter's strides,

and the actual act of swinging are briefly mentioned in this section of the book. The mental aspects of hitting are discussed thoroughly by Alston and Weinstein. Having a hitting game plan, hitting with two strikes, and situational hitting are all covered within the mental aspects of hitting. Alston and Weinstein have many different drills to enhance the material covered both physically and mentally. Many of the drills are common drills used by many coaches in baseball.

You Can Teach Hitting is Dusty Baker's (1993) systematic approach to hitting a baseball. Discussed is a philosophy on how to teach hitting, hitting fundamentals, hitting faults, hitting drills, and a section for advanced hitters. In the teaching philosophy section, Baker explains how to deal with players ages seven through thirteen. Baker breaks up the ages and how to deal with different age levels and skill levels. Baker advocates the Rotational hitting theory. He gives a systematic approach on how to teach the rotational method. Baker lays out each element of the swing and ties directly into a drill that reinforces that particular element of the rotational swing. There are many good drills that reinforce the rotational method of hitting. Soft toss, short toss, tee

drills, and torso rotational drills are all used within this chapter. Baker dedicates a large portion of his book to the mental aspects of hitting.

Delmonico(1996) offers many of the drills commonly used when dealing with correcting swing problems students may face. Delmonico details 35 hitting drills. Each drill is broken down into five different elements. The Purpose element describes what the drill is used for. The equipment element describes the equipment needed for each drill. The step-by-step element explains the procedure for carrying out each drill. The key points elements gives coaches the key points to watch in each student's swing. The Variations explains different variations of the drills in the book. Six of the drills deal with other offensive items besides hitting. Delmonico breaks down specific motor skills. Drills, such as what to do with the lead arm, top arm, lower body, head are mentioned. Physical adjustments are discussed.

Conclusion

Throughout the review of the literature, I have tried to establish a reason for completing this project. The literature reasons that using computers for student

learning is a worthwhile effort. However, the key to doing so is in the organization of the material and it's objectives. Most of the students come to the classroom with a variety of learning styles. Also, many students come in with preconceived ideas on hitting. This project gives these students both written and visual cues for the skill of hitting a baseball. The program has links to drills, where the student can learn kinesthetically the skill of hitting a baseball.

In addition to this, students can access the material in the classroom, on the field, and at home. Having the material on a web site will allow students to take their time with the material. The web site is easy to use.

CHAPTER THREE

STATEMENT OF OBJECTIVES

Project Goal

The main goal of this project is to design an instructional web site and evaluation unit for high school baseball players at Canyon Springs High School. Students will videotape, scan, and evaluate themselves in either a student or teacher centered situation. It is my intention to develop a curriculum for hitting. It is my intention to use a web page in order that various learning styles of students will be met.

The project establishes an extra-curricular curriculum in the area of hitting a baseball, and could be a blueprint for other coaches to follow. Ideally, students will be able to learn from both a web page and normal instruction on the field or in the classroom, they will be able to see the results of what they have learned, have those results evaluated, and have a practice plan developed prior to stepping on to the practice facility again. Visual, and kinesthetic learning should take place.

Objectives of the Project

There are many objectives to the project. After exposure to the curriculum and materials on a web page, Students will be able to:

1. Use the school intranet in a Windows NT based operating environment for project efficiency.
2. Use the web page to attain hitting concepts at home.
3. Send and receive e-mail feedback to and from the instructor of hitting.

Goal two in this project is to use digitized video as an educational tool. Students will be able to:

1. Use video clips to attain hitting concepts.
2. Use the digitized video to analyze their swings on a frame by frame basis.
3. Use the digitized video to evaluate what skills need to be enhanced.

The third goal of the project is to establish mental and theoretical students can use to help in the area of hitting a baseball. The students will be able to:

1. Identify the mental attributes involved in hitting a baseball.

2. Identify hitting theories and techniques, and apply those theories and techniques to maximize their skills.

The fourth goal of this project is the evaluation aspect of the curriculum. This is the most important element of the project. After evaluating their swings, students will be able to:

1. Compare their swings with the instruction received in regards to hitting theory and technique.
2. Identify good and bad points in their swings.
3. Identify drills to reinforce good points of their swings.

The fifth goal of the project is to have students develop their own individualized practice plan for hitting. The students will be able to develop a practice plan based on identification of both their good and bad points of their swings.

CHAPTER FOUR

DESIGN AND DEVELOPMENT OF THE PROJECT

Project Description

Swinging Like a Cougar is a curriculum project designed for baseball players on the Canyon Springs High School baseball teams. In sports, there is no act as difficult as hitting a baseball. (Monteleone 29) There are many variables to hitting a baseball. There are physical variables such as using a 2 ¾ inch in diameter bat to hit a 9 inch in diameter baseball traveling at a speed of 70 - 90 miles an hours from a distance of 60 ½ feet. There is the variable that hitting a baseball coming down on a 15 degree angle is extremely difficult, because the ball does not stay on the same geometrical plane. Finally, when you add in a variety of pitches pitchers use to get hitters out, the act of hitting a baseball becomes a near impossibility. For this reason, hitting is an act of failure. Professional hitters have a batting average of .300 to .350 In addition, players only get three strikes to hit a ball into fair play, and you can hit a ball well and still not get a hit. This means they fail the other 65 - 70 percent of the time. Therefore, hitting becomes an act

of trying to reduce the percentage of failures through a series of mental and physical preparation. This is the goal of my project. The project does not consider professional hitters. I am dealing with the high school student who may not be as physically gifted as a baseball professional. My project is based on attempting to reduce the amount of failure a student has by educating the student in both the mental and physical aspects of hitting, therefore, reducing the amount of failure a student will have.

In order to achieve the goal of reducing failure for students involved in baseball, I have made a curricular website that deals with both the physical and mental aspects of hitting. With this project, I have established a curriculum for the act of hitting, that students or other teachers may follow. Egan and Gibb's (1997) article will help set up the web site's structure on the project. Objectives will be set up for the students to meet. According to Egan and Gibb's, the better a site's online objectives, the less trouble your job of evaluation or feedback should be.

Students will go over the material on the web site. Students will physically practice the material. Students

will evaluate the results after practicing. Because this curriculum will be on a web site, students could continue to practice at home, making the project a distance education project.

The baseball books have been used to enhance the actual web page part of this project. Each book served a specific purpose. The *Physics of Baseball* (Adair, 1990) gives the web page a basis to teach students about how important backspin is. Backspin is important to how the ball travels in flight (since we want an airborne ball). Adair discusses the idea behind the angle of the bat during the upswing. Adair initiates discussion of the different theories involved with hitting a baseball. Much of this information is summarized within the web pages of the project. Also important to the project were the chapters on vision, as they related to hitting a baseball.

Another topic within the web page was that of swing mechanics. The essential elements of both the rotational and the weight shift method are included in that chapter. The chapter dealing with the two theories of hitting discusses the differences between the two theories, which are on the web page. The final element Monteleone and

Gola's (1997) book that I included in my project was that of the mental approach to hitting.

In both *Offensive Baseball Drills* (Delmonico, 1996) and *Baseball Coaches Survival Guide* (Alston and Weinstein 1998) I used the drills documented that I will use within the project. Even so, the drills are common in baseball and do not need any special attention in regards to copyrighting or a registered trademark.

The curriculum examines hitting from different perspectives. There are five units of instruction in my project dealing with hitting instruction. The first unit deals with hitting theory. While there are many hitting theories, three predominant theories have surfaced within the realms of professional baseball. The first unit goes through each theory's weaknesses and strengths. The first unit culminates with the similarities between the three different theories. There are links to each theory. The main page has the similarities of the three combined theories.

The second unit of instruction deals with the mental approach to hitting a baseball. Yogi Berra once said that baseball is 90 percent mental. (Monteleone 1997) In teaching high school students about hitting, I have found

this to be true. Therefore, this project spends time going over the mental aspects of hitting. Topics such as handling failure, knowing what pitch to expect, having a positive visual experience, and situational hitting are all discussed within this portion of the project's curriculum. I have found in past experience, most students fail because they do not understand game situations enough to eliminate several factors from their thoughts while they hit. That is the rationale behind this section of the project.

The third unit of instruction deals with the act of swinging a bat. In this unit, students will start from the feet and work their way through the head on what the body is supposed to do kinesthetically while swinging the bat. In order to eliminate confusion on the different theories of hitting, the project only looks at the similarities of the different theories of hitting within the curriculum. There are six areas of the swing looked at in this unit. Each is concerned with a different portion of the body, and how the body works together during the process of swinging a bat. Each area explains the process of the specific body part that should receive instruction. After looking at the content in the body specific area, students are able to

link to other areas of the body, or hyperlink to drills which reinforce that area of instruction.

The fourth unit of instruction deals with reinforcing the third unit. The fourth unit is a section of hitting drills that can be used to isolate the different parts of the body while swinging a bat. Within the project, there are many links to this part of the project. In the player evaluation mpeg unit, students can find out what they are doing incorrectly, and link right into a drill that will help them correct that part of their swing. There are links in the third unit (the act of swinging) that take a student directly from instruction to drill reinforcement.

The final unit within the curriculum project is player evaluation. Students will be able to access mpeg files that have an attached spreadsheet form. Within the form are checkpoints for each student's swing. The mpeg files are taken from video of the student either at practice or from games. The student takes the video and digitally scans the video into a mpeg file using the Dazzle® scan conversion software. After viewing the mpeg by themselves, or with an instructor, the student may begin evaluating their swing based on the checklist on the web site. This

checklist is linked to the drills within the project. The students will need to have the Window's Media Player® software in order to complete the distance education portion of this unit. Within Window's Media Player®, students may pause the mpeg's and advance them frame by frame if necessary, or they may just play right through the entire mpeg file. They will spend considerable time on the evaluation form, which is linked to the drills unit. After they know what drills to work on, students are left to complete the drills on good faith or with the help of another student or an instructor.

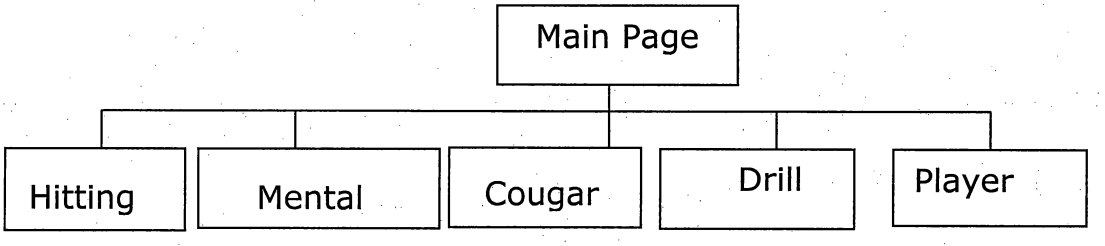
The technology requirements for learning at school will include a video camera. Also necessary, will be a computer system. The computer system should have at least 64 megabytes of Random Access Memory, a video and sound card, a zip drive, 233 megahertz processing speed, a keyboard, monitor, and a mouse. There will be software needs for the project. An operating system such as Microsoft Windows will be necessary. Within the operating system, a web browser will be needed. Finally, Dazzle® software and Windows Media Player software are necessary to complete the project.

Currently the only way to view this project is on the recordable CD I have provided with the project in Appendix C.

Instructional Design

Lewis (1999) states while reviewing the literature many of the video and computer projects were done in topical or modal form. Since this project was designed for instruction and reinforcement purposes, I attempted to keep the design of the project simple and attempted to keep the project modal. The student should be able to look at any one item of their swing at any given time.

Figure 4.1. Web Site Navigation



Students receive immediate feedback based on the drills. Because students can access material modally, this allows for a student-centered environment. Additionally, students being able to learn and practice using distance learning.

In Figure 4.1, the navigation of the web site has been constructed. The introduction page called "The Cougar Swing," contains all five units of instruction.

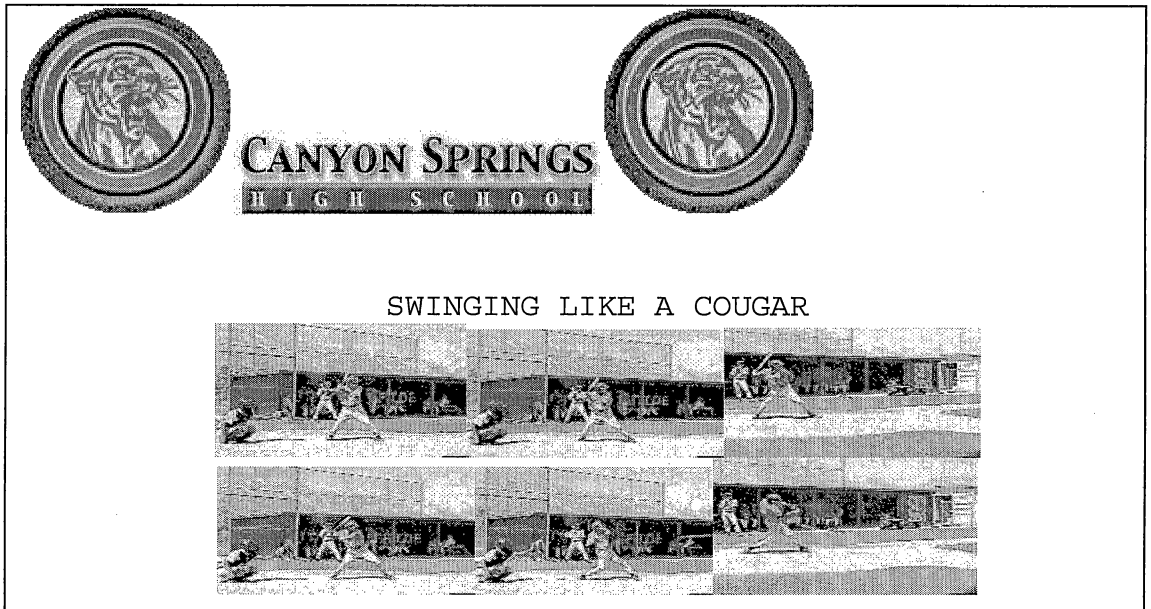
Students can access each unit individually or sequentially. This modal format again is mostly student-centered in nature. A coach may want to look at such material in a sequential manner.

The first unit is on the mental preparation required for successful hitting. There is an example of this page in Figure 4.2. Again, successful hitting is defined as reducing the amount of failure involved in the act of hitting.

There is an example of the material in this unit in Figure 4.3. This unit was included because of my educational philosophy. I do not believe students should fail. If students fail, it is often because they were not prepared in advance. I want students to achieve success in hitting. Having them just go up and swing at baseballs isn't going to help them. Baker (1993) gives statistical data based on research to help students understand what they may see from a pitcher based on the count and the game situation.

Adding the unit on hitting theories was so that students could see that no matter what hitting theory used, there

Figure 4.2. Web Site Main Page



are ten absolute truths about hitting mechanics. There is an example of this web page on Figure 4.4. If I have 15

students, I have 15 students with different swings. Instead of try to mold all 15 into one type of swing, I needed to find the common thread among the three main hitting theories and find the common thread for my 15 students to use. This makes hitting instruction

Figure 4.3. Hitting Theories Page

I. Hitting Theories
   A. Every player has their own theory
   B. There are three widely accepted theories
      1. Weight-shift theory (Charlie Lau)
      2. Rotational theory (Ted Williams)
      3. Combination theory (Mike Schmidt)

Similarities among the theories:

1. All teach a stride of the foot with front toe closed
2. All teach a recoil of the hands
3. All teach a launch position
4. All teach balanced stances
5. All teach a weight shift of sorts
6. All teach using the whole field to hit in
7. All teach hitting through the ball, not stopping swing short

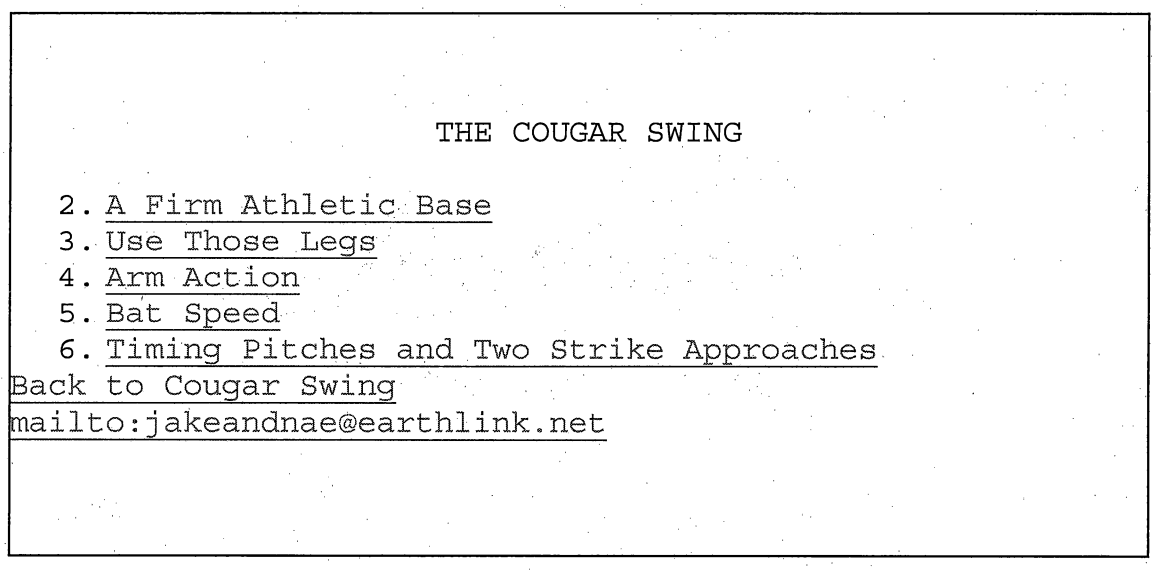
Back to Cougar Swing
mailto:jakeandnae@earthlink.net

easier because there is not a perfect theory.

The third unit is that of actual physical hitting

instruction. Again, I take the similarities of the three main hitting theories, and devise a hitting system. This hitting system establishes different elements in their swing. There is an example of this web page on Figure 4.5. Visual tracking, bat grips, stances, weight transfers, and

Figure 4.4. Hitting System Breakdown Page

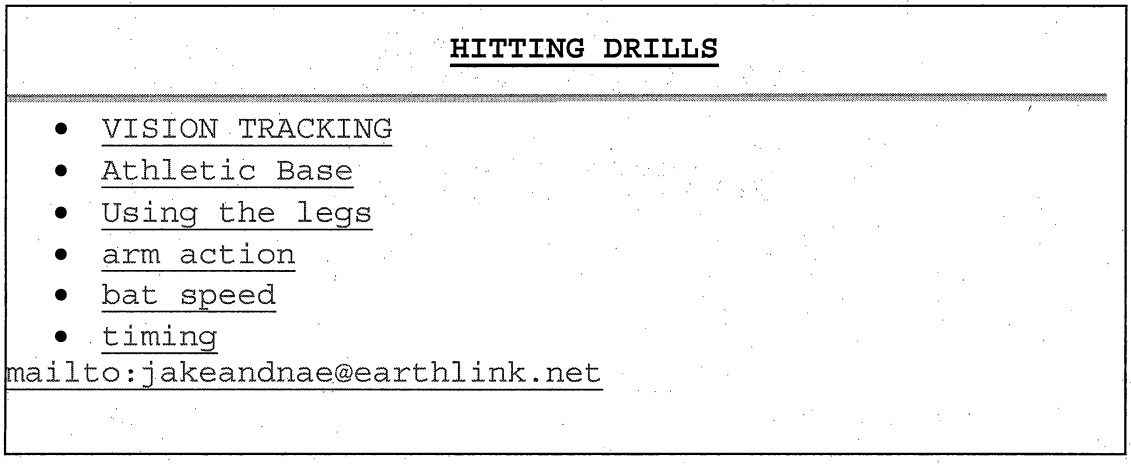


arm paths are all discussed within this unit. This unit was again designed to be modal. This means students can look at any part of the unit in which they feel they are not having success. Within this unit, while looking at the instructional material, they may access links to drills, which reinforce the items of instruction.

The fourth unit is for drills only. If a student has a good grasp on the mental approach, theories, and hitting

mechanics, they could skip straight to the drills link. This was done for the general public as well as my students. The general public are always interested in the drills used by a specific hitting system to improve. I decided to include them on this web site. Also, students who have been through the hitting instruction unit may want to work on the drills at home. Again, this is a good opportunity for using distance education.

Figure 4.5. Hitting Drills Page



The fifth unit is for student evaluation. Students may evaluate themselves, have peer evaluation, parent evaluation, or coach evaluation. The combination of sources for evaluation is limitless. However, there is a spreadsheet evaluation form included on the web site. The form is based on about 20 common hitting flaws in most

hitters. These flaws were identified in the section of the Literature Review for baseball. Once students identify the weak points in their swings, they may access the links on that page to hitting concepts which would help reinforce what they should be doing while swinging. Those concepts are linked to drills that can be used. This was the most time consuming part of the project. The continual scanning of video into digital mpeg's was time consuming. Spending the extra time with students during the evaluation project is time consuming. Because this is the case, distance learning has been encouraged. On each web page with instruction or drills inside of the project, my email address has been included. This allows students to attach mpeg files when sending me emails to assess their swings. They can access mpegs of when their swings exemplified proper hitting mechanics and compare those to mpegs with less than desirable mechanics. This evaluation can be done by opening up both mpegs within Windows Media Player® on the same screen.

Navigation and Screen Design

This project is a simple method of teaching a student proper swinging mechanics when hitting a baseball. Because

of the limitations of the project, the instruction that takes place is virtually visual. Reinforcement of the project is primarily kinesthetic. Each page was given a background of watermarked baseball graphics. This was for aesthetic reasons.

On the main page of the project, the school's logos are included for identification purposes. At a future date, I hope to make this part of the school's web site. Another visual cue on the main page of the project is a sequence of an actual player's swing. The menu on the main page is modal by unit.

Hitting theory is the first link of instruction. Included on the page are the three most widely accepted hitting theories among major league baseball hitting instructors today. I listed the three hitting theories as links. The links follow information that is specific to that particular theory. On the main hitting theory page students will find the common threads among the three most widely accepted theories.

In the Mental Approach to hitting, students will find an outline of three basic elements of hitting mentally. There is a link to a basic mental approach of how all hitters should think. Another link deals with specific

items to look for during each at bat a student has in a game. The final link explains how to mentally prepare for different situations that may occur in a game. This page is designed as lecture notes. This section is primarily to be used as reinforcement of a previous lecture.

The Hitting System Breakdown identifies different parts of the body and how those body parts are engaged in a swing. The initial page is set up as links to the different body parts. When one of those links is followed, it takes the student to a new screen. On each body part screen, an mpeg is continually looping as a visual cue of what it looks like when following the written instructions within that body part page. The written instruction and mpeg work are linked together to identify what the body is supposed to do during the swing of a bat. In "The Swing" section of the links for the Hitting System Breakdown, links are given to drills students may use to reinforce different body part movements.

When you access the Drills link from the main page, it takes you to the body part page similar to the Hitting System Breakdown page. From the body parts page, you may follow links to the drills. On the drills pages, students will find a mpeg as a visual example of how the drill is

executed. In addition to the mpeg, students have access to written information regarding execution of the different drills within each body part movement.

The Evaluation link can be accessed from the main page. This will take you to links to the individual students. From those links, you will see a page of listed mpegs. Those mpegs are listed in sequential order of filming. Each mpeg can be accessed by the student. While viewing the mpeg, students may use the spreadsheet form to identify different areas of concern within their swings. If there is an area of concern that is a continual problem, the student may follow a link back to the drill that coincides with that problem area of the body.

All mpeg files are on the left side of the screen and are continually looped so students may see a drill or body motion perfectly modeled. The mpeg files have been slowed to one quarter the normal speed to show the skills and drills better. The mpegs are looped upon finishing the desired movement on film. On the instructional pages, information is presented in a bulleted format. This should attract the reader more than a paragraph format should. The design was supposed to be simple in structure.

Ideally, a student in grades six and up could understand the concepts as they are presented and model a good swing.

Formative Evaluation

To evaluate the effectiveness of the "Cougar Swing," the web site was published for a short period of time on the school network of Canyon Springs High School. Two coaches, and two students agreed to serve as evaluators for this project. One of the teachers is the Head Varsity Baseball coach at Canyon Springs High School. The other coach has coached at numerous colleges and universities in the southern California area. Both of the coaches are well versed in computer technology and software. The two students are well versed in technology, particularly Internet software and Windows Media Player®. All the evaluators have spent a majority of their lives involved in the sport of baseball either as players, coaches, or both.

The evaluators were informed of the address of the web site. The evaluators were instructed to view the web site. Evaluators were to either email the formative evaluation form as an attachment to email, or to fill out the evaluation form by hand and either mail it or give it to me in a sealed envelope. Prior to evaluating the process,

they were presented with a copy of the Consent Form (Appendix A). They were asked to read it and sign it. After signing the document, I made a copy of the signed form and gave them a copy for their personal records. I kept the original copy. The evaluators were given both a disk with the Software Evaluation Form on it and a hard copy of the form with an empty envelope. They were asked to read the hard copy prior to going through the web site so they knew what to look for while evaluating.

After finishing the "Cougar Swing" web site project, and turning in the evaluation form, they were asked if they had any further comments on the program, and the comments were noted. They were thanked as they turned in the evaluations.

I wanted to separate the feedback between the students that evaluated the project and the coaches who evaluated the project. The coaches evaluated the project to identify if the web site would be an effective learning tool. The students received the evaluation form in order to assess the effectiveness of the content. The results were interesting.

The two coaches I received feedback from gave the web site good marks overall. Both felt the purpose of the site

was obvious. They mentioned the content was excellent. The information was easy to understand for both as well. Both found the site easy to navigate through, and that the icons and mpegs were advantageous. The text was easy to read, and both would recommend the program to others to use. I did receive only an agree in three areas from one coach however. That coach believes that he agreed that a web site was an appropriate way to present the information. The same coach mentioned that he only agreed that the web site is visually pleasing. He found one link glitch in a drill page. Both coaches thought the idea of putting this type of information on the web was a great idea in their comments. One coach was even inspired to make his own web site on pitching after reviewing my project.

The students were harsh in their feedback. Both students agreed that the purpose of the web page is apparent and that the information was beneficial. Both students agreed that navigating the web pages was simple and that the graphics and icons within the project had instructional value. One student thought the text was easy to read, the program was free of glitches, and would recommend the site to others. The other student only agreed that the screens are pleasing to the eyes and that

the text is easy to read. Both students only agreed that the information is easy to understand, and that the project is an appropriate way to present this information. On one page, one of the students found a glitch on a link to a drill page. It was the same glitch found by one of the coaches.

After examining the results, different revisions were made. The link that had a glitch in it was fixed. And more graphics were inserted on different pages.

Strengths and Limitations of the Project

One of the strengths of the "Cougar Swing" project is that it is a new approach to coaching. Many established coaches have published before. Those coaches often offer tidbits of information to people at conferences, clinics, or camps. There is not an established media on the Internet or Intranets that has been published.

Almost all coaching has been done on the field in the past. This adds two extra elements to coaching. The first of those elements is the ability to take students in the classroom and teach them the fundamentals of hitting as a curriculum. As a coach, this is a great breakthrough

because there has not been an established curriculum for after school sports.

This web site teaches students to hit by written and visual instruction on the web pages designed to do so. It gives students the capability to see what drills can be used to isolate different aspects of their swings, and improve on those areas.

The other great breakthrough in creating a web site for hitting is distance education. Not only can students learn in the classroom, and on the field, they now have the capability to learn at home online. This is important for coaches. Early in the school year students often play other sports. This makes it difficult to go over material a third or fourth time in class. Having a distance education element to the project is convenient for students who play other sports, because now they have an opportunity to catch up on the instruction that has been given during class time, or after school.

The "Cougar Swing" also permits students to learn in two ways. The student can learn both visually and kinesthetically. Students have access to the written material online. Likewise, students have access to mpeg files online. This allows them to see the mechanics.

Finally, there are drills students can do to reinforce their skills, which helps develop the kinesthetic learner. This is vital because most sports require both kinesthetic and visual learning to have any level of success. Of the limitations of the project, I was not capable of scanning sound into the mpeg files. While normally, sound is not hard to come by on an mpeg, the Dazzle© scan conversion software would not allow for this. This limited my project a great deal. Ideally, I would have liked to had both visual, verbal, and kinesthetic learning capabilities within the project.

Because there is no sound in the project it is limited in its capabilities. There is no correlation between the written word and sound, or visual cues and sound. This may make learning the material more difficult.

Recommendations for Future Projects

The addition of sound to the mpeg files would greatly improve this project. This is particularly true if the student did not attend the verbal instruction in the classroom or on the field. Not having sound hinders the student who plays another sport. They are already behind

in instruction. Not having sound may even compound problems with the distance education element of this project.

The "Cougar Swing" could easily be enhanced to include more of the elements of baseball. For example, a web site could be made for baserunning, defensive play, position specific material, and for pitching. Also, as hitting continues to evolve, more could be added to the project as the topic expands.

APPENDIX A

STUDENT PICTURE CONSENT FORM

STUDENT PICTURE CONSENT FORM

I, Dutch Michael Nestra give Jake Gansereit permission to use my image on his educational website. The site, Http://geocities.com/mr_flakey is an educational web site with the purpose of hitting instruction. I understand this web site is for educational purposes only.

_____	_____
Dutch's Signature	Date
_____	_____
Parent/Guardian Signature	Date
_____	_____
Jake's Signature	Date

APPENDIX B

PEER EVALUATION FORM

Peer Evaluation Form

FORMATIVE EVALUATION
OF
"Cougar Swing: A Web Site for Hitting"

PLEASE CHECK THE APPROPRIATE BOX:

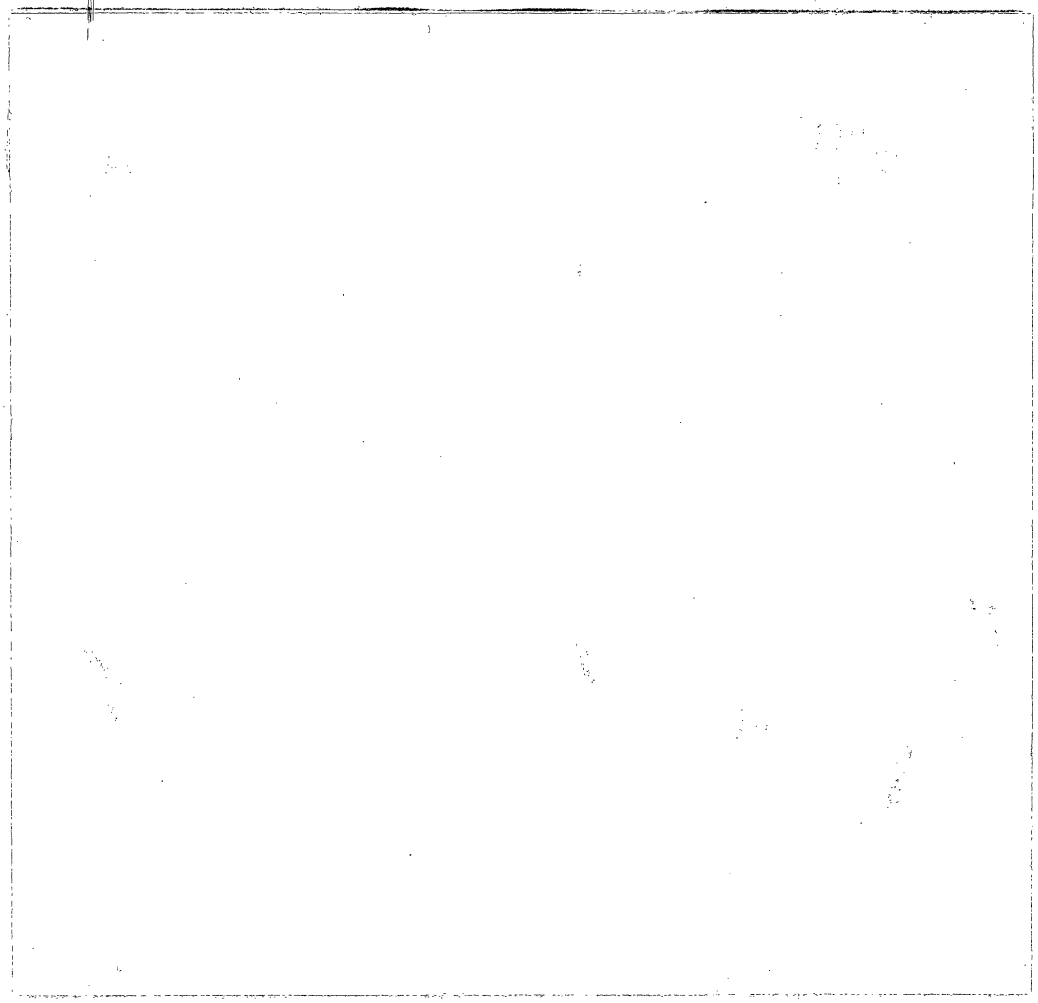
QUESTIONS	Strongly Agree	Agree	Disagree	Strongly Disagree
The purpose of the web page is apparent.				
The web page contains information which is beneficial.				
The information is easy to understand and apply.				
The program is appropriate way to present this information.				
It is easy to navigate through the web pages.				
The graphics and icons have instructional value.				
The screens are aesthetic or pleasing to the eye.				
The general text is easy to read.				
This program is free of defects and glitches.				
I would recommend this program to others.				

Suggestions and comments:

APPENDIX C

PROGRAM RECORDABLE CD IN HOLDER

RECORDABLE CD HOLDER



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