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ABSTRACT

CHARACTERISTICS OF EXPERT WEB SITE DEVELOPERS: CREATIVITY, CONSTRUCTION OF MEANING, AND PROBLEM SOLVING/PROGRAM DEVELOPMENT

by
Nancy E. O'Daniel

This thesis examines the areas that determine what characteristics produce an expert Web developer. The focus of the study is in the following three areas: creativity, construction of meaning, and problem solving.

To date, no other formal study of this type has been reported. We know much about the World Wide Web itself, but nothing about the people who create the Web sites.

This thesis shows that the idea of *an* expert Web developer is a misconception. The top-rated sites seem to have been created by a *team* of developers, each bringing to the group a strength in at least one of the areas mentioned above.

CHARACTERISTICS OF EXPERT WEB SITE DEVELOPERS: CREATIVITY, CONSTRUCTION OF MEANING, AND PROBLEM SOLVING/PROGRAM DEVELOPMENT

by
Nancy E. O'Daniel

A Thesis
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Master of Science in Professional and Technical Communication

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APPROVAL PAGE

CHARACTERISTICS OF EXPERT WEB SITE DEVELOPERS: CREATIVITY, CONSTRUCTION OF MEANING, AND PROBLEM SOLVING/PROGRAM DEVELOPMENT

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For dad. You always believed in me.

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CHAPTER 1

INTRODUCTION

For those of us in the information technology industry, the World Wide Web is already a standard tool. In fact the Web is still quite new. While we know much about the Web itself, we do not know much about the actual Web site creators. The information about those who develop Web sites is, as of yet, unavailable. What makes a designer a good one? How does a designer create a highly rated site?

This research investigates the Web developers of highly rated Web sites as awarded by various rating systems. There is a need to know the following: who makes these great sites; what type of training was received to be able to make these sites; and finally, what creative, critical thinking, and problem solving/program development processes were used to develop these sites.

A survey of twenty-five top Web site developers was emailed to gather basic information about their backgrounds, education, and talents. From the nine who answered, five developers were targeted for a structured interview based on a tri-model developed from creativity, construction of meaning and problem solving/program development models.

This thesis first describes the background of the Internet and Web site rating systems. It then describes the theory supporting the research, the method of research, the results, analyses and conclusions of the study, and finally, suggestions for further research.

I believe that the collected data will tell other Web designers what they can do to ready themselves for a career. The data will show how much time and effort goes into

the training of expert developers in order to make these top-rated Web sites. To date, no other formal study of this type has been reported.

1.1 Background

1.1.1 The Internet

The Internet, also known as the World Wide Web—or Web for short—was initially built for the US Department of defense in 1969. The military had become interested in the Web because of communications potential. To send messages to another person or area, the Web breaks up the message into tiny packets. The packets are then sent out across the network individually, and probably sent along different lines along the way. Because the packets are sent along different lines, the message will still get there even if a few lines are down (Pastan, 1996).

In the 1970's the Internet went global. American Universities were beginning to connect to one another. Standards were set so that more and more organizations would be able to communicate. By 1983 there were 562 networked computers that were considered to be servers. In 1993 the first Internet browser was developed. The browser allowed the viewing of graphical information from any networked computer—a Web site (Pastan, 1996).

Today, almost everyone can have access to the Internet and be able to browse through Web sites. It is estimated that there are about 200,000 Web sites to date. Of these sites, about half are commercial and about one-third are educational. If an individual has access to the Web, ten the ability to post a Web page is not far away. All

that is needed to post a Web site is a little knowledge of HTML (Hypertext Markup Language)—the language used to program Web pages—and a place to put it.

1.1.2 Web Site Rating Systems

In order to find suitable Web developers to query, it is imperative to use reliable Web rating systems to find the top Web sites. While investigating these rating systems, I found that there are many differences in the way they each rate. One that is very apparent is the iteration in which the raters update the winners. The length in time varies from hourly to yearly, with a fortnight in between. The ideal rating system is one that updates more frequently because the developer will have the ideas about the site fresh in her mind if an award has just been won.

An additional variance among the sites is that each bases its research on different measurements. For example, the "top" rated sites, according to one site, are those with the most hits, or even the most unique hits. "Technically, a hit is a request made to the Web server. For example, if you look at a Web page that contains ten GIF files, one person visiting one page will make 11 hits on the server: one for the page, and ten for the graphics on the page" (Resources 1998). Another rating site incorporates the actual content matter—if the information given is useful—and graphic design. Still another lets users vote for their favorite site—a popularity contest. A few have counting meters installed on computers of Web surfers to track behavior. And yet another uses Web site logs to track traffic (Berst 1998). With so many differences in measurements, the sites that are rated to be "top" differ greatly. As I am interested in creativity and the

construction of meaning, I used a Web rating system that measures the content and graphic design of the site.

1.2 Selection of Web Rating Systems

Identifying two criteria—content and graphic design, and iteration, the frequency of which the Web site is updated—poses a problem in picking a rating system because most of the ones that measure content and graphics rate yearly. I selected a site called *Platinum 100*, a yearly rating system that judges content, because I identified in January when they had just completed the judging for the best of 1997. I selected all of the sites that were listed that I could find an email address for—10 out of 14.

Platinum 100—http://www.firestorm.com—rates its sites by awarding (or not awarding) points in six different areas: content, graphic design, layout and design, coding, speed, and reliability. The following criteria is straight from *Platinum 100*'s "points" page (1998):

Content: 30 points
- Usefulness of Information presented (9 points)
- Frequency of Updates (9 points)
- Quality of Information Presented (6 points)
- Detail of Information Presented (6 points)

Graphic Design: 20 Points
- Professionalism (10 Points)
- Size of Graphics (6 points)
- Usefulness and Placement (4 points)

Layout and Design: 20 points
- Professionalism (3 points)
- Readability (10 points)
- Layout (4 points)
- Use of HTML extensions (3 points)

Coding: 20 points
- Broken Images (10 points)
- Broken Links (4 points)
- Plug-in usage (2 points)
- Browser options (4 points)

Speed: 5 points
- Download Speed (5 points)

Reliability: 5 Points
- Connectivity (5 points)

For a wider variety of sites, I used *The Lycos Top 5%*—http://point.lycos.com/categories/. *Lycos* rates the content and design of a site also, and updates on a regular basis.

Lycos rates its sites in 3 major areas: content, design, and overall. *Lycos* also puts the top sites into separate categories: news, sports, money, travel, technology, health, science, education, lifestyle, culture, shopping, kids, business, entertainment, careers, fashion, government, and autos. Of all of the *Lycos* sites listed, I selected the top-most site in each category that was listed with an email contact address. The following criteria is taken from the *Lycos* rating page (1998):

> **Content:** The content rating indicates how informative the site is. Does it cover its topic in a broad, deep and thorough manner? Is the information useful, accurate and up-to-date?
>
> **Design:** The design rating assesses the site's layout and presentation. Does it lead visitors through the information nicely? Are the Pages beautiful, colorful and easy to use? Does the site use video, audio and original graphics?
>
> **Overall:** The overall rating combines the content and design metrics with criteria such as amusement, personality, and charm. Is the site fun, inviting and captivating? Would you like to meet the people behind the site?

Like *Platinum 100*, *Lycos* also awards points, scaling from 0 to 100. The following (also an excerpt from the rating page, 1998) describes what the ratings mean.

> A scale of **100** implies perfection, but it's really only a theoretical score; we don't expect any site to score **100**... (emphasis added).
>
> **100-90:** ...not only good but important and influential. sites that signal a leading trend on the Internet.
>
> **89-80:** ...strong but occasionally uneven work. Niche sites with strong potential and areas of importance.
>
> **79-70:** ...broad appeal but sometimes lacking ideas. sites that may be useful but not necessarily inspired or compelling.
>
> **69-60:** ...relatively ordinary. Standard-issue sites that lack originality.
>
> **59-50:** ...a typical Grammy evening. sites that barely make the *Lycos Top 5%* directory.
>
> **49-01:** ...Unusually low quality, for sites that have zero content and a dramatic lack of visual appeal. Obviously, scoring more than once in this range excludes membership in the *Top 5%* directory.

The following table (Table 1) is a listing of the 25 Web Sites I selected. The table shows the title of each site, the actual Web Site address, and the outside developer Web address—if one was called in. An outside developer simply means that the Web site was not created by someone from inside the company. If the site was picked as a top Platinum 100 site, there is a "†" by the name. If Lycos Top 5% chose the site, there is a "§" by the name. The table originally had the contact's email address, but to keep all identities confidential, the column was removed.

Selected on Friday, January 30, 1998

Table 1. Listing of Top Web sites name, address, outside developer address (where applicable).

Site Name	Address	Outside Developer
American Association for the Advancement of Science (AAAS) [§]	www.aaas.org	
Better Health & Medical [§]	www.betterhealth.com/	
Better Homes & Gardens Home Improvement Encyclopedia [§]	www.bhglive.com/ index.shtml	
BizTravel [§]	www.biztravel.com/V4 /newhome.cfm	
Blue-eyes.com [†]	www.blue-eyes.com	
College Board Online [†]	www.collegeboard.org	
Duke Sports Infonet [†]	www.GoDuke.com	www.TotalCollegeSports.com
Education World [§]	www.education-world.com	
EToys [§]	www.etoys.com/shopping/etoys/html/home.shtml	
HotWired [§]	www.hotwired.com/	
In The Crease [†]	www.inthecrease.com	
LeaseSource [§]	www.leasesource.com	
Los Angeles Times [§]	www.latimes.com	
Medascape [†]	www.medscape.com	
Money Online [§]	jcgi.pathfinder.com/money/plus?page=index.oft	
Mr. Showbiz [§]	www.mrshowbiz.com/	
Spank! Youth Culture Online [§]	www.spankmag.com	Laughing Dog Publishing
SPORTQuest [§]	www.sportquest.com	
The CD Club Web Server [†]	www.cd-clubs.com	Mischief New Media Inc.
The Official Peanuts site [§]	umweb1.unitedmedia.com/comics/peanuts/index.html	
Total News [†]	www.totalnews.com/_main.html	

Table 1. (continued) Listing of Top Web sites name, address, outside developer address (where applicable).

Site Name	Address	Outside Developer
Travelution †	www.rosenbluth.com	
Vision †	www.sids.com	
Wedding Bells †	www.weddingbells.com	
Welcome to the White House §	www.whitehouse.gov/WH/Welcome.html	

† Rated by *Platinum 100* § Rated by *The Lycos Top 5%*

CHAPTER 2

THEORY

The theory behind this research is Couger's (1995) model of creativity, Flower's (1994) model of meaning construction, and Deek's (1997) model of problem solving/program development. I believe that these three models are interrelated because meaning construction, creativity, and problem solving/program development all go into making a Web site. This chapter outlines the three models, gives examples of the parts of each, and explains how they all fit together.

2.1 Couger's Model of Creativity

Couger's theory of creativity involves five major principles (Figure 1). The first is to find strengths and weaknesses. We almost always recognize our weaknesses, but when we are good at something, we normally do not see it as a strength, it's just something we do, something we've done all of our lives. For example, a computer programmer is able to understand and use computers very well, and has been able to from a really young age. Because this is just something she does, she does not recognize it as a strength. She may not even realize that there are many people out there who have an incredibly hard time understanding and using computers. This same programmer knows that she has problems spelling. She recognizes this as a weakness, but does not let it get in the way of her creativity. Couger is saying that the programmer needs to recognize the computing skills as a strength, in addition to recognizing the inability to spell as a weakness.

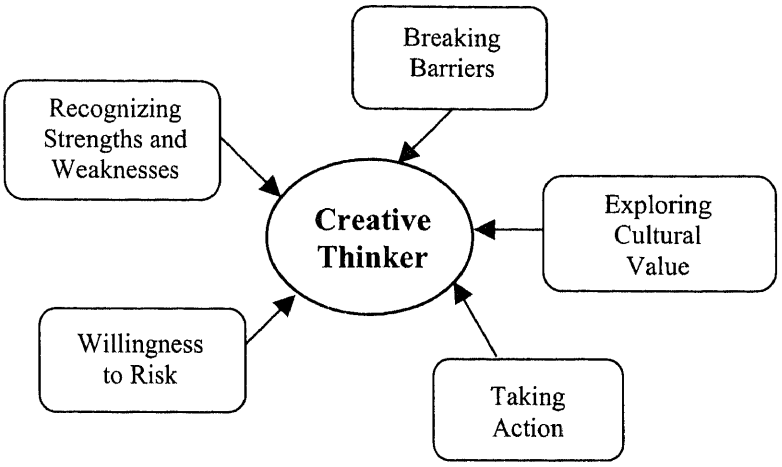

Figure 1. A creativity model based on Couger's *Creative Problem Solving and Opportunity Finding.*

The second principle is the willingness to risk. If no one built up the courage to take a risk and take on a project that is totally different, new ideas would never be born. Truly creative people always risk failure. For example, whenever a sculptor tries a new sculpture, he is running the risk that no one will like it—failure. He is risking even more if no one has ever done anything like it before. But without these risk takers, great sculptures would never have been made; new ideas would never have been developed.

The number three principle is to break down barriers. A barrier can be perceptual, emotional, cultural, environmental, or intellectual. Breaking down barriers means keeping an open mind to everything around us—being flexible. Even while trying to reach a dream, staying loose and breaking barriers will help fine tune it along the way. Greater dreams may even be reached if an open mind is kept. For example, a carpenter may be trying to develop the perfect chair. He has an idea in his mind, and makes drawings or even models. He is breaking an intellectual barrier by not using the same

model that has always worked before. While forming his idea, he is constantly changing how the chair is to be formed. Maybe he sat in a different chair that had one feature that he liked so he adds it into his chair. Maybe a friend came over and says she needs her back to be supported and that gives him another idea for the chair. By keeping an open mind, the carpenter produces a greater chair than what he originally thought of.

The fourth principle is to explore the cultural value. We need to get to know the conditions both inside and outside of us. The culture around us is what shapes a lot of ideas and opinions. Realizing those ideas and opinions is a part of the creative process.

And the last principle is to take action. Go and do what it is that needs to be achieved. It is great to learn all about a strength, but in the end, the only way to make it all happen is to just go out and execute it. For example, reading all about how to crochet, and the techniques of the different stitches is a good way to start to learn. But until the crochet hook is actually picked up, and some stitches are made, nothing will be created.

2.2 Flower's Model of Meaning Construction

Flower's theory of meaning construction could also be explained as problem solving for readers and writers. The actual problem solving model that I am using for this thesis is for programmers and is explained in section 2.3. By problem solving, Flower means "...the intellectual moves that allow people to construct meaning—to interpret the situation; to organize, select, and connect information..." (Flower 1994). In order to select information, we extract meaning from relevant events and details from our lives. We then take all of these meanings and organize them into structures that make sense to

us as individuals. At this point, we connect together everything that we have learned and apply them all to our own ideas and issues.

Both readers and writers understand a communication situation by juggling goals and expectations—information that can often be conflicting and contradictory, and that can come from both internal and external sources.

Flower gives us a conceptual map by building a model of discourse construction (Figure 2). The model shows how both the reader and the writer construct meaning, and how it is navigated.

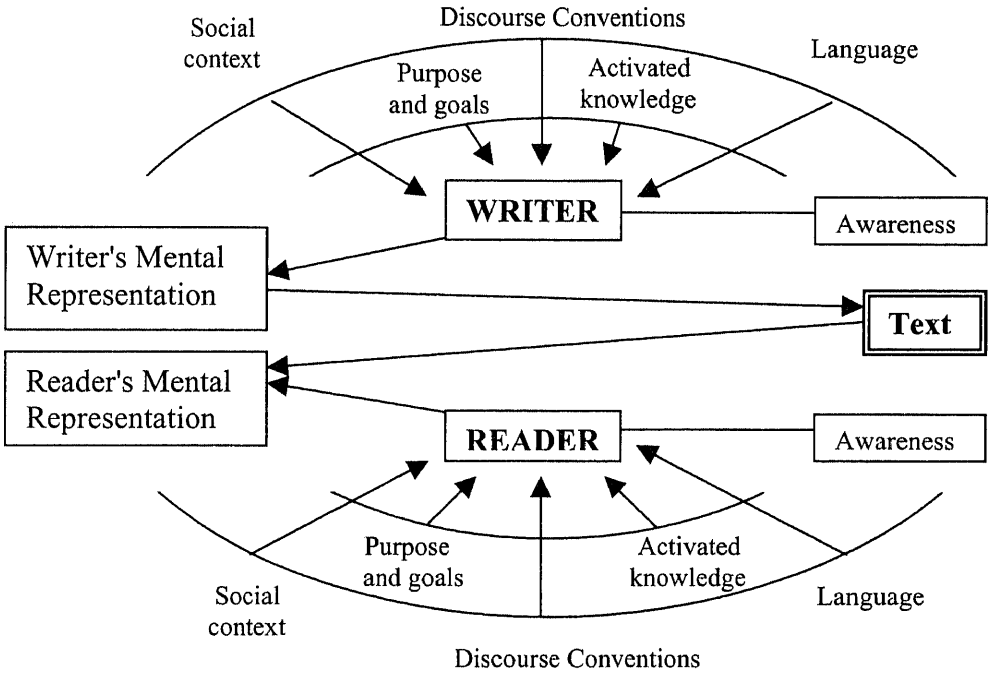

Figure 2. Flower's Model of Discourse Construction. (Figure from *The Construction of Negotiated Meaning: A Social Cognitive Theory of Writing*)

Flower's model illustrates the writer's mental representation as she is writing a text, and shows, in detail, what is involved in shaping the writer's mental representation. Flower shows us that the outer forces of social and cultural expectations, discourse conventions and language—the outer tier of the model—affect the writer's inner voice—the inner tier of the model. These multiple forces affect the writer's own purposes and goals and activated knowledge as she shapes a mental representation. Awareness is relative, as she may be conscious, or unconscious, of this activity while creating a text.

The social context is what is going on around the writer at the time of writing; for example, the writer would not want to write about a hypothetical bombing right after a real one had just happened.

The discourse conventions are the communities of the writer. The discourse community and its conventions can be as large as the entire United States, or as small as an 8th grade class in a small town in Vermont. For example, the entire World Wide Web is a discourse convention because it is a community in itself. People who use the Web know of a certain etiquette—usually called Netiquette—they should follow to make the community run smoothly.

Language does not refer to the literal language that the writer speaks, as in English, but to any jargon-like language that the writer uses. For example, a chemical engineer would use relevant formulas in a text she was writing for others in her field.

Purposes and goals are what the writer intends to achieve and what the she actually achieves with the text. For example, the writer may want the book he is writing to explain to the reader how to bake chocolate chip cookies. The purpose is to show the reader how to, and the goal is the finished cookies.

Activated knowledge is the understanding linked to what the writer is trying to achieve—what the writer already knows about the text being worked on. The writer draws on knowledge that has been attained from previous experiences, whether it is an earlier book or just a past conversation with a parent.

Awareness refers to the writer's ability to know what is going on around her. The writer needs to know of her surroundings so that her writings do not seem out-of-date, or as if she does not know what is going on in the world. A good author writes what she knows about, what she is aware of.

The lines of the tiers and all of the arrows in the model demonstrate how the writer is able to negotiate the meaning of multiple influences. What this means is that the writer is aware of all of the outer forces, the inner forces and everything else around, and is able to juggle them all together to make meaning out of them.

The reader part of the model is mirrored to the writer portion, except that all of the concepts apply to the reader's mental representation. For the purpose of this thesis, the reader is represented by the rating systems that evaluate the top Web sites; therefore, the reader's mental representation is shown by the actual evaluations the rating systems gave. The writer's half of Flower's model is, in part, the focus of my paper.

2.3 Deek's Model of Problem Solving/Program Development

Deek's (1997) model of problem solving/program development involves three different components: the Problem Solving Method, Program Development Tasks, and Cognitive Activities. The three components are broken down into subcomponents. These subcomponents are what I am focusing on for this thesis. Deek calls his model The Dual

Common Model for Problem Solving and Program Development (Figure 3). It is so called because it brings problem solving/program development and cognition together into one method.

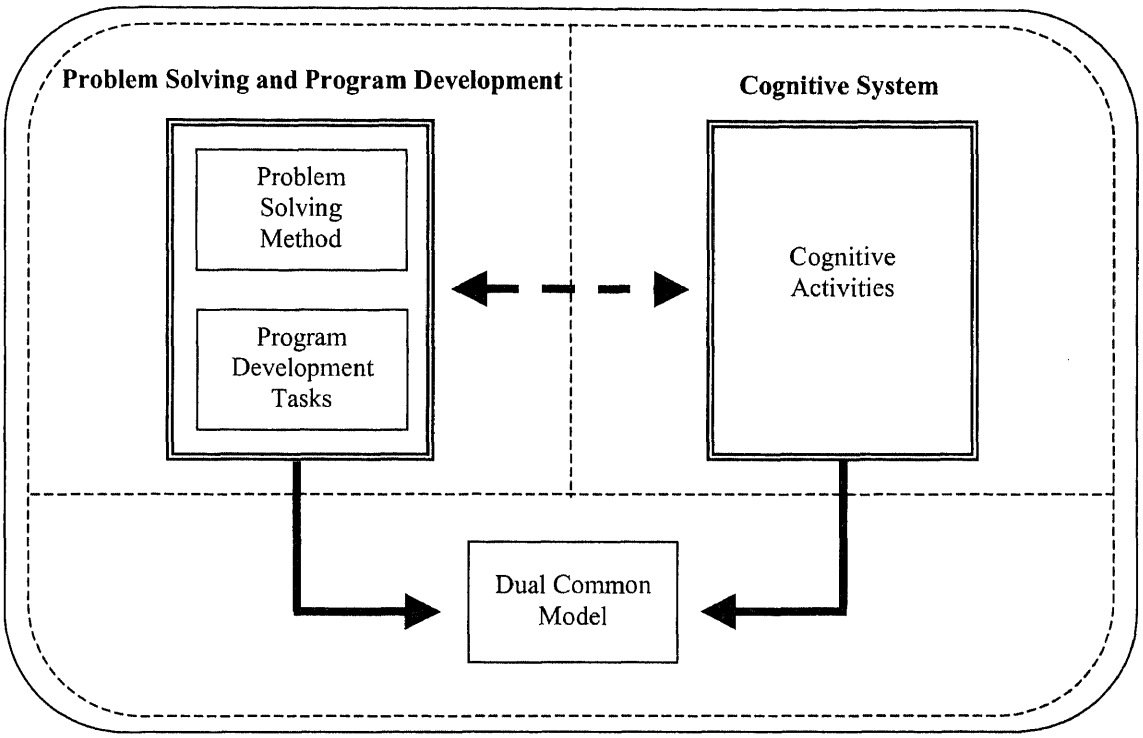

Figure 3. Deek's Dual Common Model for Problem Solving and Programming Development. (figure from *An Integrated Environment for Problem Solving and Program Development.*)

The Problem Solving Method consists of *formulating the problem, planning the solution*, and *designing the solution. Formulating the problem* should result in a model of the problem at hand and involves a preliminary problem description, a preliminary mental model, and a structured representation of the problem. These three steps require that the problem solver write or verbalize the problem. The verbalization normally resolves some difficulties the problem solver runs into such as "overlooking known information which can be found within the problem statement and introducing

unnecessary constraints which are not part of the problem, yet are included" (Deek, 1997). The problem solver uses verbalization so that he can understand a problem or solution, or so that he can explain an idea. Verbalization helps the problem solver to recognize what is known about a problem, what needs to be uncovered, what should be done, and how to do it.

Planning the solution should result in breaking down the problem into parts as well as identifying alternate solutions to the problem at hand. This stage involves devising a preliminary plan, refining goals into subgoals, and refining the data description. These three steps require that the problem solver refine the goal of the problem into smaller, more manageable subgoals. According to Deek (1997), there should be at least three subproblems: input, computation, and output.

Designing the solution should result in a visual representation of the specific solution to the problem at hand, and involves organizing and further decomposition, communicating between modules, and specifying modules' logic. These three steps require that the problem solver organize all of the subgoals into a structure chart. The visual representation will enable the problem solver to see if any additional refinements are needed. The chart lets the problem solver describe what each module computes, and how it is computed. The chart also allows for the representation of data flow—or communication between modules.

The Program Development Tasks combine *translating*, *testing*, and *delivering* the solution that was planned and developed in the Problem Solving stage. The problem solver now becomes a programmer. *Translating* the solution should result with actual code—the syntax of a computer programming language—of the solution from the

Problem Solving Method. *Translating* involves ordering the module's translation, translating the module's specifications, and documenting the module's logic. These three steps require that the programmer transform the solution into directions that can be compiled and understood by a computer. While transforming each module, it is essential that the programmer document what he is doing for clarity so that future use is possible.

Testing the solution should result in a valid program—one that is correct and produces accurate results. *Testing* involves developing test data, performing code testing, and the actual delivery of the program. These three steps require that the programmer find and fix syntax errors—misspellings and grammatical errors, run-time errors—trying to divide by zero, and logical errors—using the wrong formula. The programmer must also develop test data to use for verification. The test data should produce output results that have already been determined. Once the program is bug-free, the programmer may *deliver* it to the desired end user.

While problem solving and programming, Cognitive Activities—the left side of Figure 3—occur simultaneously. Cognitive Activities require that the problem solver/programmer monitor thought processes and evaluate transformations as the solution becomes more apparent. Most of the stages outlined above require drawing on earlier experiences and applying that prior knowledge to the problem that is at hand.

2.4 Models Combined

There are many aspects of each model that fit together nicely to create a tri-characteristic model of expert Web developers (Figure 4).

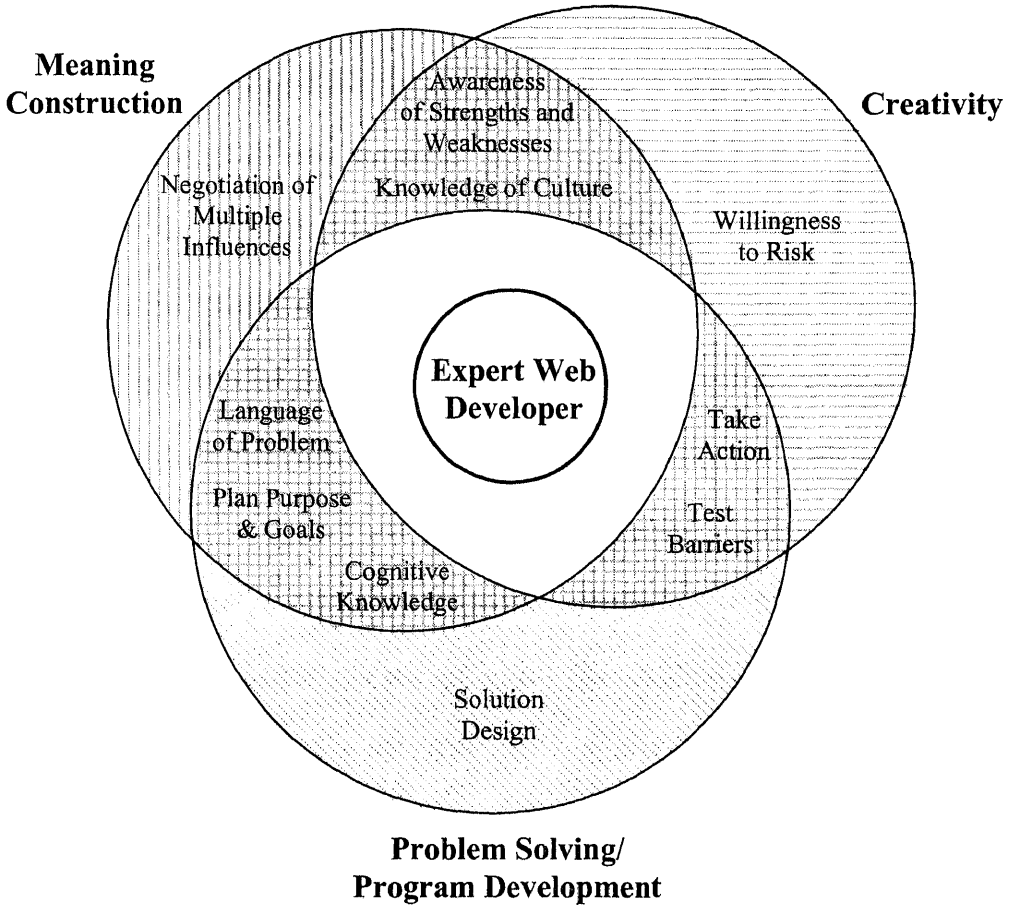

Figure 4. Tri-model of Characteristics of Expert Web Developers.

Figure 4 shows the three different areas that an expert Web developer has to possess characteristics from. The developer needs to be creative, able to negotiate meaning, and be a problem solver/programmer. The ideal Web developer would possess all ten characteristics from the three areas. All three areas contribute one of their own attributes from the previous models. Couger provides the *Willingness to Risk*, Deek contributes *Solution Design*, and Flower supplies *Negotiation of Multiple Influences*.

The *Willingness to Risk* is an important factor in the model. When just beginning, the Web developer needs to have the courage to even start out, to take the risk and learn how to program and make presentable graphics. The developer also needs to be able to

try new things in order to make the site stand out from others. If no one was willing to take a risk and take on a project that is totally different, new ideas would never be born, and Web sites would all look the same.

When the Web developer *Designs the Solution*, it should result in a visual representation of the specific site layout the designer has in mind. The visual representation allows for the representation of data flow—or communication between pages in the site. It will also enable the designer to see if any additional refinements are needed.

It is important that the Web developer posses the quality of *Negotiation of Multiple Influences*. To be able to juggle all of the attributes in the tri-model is a great asset because it means that the developer not only possesses all of the attributes, but also understands them enough to make sense of them.

The rest of the related attributes from the models are put together to create another, similar characteristic. For example, the discourse convention along with the social context in Flower's model, are parallel to exploring cultural value in Couger's model. I use the name *Knowledge of Culture* because all parts consider the knowledge the developer has about the environment and the culture. In order to have a timely site, the developer needs to know what is going on in the culture around her. A user will not return to a site that does not provide information that is culturally aware.

The awareness in Flower's model is similar to recognizing strengths and weaknesses in Couger's model. Both consider the inner awareness of the person herself and require recognition in order to achieve the end result. The name I chose for these interrelated attributes is *Awareness of Strengths and Weaknesses*. In order for a Web

developer to even start out, she needs to be aware that she has the talent to create these sites. She has to commit to this talent and fine tune it so that she will continue to be talented.

Formulating the problem—Deek's model—uses language as outlined in Flower's model. While the problem is still in the formulation stage, the Web developer needs to know the jargon that is to be used so that the solution will make sense. This attribute is now called *Language of Problem*. The Web developer needs to know the basic language—HTML—in order to make a mental model of the site. Any jargon that other Web developers use in order to help out needs to be known. A simple example of Web developer jargon is to know that "dot" means period. For example, if the Web developer were to hear, "I have an example of what you would like to see on my site at www dot in the jungle dot com." she would know to interpret this as: "...on my site at www.inthejungle.com."

Planning a solution in Deek's model is similar to the purposes and goals in Flower's model. While planning the solution, the Web developer is breaking down the problems into individual goals and subgoals. The subgoals make coming to a solution easier because smaller problems are simpler to solve. I used the name *Plan Purpose & Goals* because the solution involves the intended achievements and is the actual achievements.

Translating a problem to a program, and then delivering it, both from Deek's model, is executing it—taking action from Couger's model. This title was named *Take Action* because the developer needs to do the actual coding and put it up on a server for a user to be able to see it.

Testing, which involves modifying incorrect code—Deek's model—is similar to breaking barriers—Couger's model. I used the name *Test Barriers* because both require being able to adapt to change, to break barriers and try something that is different from what always works. A Web developer needs to be flexible enough to change the layout of a site often because that change is what makes a user come back to the site. The testing allows for the developer to see what changes were made correctly, and allows the developer to fix incorrect code before the user sees it.

And last, the activated knowledge in Flower's model goes into cognitive activities from Deek's model. Both draw upon what you already know. I renamed this attribute *Cognitive Knowledge.* The developer is constantly drawing on knowledge that she has gained from previous experiences. The experience is not only from previous sites that were made, but could also be from past experiences with the topic that the current site is about.

CHAPTER 3

METHOD OF RESEARCH

For the investigation of this thesis, I used two research methodologies. The first methodology is the survey, and the second is structured interviews. This chapter describes the two methodologies and includes the actual questions used.

The 25 site designers—selected as outlined in section 1.2—received an email survey asking generic questions about race, gender, age, etc. One of the questions on the survey asks if they would mind a follow-up interview. Of the designers who answer *yes* I selected five to contact either by phone or in person.

3.1 Survey

The survey allows for the questioning of a mass community. It also allows for the questioning of individuals in various locations around the world. A survey has questions that give information that can be ranked and compared to each other—quantitative data (Porter & Coggin, 1995). I used the survey, as it pertains to interviewing Web developers, to ask questions that communicated quantitative results.

3.1.1 Survey Questions

I am a graduate Student at NJIT working toward my Master of Science in Professional and Technical Communication.

I am conducting a survey of Web developers who have created top rated sites.
Your site http://******** was rated by (Lycos) (Platinum 100) as being a top site.

Would you please use the reply function to return this email and fill out the following survey. All names will be kept strictly confidential.

If you are interested in knowing the results, please let me know at the bottom of the survey.

Thanking you in advance,
Nancy E. O'Daniel
MSPTC
New Jersey Institute of Technology
neo2807@megahertz.njit.edu

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1. Age: _____

2. Gender: Male _____ Female _____

3. Race: _____

4. Location (City, State, Country) _____
_____

5. What is the highest level of education you've completed?
   - High School _____
   - Bachelor _____
   - Master _____
   - Doctorate _____
   - Other _____
   - What field/major? _____
   - College/University? _____

6. Have you taken any Web Courses?
   Yes _____ No _____
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes _____ No _____

8. Do you view yourself as a problem solver?
   Yes _____ No _____

9. Do you view yourself as a writer?
   Yes _____ No _____

10. Do you view yourself as a critical thinker?
    Yes _____ No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes _____ No _____
    Phone Number (if yes) _____

12. Would you like to know the results of this survey?
    Yes _____ No _____

3.1.2 Analysis

The following results are based on the answers to eight individual surveys, and one group survey that I received. The actual surveys are located in Appendix A.

- Age ranges from 25 to 37 years old
  - An average of 30 years old
- An even ratio of male to female developers
- Race:
  - Caucasian: 78%
  - No answer: 22%
- Education ranges from a High School Diploma to a Doctoral degree
  - Bachelor's degree: 50%
  - High School diploma: 25%
  - Master's degree: 12.5%
  - Doctoral degree: 12.5%
- Of those who went on to a higher education, fields of studies/majors are:
  - Journalism/English
  - Sociology/Political Science
  - Fine Arts
  - Architecture
- Formal Web training:
  - Eight individual surveys: 0%
  - Group survey: 50%
- Said *yes* they viewed themselves as:
  - Creative: 100%
  - Problem solver: 100%
  - Critical thinker: 100%
  - Writer: 75%

- Of the surveys I received back, the following are the locations of the Web site developers:

  - New York City, New York (2)
  - Calgary, Alberta, Canada
  - Kihei, Hawaii
  - Dublin, Ohio
  - Scottsdale, Arizona
  - Youngwood, Pennsylvania
  - Cincinnati, Ohio
  - Toronto, Ontario, Canada (group)

3.2 Structured Interview

The second part of the research is conducted through structured interviews. Structured interviews allow for first-hand information about a subject. These interviews allow for various perspectives on a topic, and are usually conducted on subject matter experts. A study preformed by Earl McDowell (1991) shows that about 75 percent of a writer's time is spent gathering information. The writer needs the information to be accurate, and a structured interview is one of the best ways to gather factual information. It is structured to gather information on complex concepts requiring a lot of explanations. I acquired extensive information about the characteristics of Web developers.

3.2.1 Structured Interview Questions

1. What made you decide to create Web sites?

2. What are your talents (as related to online work)? Weaknesses?

3. Did you recognize these as talents when you started out? How long have you had these talents? Is graphic design one of these talents? (Do you create your own graphics?)

4. Who is your intended audience for this Web site?

5. What culture/community do they represent?

6. What is the intended purpose/goal of your Web site? Did you reach this goal?

7. What is the biggest problem you ran into while creating this site? Were you able to overcome it? How?

8. What are the different languages you used for the site? (HTML, JAVA, etc.)

9. What is your background with Web material? How did you learn the various languages you know?

10. Have you worked with similar material before coming to this site? (The web overall?)

11. Have you used any coding that you knew most users' browsers could not handle just because it made the site look or work better? What was your reasoning behind this?

12. How does the data flow between pages of the site? Is there a logical structure, or is each page independent of the others?

13. While preparing for this Web site, did you have flow charts for a visual representation before actually coding the site? Did this help?

14. How long would you say it took to create this site, start to finish? How long did the actual coding take?

15. Did you conduct a usability test of your site? Did this bring about any changes to the site?

16. How different is the finished product from the original idea?

17. What would you do differently next time?

The following table (Table 2) shows the relationship between the survey questions asked and the Tri-model of characteristics that expert Web developers possess (Figure 4). The Attribute column displays the title from the tri-model that was developed. The attributes are in a logical sequence that the developer would execute them. Navigation of Multiple Influences and Cognitive Knowledge are at the end because they are both constant processes. The Question column displays the question number that corresponds to the attribute.

Table 2. Relationship between structured interview questions and tri-model.

Attribute	Question(s)
Willingness to Risk	1, 9, 11
Awareness of Strengths and Weaknesses	2, 3
Knowledge of Culture	4, 5
Language of Problem	7, 8
Plan Purposes and Goals	6
Solution Design	12, 13
Test Barriers	15, 16
Take Action	14, 17
Cognitive Knowledge	10
Navigation of Multiple Influences	7, 8 ,9 ,10 from survey

3.2.2 Analysis

The following analysis is based on the structured interviews that were conducted on five expert Web developers. The transcripts of these interviews are located in Appendix B.

3.2.2.1 Willingness to Risk: It seems as though the willingness to risk is directly related to what the developers view to be their talents. If a talent is present, the risk is taken. When asked why they took the risk, the developers' most popular answer was that it was a natural progression of the skills they had. For example, one developer had been

working with print magazines. She decided that because of the way the Internet works, she could create an online magazine less expensively than a printed magazine—there are no paper or printing fees. The only fees that are needed are the connection fees, and sometimes storage fees for the place on a server that the actual Web site pages reside. This developer took the risk to try out the magazine on the Internet because she already had the skills for a printed magazine and wanted to push her skills in a related area.

Another example is the developer who had been working with the Web for quite some time. He has the strength to be able to change with technology. When he was upset with local coverage of a hockey team, he took the risk to create a Web site that covered it from the fan's point of view. If this developer had not had the Web knowledge before, the risk might not have been taken.

Another driving force for the developer was that her company requested a site. This is a risk in itself because of the pressure of trying to do a job well. The developer takes more risks to make the site look and work better than if it were just a personal Web site. For example, one developer had the multimedia skills and was working on print-type multimedia projects for his company. The company then decided that they needed a Web site and asked this developer to work on it. He already had the multimedia skills, so the site was appealing because it would be a good blend of all of his skills.

These three developers show that in order to take a risk there has to be a bit of background knowledge in at least one important area—either the Internet itself, or the topic the site represents. The risk comes from the area in which the developer does not have background knowledge. From my studies, there were not any developers who did not have at least one area of knowledge.

Another area of risk is the actual coding that is used on the site. Three developers said that they strive to include only code on their sites that all browser's can handle. One developer said that the site is enhanced for Internet Explorer, but would not crash any other browser—in other words, the site looks the best in Internet Explorer, but user's can still view it in other browsers. And one said that the site has various versions for the different browsers. All of the developers are aware that there is a cross-platform problem, and all seem to have created ways to get around it. The easiest way to reduce risk is to have straight HTML that will load in any browser. However, some developers really want their sites to look exactly the same in all browsers, which may require different versions of the site.

The risk that the developers take when having any code other than HTML on their site is the chance that there will be users who will not be able to see everything the site has to offer. Some developers create sites that have all of the bells and whistles, and will only work in certain browsers simply because they can—they enjoy staying ahead of technology. These developers also realize that if they have all of these bells and whistles, they need to offer a "lower" version so that everyone without the intended browser will be able to see what the site is trying to present.

3.2.2.2 Awareness of Strengths and Weaknesses: The talents that the Web developers claim to have vary from graphic design to coding, to being able to change with technology, and being able to balance technology with the message that is trying to be sent out. At the same time, the weaknesses that these developers have are the same: inability to handle graphic design, not being as good with the technology as they would

like, and trying to go in too many directions at once. Of course, the strengths and weaknesses were not the same for the individual developer. My study showed that each of the developers noted a particular character as either a strength or a weakness.

The fact that the developers have the various strengths and weaknesses that reflect one another is one of the basic reasons that all of these developers seem to work in teams. They each bring their own talent with them to the team and let the rest of the group fill in the weaknesses.

Two of the five developers *thought* that they recognized their strengths as talents, while two did not. Only one of the five knew for sure that the strength she had was indeed a talent. It took a friend or colleague to show the others that they are doing is a talent. The biggest problem when trying to recognize a strength seems to be modesty. The developers do not want to admit that they have a talent—or at least they do not want to say it out loud—because it makes them feel pompous. "...because I, you know, don't like to say that I learn fast..." (participant 2 p. 66). One participant looked to another to see what he would say his strengths were. "...What do you think...coding?" (participant 4A p. 77).

Once the developers recognized that they did indeed have a talent, most of them realized that they had had it for many years. For one, it had developed over years, and for another it had been around for about 19 years. The shortest time span for a talent with the five developers is 10 years. This shows that the developers naturally adapted their talents from whatever they were doing before the Web came around to being able to create impressive sites—with the help of others to fill in the gaps of their weaknesses.

Even though three out of five developers think that graphic design is a talent for them, a different three out of the five create their own graphics. Most of the developers have graphic artists that work for them, even if they have the talent themselves. One developer does not view graphic design as a talent at all—in fact, cited it as a weakness—but creates all of his own graphics for the site anyway. This shows that the developers are able to, and usually must, work in teams in order to create these top rated sites. It shows that even if the developer thinks that graphic design is an area that they are good in, they have no problem letting someone who is great in that area create the graphics. The case of the developer who created all of his own graphics even though he viewed it to be a weakness is yet another example of modesty when acknowledging talents.

3.2.2.3 Knowledge of Culture: Almost all of the Web sites were created for the general population—because anyone can access the Internet—but are intended for a specific audience. One site is geared for 14- to 28-year-olds. One is aimed at 18- to 25-year-old males. Another is for physicians and other health care givers. Still another is for business decision-makers. All of the developers claim that if someone has an interest in the topic the site represents, it is for them, even if they are not the specific audience that the developer has in mind. Only one site was created for everyone and does not have a specific target audience.

The developers who have a more specific target audience in mind usually create a mission statement to go along with the site. The mission statement ties in with the goals, but also describes the audience they are targeting. The developer sometimes also has people who go out into the field to get feedback from those who are using the site. For

example, the developer who targets health care providers states that the mission of the site is to "...provide clinicians and other health car professionals with timely clinical information that is directly applicable to their patients and their practice..." (participant 1 p.58). This shows that the developer has an incredible sense of his audience, and is able to provide the information that the audience needs.

The developers who say that the audience is the general public usually have an idea of their audience's location, but they are not fully aware of who their audience is. The reason for the lack of information of the audience is because of the nature of the Internet itself. Just as there is no prior information about Web developers, there is not a lot of information on the Web users. There is more information about users because there have been studies conducted, but the studies are still fairly new. There is software available to track how many hits the site is getting, but this does not show any sort of demographics at all. For example, one developer knows that he gets about a million viewers a week, and he is fairly certain that they are mostly 18 to 25 year old males, but he is not positive about this.

This shows that the developers know that there is a definite audience, even if they are unaware of exactly who the audience is. The developers who know exactly who the audience is are those who go out into the field and collect feedback.

3.2.2.4 Language of Problem: Of course all of the developers use HTML for their sites; the site would not run without it. Only one site uses pure HTML, without any other programming language for enhancement. The next most popular language on the sites is Javascript; four out of five developers use it. Three sites use either Perl or Java or

combination of the two. At least one site uses asp, Visual Basic, C programming, and/or Python. All of the developers seem to have a fundamental knowledge of HTML, but not all have the knowledge of other programming languages. When another language is to be introduced to the site, the developers usually have an in-house expert they could ask for help—another example of how the developers work in teams.

The use of various languages directly ties in with the willingness to take risk as outlined in section 3.2.2.1. The more willing the developer is to take a risk the more likely the site will have more than just HTML as a language. What this means is that the Internet is almost completely adaptable to whatever the developer would like to do. With every new version of a browser that comes out, more and more bells and whistles are available. With ever-growing possibilities, there are many different languages that are available to developers, which means that each site can have its own identity.

When I asked the developers how they learned HTML, all of them reported to be self-taught. The most common way of learning was to read a book on HTML; four out of five developers learned this way. The next most popular way to learn, often in conjunction with a book, was to use the "view source" button on the browser to see some coding that they liked from another site. A few also learned from actual Web pages that are dedicated to teaching HTML—an online book. What this means is that not only is the Internet a place to develop sites, it is a place to find information about sites and it is a tool itself to teach how to create sites. The bigger it gets, the more places there are to "view source" and see coding that you like. It seems as if a book is a good place to start, but then developers should use the actual Internet as a place of learning because most sites are ever-changing, which means the code on the site will probably be more current

than a book. However, there are beginning to be some legal problems with the "view source" button.

The legal problems that come with being a Web developer mostly come from copyright laws: linking to other sites that have copyright laws against it; trademarks that are used improperly; and what is called fair use. Because it is almost impossible to make sure no one is taking your ideas, copyright is a big legal problem. Almost anyone can go to any site and copy what is there to use on their own pages—by using the "view source button." What this means is that there because the Web is so new, there were no laws passed for it. Laws are being developed right now, but only because so many cases have been brought to court. The laws are only coming up after someone who has supposedly broken one has uncovered them.

Legal issues are a problem, but the most common problem that the developers have run into while creating sites is outgrowing the interfaces and hardware that they have on hand. Most of the sites that have top ratings have started out small and become bigger with more time and interest. These problems, in turn, result in experiments of solution designs. I will use the sports team site as an example again; the developer started out with just one hockey team that he covered, and only needed a little bit of space on a server for that one team. Now that the site has started to grow, and he has over 300 writers on staff, he needs more room on the server to keep up with the 20 to 30 stories that come in an *hour*. He would like to implement a database that would take care of the various formats of submissions that the writers produce. The way the Internet has the ability to expand when needed makes it the perfect place for small and large sites alike. Developers can create small sites to see what the users will think of it—to see if it gets an

audience—and then have the ability to grow if it is needed. Developers can also experiment with sponsors—the more sponsors they get on their page, the more people the will get to the page through that sponsor.

Another problem that the developers run into is not being able to make a living with the site. I mentioned sponsors above, which is one of the major ways developers make their money. A sponsor puts an ad on the Web site, and promotes the Web site from it's own page. The more sponsors on a site, the more people visit that site. More people means that the site will probably get bigger to accommodate all of them, which means there is more room for even more sponsors. Because the Web used hyperlinks—hot spots on a Web page that allow a user to "jump" from one page to another either within a site or between sites—the sponsors are not just advertising, they are getting users to their sites easily. Another way to make money is to charge the users for accessing a site. Many developers are against this for the simple reason that the site was created out of a love for a subject, and they feel it would be unfair to charge money for that.

Having to update the site frequently—especially when it is supposed to be a hobby—is another problem that Web developers face. For many developers, the sites that they create start out as a hobby to pass some time, or test their technological skills. When these sites grow bigger, they end up taking time away from "real" jobs, or even end up become the developer's "real" job. What this means is that the Web can be a full-time job for developers. They will have to work at it to make money, as outlined above, but there is always something that can be updated, or revised.

3.2.2.5 Plan Purposes and Goals: The goals of the sites tie in with the targeted audience, and show the most variance among the developers. One goal was to get information to people as easily and as quickly as possible. "It's to make the clinician's tasks of information gathering simpler, more fruitful and less time consuming..." (participant 1 p. 58). Because the developer knows who his audience is, he had a better idea of what his goals are. One developer was fed up with the local media coverage of a sporting event and wanted to make something like an online free press for those interested in the sport. This developer's goal is to get information about hockey teams out to the other people who are interested in hockey, which means he knows a bit about his audience.

Another developer just wants to give youth a voice. With a goal so wide, the audience is wide also. All she knows is that the youth is her audience, so her goals have to be broad also. Yet another developer uses the site for advertising space and a technology showcase. These are still broad goals, and the developer knows only that his target audience are those who are business decision-makers. And one developer created his site purely for entertainment purposes only. His site is a multi-age targeted cartoon, and so he knows that his audience are both young and old users. This is still a broad audience, which means a broad goal.

The fact that almost all of the goals are fairly broad shows that the Web is an all-encompassing media that can adapt to any developer's purpose or goal, no matter how specific or broad it is. There is not one area that excels more than another on the Web, and every topic is acceptable on the Web.

3.2.2.6 Solution Design: All of the sites seem to have consistent navigational bars and/or buttons to tell the user where they are at all times. These navigational tools also allow the user to be able to get back to the first page in one click. Because of the thought-out navigation, the data between pages in the sites tend to flow logically. Most sites have different sections that stem off of the very first page the user comes to. What this means is that the user will never get lost inside a site. If a user starts to feel disorganized, all he has to do is click on a "home" button and he will know where he is again—right at the beginning.

Three developers used flow charts for a visual representation before they actually wrote the code for the site. Two of those three stated that they only used the flow chart for the very first creation, and did not use one for any major revisions that were made. Two developers said they did not use flow charts at all—they created by the seat of their pants. This shows that because the Web is able to be revised so easily, the developers are not worried about doing things differently because they know that it is simple enough to go in and make changes if they need to or want to.

Is seems that the design process is usually modified while in the creation mode—because, going back to easy revisions, it can be. Once a developer finds a design that works well, and that users seem to like, he sticks to it an only makes revisions to the content of the site, leaving the graphic work alone. "We've learned a little more about how to make our infrastructures a little more structurally broad..." If the design of a site is fairly broad, it can encompass anything that a designer would like to present.

Because designers can track traffic on each page, the design of a site might be modified to enhance the traffic. If one page is not getting as much traffic as the designer

would hope, he can go in and modify the link or button that might be used to get to this page. When he finds that the traffic is to his liking, he will keep that link or button like it is, and work on another area of the site.

Another reason for a change in a site is that the technology is forever changing. Once a new coding tag has proven to be effective in almost all standard Web browsers, a developer will more than likely try to incorporate it into the site. A new code will almost always make a site look or work better, which is why a developer would like to use it. The willingness to risk is a big factor as to when they will use the code, but normally, a developer will only use it after it has been introduced to all browsers.

What this means is that the design of a Web site can be ever-changing. What seems to happen is initially, the site changes a lot until the designer is happy with the outcome, and then only gets changed bits and pieces at a time to direct traffic flow or update new coding. Every so often a site will get major revisions, but normally, when a developer sees that a site is working, no changes are incorporated.

3.2.2.7 Test Barriers: Three developers conducted usability tests on their sites. Of those three, only one did not need to change anything on the site. The other two needed to make some coding changes, or graphical changes. The developers who did not conduct a usability test on the sites consult the logs of the site to see what pages are being hit. In a way, this could be considered an on-going usability test because it shows the developers what is being ignored, and, in turn, lets them attempt different ways to get users to visit the ignored pages. Another developer asks for feedback from various people. This also could be considered a very informal type of usability test, but could be

biased depending on who he asks. "We have, in the past, asked people for feedback and we've really had nothing really negative, oh they grab us for spelling errors..." (participant 2 p. 71)

What this means is that because it is online all of the time, if the developer creates a feedback page, the site is under constant usability testing. If the site has constant testing, then all of the little, and big, errors will be found and the site should be perfect within a matter of months.

The most common answer to how different the site I was looking at on the date of the interview to what it looked like when the developer started out was that the look of the site is not a lot different. The developers tend to stay with something that works. Most of the sites are a lot bigger now than when they first started out, but the underlying code and graphics are quite similar to the original idea. One holds all of the same content, but visually it is a lot different than the original. Another has already changed about 40 percent of what was originally created.

Again, what this means is that once a developer finds something he likes, he will stick with it because it works. Little revisions are made because it is easy to make them.

3.2.2.8 Take Action: When I asked the developers how long it took to create the site, start to finish, I got a lot of "well, it's not finished yet, " and some said "it's always a work in progress." I then revised my question to: "How long would you say it took to create the site from start until...now?" This also created some confusion because many of the developers have various versions of their sites—not only for different browsers, but also for when they have made any major revisions to the site.

The following (Table 3) are the answers to how long the site initially took to create, whether it was the original or a major revision, and how long the actual coding took:

Table 3. Time it took to create a site as compared to the time it took to write the actual coding.

Time to create site	Time of actual coding
Six months	Three months
Five months	Two months
Two months	"Not a clue"
Two months	One Week
Six months	"A lot of weekends"

The average time it took to complete a site start to finish—finish still being a relative term because no site is ever finished—was about 4 months, with about 1.5 months for the actual coding. It was said that the graphics are the toughest part because once there is a template of graphics the coding just goes right into it. What this is saying is that once the initial site is created—the toughest part—then the actual coding just falls into place, especially when working with revisions. The designers need to have an idea of what they want the site to look like before they can take action and write the code.

The developers, for the most part, had a difficult time answering what they would do differently next time if they had it all to do over again—most were unsure. Two answered right away that they would not do anything differently, and one said charge money sooner. After some thought, one decided that he would have liked to have known that he was designing for something that was going to end up so big. Along the same lines, one would have like to have been more organized. One developer would use less

Javascript. As with any project, the developers would have like to have been more organized, and had more insight about what they were going to be getting into.

This, again, shows that because of the way that the Web is set up—to be able to be revised at any time—the designers do not need to worry about the site being set in stone, they can change it at any time. The organization is nice to have, but because of the fact that revisions are easy, initial organization is not necessary—it can come along at a later date.

3.2.2.9 Cognitive Knowledge: Three of the five developers had worked with similar material before—for example, a print magazine before an online magazine. Two had experience with the Web before. The developers that had the background knowledge of the content of the site were the ones who had no prior Web knowledge, whereas the developers that had the background Web knowledge did not have the content knowledge in their backgrounds.

This would mean that all of the developers are comfortable with, or have an understanding of an important part of the Web site. They are then able to adapt quite easily to the other half of what is needed for a top-rated Web site. This is yet another example of why the developers work well in teams—each brings with them their own background knowledge.

3.2.2.10 Navigation of Multiple Influences

This section is a little different because the answer comes from the initial survey. There is a four-part question on the survey that asks if the developers think that they are

creative, cognitive thinkers, writers, and/or problem solvers. In order to be able to navigate through multiple influences, the ultimate developer would have answered yes to all four of these questions. As I found out though, many Web sites are created by teams, and if the team has someone to cover each of the four areas, it could be considered an ultimate Web team. Out of the developers who answered the initial survey, 75% answered yes to all 4 questions. What this means is that the other 25% more than likely have someone else to fill in the gaps that they do not believe they have.

3.2.2.11 Other Comments

A few of the developers had insightful things to say when asked if they would like to say anything more about the site. I learned that top-rated sites have a tendency to start because of a developer's love of a topic, and then grow from there. Most top-rated site developers do not get paid to create the site, and do not view themselves as professionals. "They think we're professionals!" (participant 4B p. 80). If the designers are getting money, they think they are being underpaid.

The developers themselves believe that the only people taking professional Web courses are those trying to create an Intranet—like the Internet, only within a corporation. They also believe that it is a real renaissance-type person who is making the top-rated Web sites—one who "...has a savvy combination of good coding knowledge, graphic knowledge, [and] content knowledge." (participant 4B p. 81).

CHAPTER 4

CONCLUSION

After interviewing all of the participants, and analyzing their responses, I have concluded that the idea of *an* expert Web developer is a misconception. There is no such thing as an individual expert Web developer. The top-rated Web sites seem to have been created by a *group* of developers. Each developer brings at least one strength or talent with them to the group, and almost everyone in the group knows a bit about what goes into the individual areas, but they do not have enough knowledge in all of the areas needed. When they are put together, these developers make excellent Web design *teams*.

The information about Web site developers has been unavailable as of yet, simply because the Web is so new. In my bibliographical search for sources in this topic area, I retrieved about 30 citations in about 16 different journals. None of these resources touched on any information about Web developers. Another reason that no information has been gathered could be because there seems to have been no formal training given to be able to create these Web sites. Without formal training, there is no way to track who is doing what; the designers just go and do it.

A "good" Web designer seems to be one who excels in the three major areas of the tri-model of characteristics from section 2.4. The other possibility is that the developer has a great strength in at least one of these areas and works well in a team with others who make up the other areas. The survey shows that about 75% of the developers have all of these qualities. Structured interviews of the same population show that the other 25% have someone else who can cover the areas in which the developer is lacking.

If there were a course, or even a major on "How to be an Expert Web Developer," the students taking the course would have to be highly motivated in the following three areas: creativity, construction of meaning, and problem solving/program development. The ideal candidate would be efficient in at least one of the three areas, and ready for intense training in the other areas. Creativity is a tough area to teach, but if the student is eager enough, it can be done. The course work would have to encompass all three areas, and have a course that would integrate all three together—a negotiation of meaning course. The other possibility is that the student would have to be proficient in one area and have a knowledge of all of the other areas, but be able to work extremely well in teams—where the other students would be proficient in the other areas.

A top-rated site usually starts out as a developer's love for the subject and then escalates from there. The site is a hobby that is created and maintained in spare time, and then takes over the "real" job of the developers. Take the sports team Web site for example. It started out as a page for just the hockey fans of the Pittsburgh Penguins. It is now a site for every NHL team known, with over 300 writers on staff helping to put together articles. The design team has to take off at least two days a month to keep everything in order.

To quote participant 4A, "[Web site development is] not an industry yet, it's still a craft." Maybe as it grows, and settles down there actually will be *an* expert Web developer, but it may not be necessary. Web design *teams* are creating these top-rated sites, and they are doing a great job with them.

CHAPTER 5

SUGGESTIONS FOR FURTHER RESEARCH

If I were to do this study over, or go further with it, I would send more initial surveys out to the expert Web developers. This would allow for more quantitative results, and give a bigger picture of the actual Web experts. It would also allow for a greater number of structured interviews. More structured interviews would mean a greater pool of knowledge to gather information from, and that would mean that the research would be more credible. I believe that if more developers were reached, we would find an even greater diversity of people—meaning more cultures being represented, various fields of studies being represented, and a wider range of ages.

The other thing that I would do differently is make the surveys applicable to both individuals *and* teams—not have it just geared at one developer. I would then ask the team to be on the phone, or meet with the team in person, for the structured interviews. I believe that expert Web developers will continue to actually be expert Web teams, and therefore, the research should be adjusted to accommodate these teams.

APPENDIX A

SURVEYS RECEIVED

1. Age: 34

2. Gender: Male _____ Female __X__

3. Race: is that really necessary?

4. Location (City, State, Country)
_____ Calgary, Alberta, Canada _____

5. What is the highest level of education you've completed?
High School _____
Bachelor __X__
Master _____
Doctorate _____
Other _____
What field/major? __sociology/political science____
College/University? __University of Lethbridge_____

6. Have you taken any Web Courses?
Yes _____ No __X__
If yes, what courses have you taken?
_____

7. Do you view yourself as creative?
Yes __X__ No _____

8. Do you view yourself as a problem solver?
Yes __X__ No _____

9. Do you view yourself as a writer?
Yes __X___ No _____ I'm a journalist.

10. Do you view yourself as a critical thinker?
Yes __X___ No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
Yes __X__ No _____
Phone Number (if yes) _[redacted]__

12. Would you like to know the results of this survey?
Yes __X___ No _____

1. Age: 32

2. Gender: Male _____ Female X

3. Race: White

4. Location (City, State, Country) Kihei HI USA

5. What is the highest level of education you've completed?
   High School _____
   Bachelor _____
   Master X
   Doctorate _____
   Other _____
   What field/major? Architecture
   College/University? Rhode Island School of Design, Syracuse University

6. Have you taken any Web Courses?
   Yes _____ No X
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes X No _____

8. Do you view yourself as a problem solver?
   Yes X No _____

9. Do you view yourself as a writer?
   Yes X No _____

10. Do you view yourself as a critical thinker?
    Yes X No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes _____ No X
    Phone Number (if yes) _____

12. Would you like to know the results of this survey?
    Yes _____ No X

1. Age: 25

2. Gender: Male X Female _____

3. Race: white

4. Location (City, State, Country) New York, NY

_____

5. What is the highest level of education you've completed?
   High School _____
   Bachelor X
   Master _____
   Doctorate _____
   Other _____
   What field/major? _____
   College/University? _____

6. Have you taken any Web Courses?
   Yes _____ No X
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes X No _____

8. Do you view yourself as a problem solver?
   Yes X No _____

9. Do you view yourself as a writer?
   Yes _____ No X

10. Do you view yourself as a critical thinker?
    Yes X No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes X No _____
    Phone Number (if yes) [redacted]

12. Would you like to know the results of this survey?
    Yes X No _____

1. Age: _25__

2. Gender: Male __X_ Female _____

3. Race: _____Caucasian (sp?)_____

4. Location (City, State, Country) _NY, NY____

_____

5. What is the highest level of education you've completed?
   High School _____
   Bachelor _X_
   Master _____
   Doctorate _____
   Other _____
   What field/major? ___Journalism/English_____
   College/University? ___Lehigh_____

6. Have you taken any Web Courses?
   Yes _____ No __X_
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes _X_ No _____

8. Do you view yourself as a problem solver?
   Yes _X_ No _____

9. Do you view yourself as a writer?
   Yes _X_ No _____

10. Do you view yourself as a critical thinker?
    Yes __X_ No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes __X__ No _____
    Phone Number (if yes) _[redacted]_____

12. Would you like to know the results of this survey?
    Yes _X_ No _____

1. Age: 29

2. Gender: Male X Female _____

3. Race: Human :) (Italian American to be a bit more specific)

4. Location (City, State, Country) Youngwood, PA USA

5. What is the highest level of education you've completed?
   High School X
   Bachelor _____
   Master _____
   Doctorate _____
   Other _____
   What field/major? _____
   College/University? _____

6. Have you taken any Web Courses?
   Yes _____ No XX
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes XX No _____

8. Do you view yourself as a problem solver?
   Yes XX No _____

9. Do you view yourself as a writer?
   Yes _____ No XX

10. Do you view yourself as a critical thinker?
    Yes XX No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes XX No _____
    Phone Number (if yes) [redacted]

12. Would you like to know the results of this survey?
    Yes XX No _____

1. Age: 37_____

2. Gender: Male __X____ Female _____

3. Race: _____W_____

4. Location (City, State, Country) ____Dublin Ohio_____
_____

5. What is the highest level of education you've completed?
High School _____
Bachelor _____
Master _____
Doctorate _x____
Other _____
What field/major? _____
College/University? _____

6. Have you taken any Web Courses?
Yes _____ No __x____
If yes, what courses have you taken?
_____
_____
_____
_____

7. Do you view yourself as creative?
Yes ___x___ No _____

8. Do you view yourself as a problem solver?
Yes ___x___ No _____

9. Do you view yourself as a writer?
Yes __x____ No _____

10. Do you view yourself as a critical thinker?
Yes __x____ No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
Yes ___x___ No _____
Phone Number (if yes) _____[redacted]_____

12. Would you like to know the results of this survey?
Yes ____x__ No _____

1. Age: __33__

2. Gender: Male __X___ Female _____

3. Race: __Caucasian_____

4. Location (City, State, Country) __Scottsdale, AZ, USA_
_____

5. What is the highest level of education you've completed?
   High School __X___
   Bachelor _____
   Master _____
   Doctorate _____
   Other _____
   What field/major? _____
   College/University? _____

6. Have you taken any Web Courses?
   Yes _____ No __X___
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes __X___ No _____

8. Do you view yourself as a problem solver?
   Yes __X___ No _____

9. Do you view yourself as a writer?
   Yes __X___ No _____

10. Do you view yourself as a critical thinker?
    Yes __X___ No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes __X___ No _____
    Phone Number (if yes) _[redacted]

12. Would you like to know the results of this survey?
    Yes __X___ No _____

1. Age Range: 24-late30s **

2. Gender: Male 4 Female 6

3. Race: _____

4. Location (City, State, Country): Toronto, Ontario, Canada

6. Have you taken any Web Courses?
Some Yes, Some No

If yes, what courses have you taken?
HTML, software and design courses

7. Do you view yourself as creative?
Yes _____ No _____

8. Do you view yourself as a problem solver?
Yes _____ No _____

9. Do you view yourself as a writer?
Yes _____ No _____

10. Do you view yourself as a critical thinker?
Yes _____ No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
Not right now

12. Would you like to know the results of this survey?
Yes

** This Survey was completed by the **team** of web developers who made the site.

1. Age: 29

2. Gender: Male _____ Female X

3. Race: caucasian

4. Location (City, State, Country) Cincinnati, OH, USA

5. What is the highest level of education you've completed?
   High School _____
   Bachelor X
   Master _____
   Doctorate _____
   Other _____
   What field/major? Fine Arts
   College/University? Florida School of the Arts

6. Have you taken any Web Courses?
   Yes _____ No X
   If yes, what courses have you taken?
   _____
   _____
   _____
   _____

7. Do you view yourself as creative?
   Yes X No _____

8. Do you view yourself as a problem solver?
   Yes X No _____

9. Do you view yourself as a writer?
   Yes X No _____

10. Do you view yourself as a critical thinker?
    Yes X No _____

11. Would you be willing to be contacted by phone for a more in depth interview?
    Yes X No _____
    Phone Number (if yes) [redacted]
    (if you do call, call after 5:00 PM)

12. Would you like to know the results of this survey?
    Yes X No _____

APPENDIX B

STRUCTURED INTERVIEWS

Participant 1

This transcript is taken from a cassette tape.

(Beginning rapport, and introductions)

Nancy O'Daniel: Many people have taken the risk to try to become Web developers and have failed. What made you decide to create Web sites?

Participant 1: The truth is that I was working in medical publishing and the company I was working for embarked on the medscape project. So I was working in multimedia publication, but more in a print capacity and then it was the company's decision to create medscape that led me to actually be working on it.

NO: Okay.

P1: The multimedia was what was definitely appealing because it I thought it was a good blend of all the skills I brought with me.

NO: Okay. That leads to the next one. Each designer has a "greatest strength" or skill--for example the ability to create unique graphics or cutting-edge coding. As related to online work what do you view to be your talents?

P1: I think my talent is really to synthesize the best solution between content and the technology. What I try to do it is make sure that whatever the content is, whatever the message is that we're trying to communicate, whatever information we're trying to distribute or publish, that it gets put up in a manner consistent with its goal. That it's not...that we balance the technology with the message so that the message is...so that there's all value there. So it doesn't detract from the quality or the integrity of the content or make it more difficult for you use.

NO: Wow. Okay do you have any weaknesses?

P1: (laughter) I have an insecurity. I've never taken a design course ... I don't know if that's a weakness. I don't draw extremely well...as far as free hand. I'm a heck of a tracer, but I can't really draw very well.

NO: Okay. Did you recognize these as talents when you started out?

P1: When I started on the Web business or when I started on the graphics design production business?

NO: Either/or/both.

P1: Did I recognize? No I don't think so. I actually...I look backwards now and it sort of, it amuses me to no end actually. When I look back and look at the different areas that I studied in the course of my life, all of which I thought were disparate and not connected. I'm not sure disparate is the right word...you know when I was a kid I was really into computer programming, and then I didn't really do programming anymore, but I was doing graphics and desktop publishing...and then after the desktop publishing I was doing journalism and writing and editing...so it was really...actually it was interesting when a medium started up that brought together these different sets of skills that I didn't think would coexist at any one time.

NO: How long have you had the skills?

P1: Well, I started doing the computer this at like, 5 or 6...maybe 8. I was in grammar school when I started doing computer stuff. I started desktop publishing in like, '89...'88 or '89...something like that. And so I'd say I've been doing it for about 10 years.

NO: Do you have any idea of when you actually recognized that your talents were actually talents?

P1: ah...Let's see. I started getting really comfortable using them all in one place on the Web really...I started feeling like I really had an eye for it, probably last May.

NO: Okay. Is graphic Design one of your talents? I mean other than the tracing, and not being able to draw free hand.

P1: Yes it is. I'm not a great illustrator, but no, I do a lot of, my position calls on me to do a lot of print work.

NO: So, you create your own.

P1: Yes.

NO: Okay. Do you have a specific audience that you have intended for the Web...the medscape site?

P1: Medscape is first ...our first target audience is for physicians. Health care givers and health care professionals. You can see some of where we got our design by looking at materials that physicians are used to. We have a lot of partners who are medical publishers and a lot of what we have done with specifically article design comes from what we have learned, and what my co-workers have learned from printing

medical journals. We are, the site is--side bar--is available to everybody. It's free of charge, and we encourage anyone looking for high-quality medical information to use it. But we definitely started using the experience in print publishing for physicians and health care professionals as our first step.

NO: Do you think you've reached them?

P1: Do we reach them? I think we're doing a...we ahh...we definitely know that we have a large number of physicians using the site. And we also have a large number of consumers using the site. And it's growing by leaps and bounds.

NO: Great! Okay, Do you know what the intended purpose, or goals of your site?

P1: I'm trying to...ahh...do you want the stock answer or do you want my answer? I think we actually have a stock mission statement around here somewhere. I can give you the mission statement if you want?

NO: You can give me whatever is best.

P1: We'll start with the mission statement...I'll even read it right off the card:

> The goals of medscape are to provide clinicians and other health care professionals with timely clinical information that is directly applicable to their patients and their practice. It's to make clinician's tasks of information gathering simpler, more fruitful and less time consuming, and to make available to a broad audience clinical information with the depth, breadth and validity needed to improve the practice of medicine. To achieve these goals, medscape uses the most advance communications technology available, the internet's World Wide Web.

What that means to me is that we want to get information to people as easily and quickly as possible. With the way things are going, people seem to have less time and more things to chose from, so what we want to do is make it as easy as possible for people to get the pieces of information they need and use them.

NO: And do you think you've reached this goal?

P1: I think...I've been told so. We go out into the field and we go to conventions and we have a lot of enthusiastic members who come to us at the booth and say hello and tell us about the site. We also get a lot of feedback through the site from both our physician and our non-physician population telling us what we're doing right, and what they like about it. We also encourage them to give us feedback as to what they would like us to perhaps change. Whether it's an interface issue, or whether there's some new features they are interested in us adding. We are always asking our audience what they think of it, and what works for them, and what doesn't.

NO: Okay. What's the biggest problem you ran into while creating the site?

P1: ooh the biggest problem I've run into...um...Outgrowing my...um, I'll just chose one...probably one of the biggest problems that we've had, or that I've had, is because we are continually growing, we add, I don't even know the number anymore...we were adding, like 20 or so articles a day to the site. And we add new specialty content areas, and new features so often that, um, in the past we've outgrown interfaces so that we'd develop something, or we'd build something, and then before we knew it, we had so much else that we had to go back and do it again.

NO: You were able to overcome that just by re-doing everything?

P1: We've learned a little more about how to make our infrastructures a little more structurally broad--that's not exactly--some of it we're going to go back and we're going to do again, and some of it is working really well. One design we've had since, well, not since the beginning, but since what I call Version 2, is the tab metaphor that's very popular in other applications. I'd like to think that we were one of the first to implement it on the Web. That's a metaphor and a structural element that's really sort of stand up to the test of time. We've gone through and we've renamed some of the tabs, there was one tab, we have a tab that was dedicated to interactive features and content, um, and we've been through a bunch of names for that tab. The current name is the Exam Room, we've had that name for about a year and a half...but before that we went through a bunch of trials where we put a different name on the tab, and then sort of check out the traffic, because at the time there was really only one way to get to it, which was from the home page, so we were able to watch and see if people were understanding what we meant. Um...there were some other names, I'm drawing a blank on what they were, but we found, this, calling it the Exam Room, somehow there was a better recognition of what perhaps was behind there, it had a larger pull.

NO: Okay, moving right along. What are the different languages you used for the site--like HTML or Java or..

P1: ohh, well, I'm primarily an HTML kind of guy. The IP department definitely is involved in Javascript and Java. And when I have those sort of questions, or I need those sort of functionalities built into something, I usually go to them for help. Aside from that I don't know. I wouldn't be surprised if there was more going on specifically in the database areas, like our National Drug Database, but I couldn't speak to that.

NO: Okay. So basically, the only thing that you know yourself is the HTML.

P1: I am primarily HTML'er, yup.

NO: Okay, because from the survey that you filled out, I see that you don't have any Web courses, you haven't taken any Web courses?

P1: I have not. (laughter) Guilty.

NO: Actually, a lot of people have not...but, how did you learn the HTML?

P1: How did I learn it. Um...why did I learn it, or how did I learn it?

NO: How.

P1: How did I learn it. I learned it by um, by building a page when they were talking about starting this project, which became known as medscape, I asked for a little bit of server space and I got the basics from someone--sort of threw me a blank page and said, "well, here's the basics, you can start going from here." And primarily it was, um, looking through other people's pages, looking through the source code...this was dating back to I guess January of '95 maybe? And I would just go through source code from other people's pages or, I did have a book, I think, and there was a great, there used to be a great Web page some guy put up, it was just all the HTML tags. I used the site a lot. I wish I knew where it was, I want to give him credit.

NO: Let me see...Have you worked with similar material before coming to the site?

P1: as far as the medical stuff? Yes, I was working for another medical communications publisher called SCP communications. And we were doing medical education material, so, and some medical journals, so I had been involved in medical content before.

NO: Okay, and before the medscape site, had you been working with, you...actually, you said you hadn't been working with other Web stuff.

P1: Nope.

NO: Not at all. Wow.

P1: Medscape was my first Web site.

NO: Impressive!

P1: well, we've grown a little bit. We actually, we're now an independent company. We have a lot more people, we actually have a whole production department that does all the coding and posting. They do a great job of keeping up with a seemingly endless flow of content.

NO: Have you used any coding that you knew most users' browsers couldn't handle?

P1: No, we've sort of had a rule against that. We set off sort of in line with our mission statement and what we thought was right, sort of saying we are going to design, in the beginning when we were designing, when new tags were introduced, we would specifically stay away from them until the adoption was more thorough. We would definitely put off making, using, I don't even know what to call them, using advanced tags until we knew the majority of our population, or our membership had the ability to use them. And you'll still find in our articles, and most of our content that there's not a whole lot of flash going on. Not the flash tag, but...we do have one sort of, we have some neat stuff. We have the things called hyperkeys in our table of contents, which if you click on them they run a sort of preconfigured search on a related issue...those have, I think those have Java, or Javascript involved in them, but our articles are very pain HTML.

NO: How does the data flow between the pages? I mean, is there a logical structure, or is each page independent of the others?

P1: No. What we do is we have one, there's sort of a top and a bottom which comes from a print metaphor. There's a top one--what I call a folio--which is a consistent set of tool lines, either just a medscape logo, or a medscape logo and a section you're in...medscape cardiology for example. And in each of these cases there are a consistent set of links going to home, search, site map, a feedback button called talk to us, and then access to our help. So that borders the top of all our pages in slightly varying forms. And at the bottom of, I'd say 90-90% of our pages, we repeat our tab metaphor from the home page as well as adding some site tools, like we have direct access to the search engine from each page, as well as the help, site map, talk to us, and about us again on the bottom so that kind of frames the page.

NO: So if somebody did like, a search on Yahoo! and found a page in the middle of your whole site, they'd be able to, I mean it would be a stand-alone, but they'd be able to get back to the beginning.

P1: Sure. Either through the home button or through the site map. What we also do, say if they are linking to an article, we also in our table of contents list a related specialty areas. We're covering 16 specialties right now, so if you're, what we like to do, and our editor spend time doing, is they like to put the information in context, we don't go and make big hotlists of sites. What they do is when they find a site, or when they find a resource that's appropriate to an article, they'll put in a link to that in our table of contents under our related resources section. On our site you can link back similarly, related specialties, and find your way back to the home page if you'd like. There's a couple, let me, I can count, one, it looks like there's at least two ways back to the home page from every page. Just simply say home.

NO: Yes, I can see a few.

P1: And also, those major, those beige tabs at the bottom.

NO: Okay. While preparing for this site did you have a flow chart for visual representation before actually coding it?

P1: Um...On this particular version, I did not. Um...there was a lot of architectural work done by our IP director, Bill Seitz, he did a lot of architectural work in the beginning and he continues to do that. And um, not only with the file structure, but with the server maintenance and upkeep. He also was very much responsible for the original architecture of the site, along with our editor, our editorial director, Steve Smith, and our founder, Peter Frishoff. They spent a lot of time mapping out information flow.

NO: And this seemed to help?

P1: Absolutely.

NO: Okay. How long would you say it took to create this site from start to finish? I mean, I know it's still in the works, but...

P1: You mean this design?

NO: Yes.

P1: This design, we started working on a redesign, we knew we had to redesign, um...in January of '97, I guess we definitely said we knew we needed some things changed, we knew we needed to up the version number so to speak, and, we started working on ideas and stuff and kicking stuff around at about, I want to say we were always kicking stuff around, but we made a serious dedication, a serious commitment to starting that redesign probably in oh, March or April. And then the redesign was accomplished and most of the content was converted to the new design interface, and we officially launched this design on September 27th...September 25th...middle of September. So what's that, that's like April, May, June July, September...five or six months.

NO: Okay, and do you know roughly about how long the actual coding took?

P1: of all the content? Ohh...I do not know...because we've added so much content since then. Ahh...I don't remember...I remember a bunch of us here on weekends. (laughter) But it was all coded before, in the old format.

NO: Right...a lot of cut and paste. Did you conduct a usability test of the site?

P1: Yes.

NO: Did it bring about any changes?

P1: Ahh...at the time of the redesign, I think so, I'm trying to think of what was different. I think primarily the changes were sort of the order that we put sections in. On the home page primarily. But usability studies are, I guess they are not studies, usability testing is a perpetual around here. That's probably a rather ambiguous answer, huh?

NO: Helps though.

P1: Well, we look at our traffic every week, we get together and we know what new features and what new articles are around, and we definitely are looking at if the traffic is getting to new stuff. I mean, we know we have great stuff, so if the traffic isn't there, then there's something strange about the interface, and we'll make adjustments. We actually, and as far as the usability testing for this design, it was, that was a good chunk of time between that margin in September that things were being changed. I think I did seven or nine different designs by the time it was over.

NO: Wow. Okay. How different is what I'm looking at right now from the complete original idea?

P1: The original Idea last year? Some of it's very similar. Visually it's very different. I think on the home page, I was actually going to be using a bit more color, more of a, the left side would be more of a solid red bar or something. I was looking for more of a contrast between...you'll see the way we have 3 major columns on the home page...at one point I remember thinking that probably the left column was going to be more contrasted, and more site tool oriented. But really, I mean, a lot of the original plan, what we wanted to was, we wanted to get more content up higher. The last version of our home page, it was way too long. And even though we had evidence, we knew people were clicking on the bottom, our bottom specialty was getting an extraordinary amount of traffic, so we knew people were scrolling down, we still wanted to get as much up at the top as we could. And we wanted to get the new articles on the front page, they weren't previously, they weren't always on the front page--yes they were--but they weren't accented with thumbnails. We wanted to make sure that the new articles were always available and that people could get to content with one click. So if you get to medscape, and you want to read an article, you can do it with one click.

NO: If you had it all to do over again...what would you do differently? If anything.

P1: oooh...what would I do differently? As far as the design, I would probably, it would be great to know that I was designing for this much stuff, from way back when we first introduced the tabs, and we got everything going. Um...what would I do differently? Well, there are things that I'm going to be doing differently...and others around here that will be doing things differently. I have to think about that one.

NO: Well, if you would like, you can think about it, and email me an answer if that would be helpful.

P1: sure. That would be great.

NO: And I'm going to end by asking if there's anything else you'd like to tell me.

P1: No, I mean, feel free to get in touch with me if I can be of any help in addition to the surveys or anything. And I'd love to read a copy of what you've come up with.

(closing comments)

Participant 2

This transcript is taken from a cassette tape.

(Beginning rapport, and introductions)

Nancy O'Daniel: Many people have taken the risk to try to become Web developers and have failed. What made you decide to create Web sites?

Participant 2: What made me try...well I've always had a background in graphic design. And it was just the next logical step. I'm a programmer also, so I never really got to do as much of the graphic design as I'd like, so when this came along it was a real simple--if you even want to call it a programming language--but it was a real natural progression of the skills I already had available to myself, so it's worked out pretty well.

NO: Great. Okay, Each designer has a greatest strength, for example the ability to create unique graphics, or cutting edge coding. As related to the online work, what do you view as your talents?

P2: well I think if you're any good at this, everybody has those skills. So I think the biggest talent that I have would be just to be able to change with the technology I guess, or learn new technology really fast. When there's a new version of everything coming out every other day, it gets kind of...if you can't merge with the technology, you're going to really get left behind really quick. I mean, if you can't take advantage of all the neat, new stuff that's out there, or apply some of the things that your clients will want, it's ah...you'll definitely get left behind.

NO: Do you have any weaknesses?

P2: Oh...trying to go too many directions at once probably. I mean, that's, I get hell for that a lot. Instead of just sitting and trying to finish one thing, you're like, when you're the project coordinator on a lot of these things, it's kind of, you've got to think in many different areas at one time and it seems like a lot of things don't get done, but you know, you try to get everything done at once, and that's probably my biggest flaw. Trying to please everybody at the same time instead of just concentrating on one thing, getting it done, going to the next person, getting it done. But...I don't know, I haven't had too many people complain, but...

NO: Okay, your talent to be able to learn fast, did you recognize that as a talent when you started out?

P2: Well, Um, I guess, after about, I don't know, I've been on the internet before there was an internet, so...when they, when HTML came out at one point, it was like real easy, real simple, and then you know, when it gets up into the 4.0, there's a lot of neat things you can do with Javascript, and a lot of server side stuff we use, like with

Cold Fusion, and things like that, but, Yeah, I noticed it right away. More other people than me, because I, you know, don't like to say I can learn fast. But that's what people have told me. You know, you kind of act like a sponge and just soak everything in, and trying to process all that information gets to be kind of "hellatious", but it's, that's, I kind of learned it, you know a few years ago. People really noticed it and would say "you should be doing this." Just keep doing it, and doing it, and then I opened my own business, and that's how it progressed.

NO: And you said graphic design IS one of your talents?

P2: Yes.

NO: So you create all of your own graphics?

P2: Yeah, most of them. I mean we do have some good designers in house, but we give them, not so much templates, but an overall look and feel of what the client wants, and you know, for that kind of thing, we'll delegate it. Anything high end, or Shockwave, or things like that we kind of do it ourselves too.

NO: Great. Okay, who is the intended audience for the Web site? I'm looking at InTheCrease right now.

P2: Oh, for InTheCrease? Oh, we have about a million viewers a week. It's mostly, I mean if demographics were done, it's mostly male, mostly 18 to 25. So, I mean, we kind of play to all audiences, because we do do a lot of charity stuff, and we do do a lot of, more human interest stories about hockey more than just getting a whole bunch of stats and quotes and things like that. We do that also, but not to an extent that other sites do. So, more, I guess we're trying to get all audiences, because there's something out there...we have a lot of women writers, there's a lot of women who like to read more personal interest stuff than you know, who won this fight, or who has the biggest goal scoring streak going or whatever. So, that's how, I mean, I think we try to reach all of them, but our major demographic is 18 to 25 males.

NO: Okay. What's the intended goal of the Web site?

P2: Of InTheCrease? Ah...just to well, I don't know...do you want to hear the story?

NO: Sure!

P2: My partner and I have been seasons ticket holders for the, well, we're from Pittsburgh, so for the Pittsburgh Penguins for a lot of years now, and we were really fed up with the local media--the way they covered, just covered hockey in general. And it was about 3, 4 years ago we were driving away from a game and said, "you know we should just do like a magazine type thing on the internet, nobody's ever..." You know there was really nothing out there yet, so we tried it, and it kind of caught on, but we found out that there's a lot of people all over the country, and Canada and

Finland, and everywhere else that agree, and you know, they want to tell you what's really going on with the team, and with the, you know from a fan's point of view more than somebody who has to cover their butt by, you know, if I publish this story, I'm going to get fired. Or the team's not going to talk to me anymore, or things like that. We don't rip the teams, but we do, you know, if they're in a slump, we're going to tell you their in a slump. Things like that, we're not going to beat around the bush. So you can, it's more of a, that kind of mutated into the minor leagues when we do coverage of every minor league team in existence now...and it just got bigger and bigger. There's about 300 writers on the staff, and you know, next year we are planning on doing a lot more, I mean, it's hard to even imagine, but a lot of stuff is going to be involved with like, the Cold Fusion technology, a lot of database stuff, a lot of updating from like, palm pilots of games. A lot of cutting edge stuff. We're trying to get some press out of the actual developers of the technology like Alaire and Microsoft and things like that. I think most of our, we have probably about three hundred thousand hits a week that come directly from Microsoft. Directly from that channel guide. And people, I guess people like to bash them, but when you use their technology, and you've really, you know, you believe in it, and it works for you, and you let people know you use it, they really do help you out a lot. More than Netscape ever would or anybody else. So we're a total Microsoft shop, and we do everything to enhance it for IE's [Internet Explorer's] browser, but we do, you can look at it, you can look at InTheCrease with any browser on the market now, and it still looks decent. But if you look at it with IE, it does look a lot better. So InTheCrease is definitely, it's going to be a sports publication, we're not going to be, we're never going to charge our readers for anything we do--even though the thing costs us a bunch of money. It's like, my design company kind of fronts the bill for the whole thing because it's just like a labor of love for two of us here, and 300 people over the world. Just to be able to have a forum to cover hockey. So we're going to keep that free. We're going into a thing called the Hockey Mall, we have the domain registered--hockeymall.com. It's going to be purely commercial, you can come in and buy any kind of hockey equipment, merchandise, you name it, it will be there from anywhere all over, any team in existence all over the world. That's our goal with that, and that's what we're really developing for the next 3 or 4 months now. That's our goal with InTheCrease.

NO: wow.

P2: Yeah, people are amazed. I don't know if you know anything about hockey at all...

NO: Yes.

P2: oh you do...well Ron Francis plays for the Penguins--he's their team captain and all that stuff. He does a really big charity here in Pittsburgh. We got with him last week, sat down with him for a couple of hours and talked about...we're doing his Web site for, you know, for just as a donation from us to them. So, at the end he was like, "how do you guys make any money?" And we were like, well, right now there is no money being made. We're just more of, we believe in, you know the free press

or something like that. That's basically the way that I kind of see it. So I hope it stays exactly the way it is.

NO: That's great. Okay. So what's the biggest problem you ran into while creating this site?

P2: InTheCrease? It's really the logistics of the thing, because we really don't, I mean we have meetings a couple times a year, all over the country where we talk to the writers that we have writing for us, but the logistics is the biggest part. We update daily and it's really...between our real jobs, and the fun job, it gets kind of "hellatious" because we have, I can't even...maybe sometime 20 to 30 stories an hour that come in. And to update, do that in the meantime, while you're working, it kind of gets hard every now and then. Every two weeks we do a whole big issue and that's where we take a couple days off our schedule and do that every two weeks to actually re-do, re-vamp everything. I'd say the logistics of just getting the writers to format stories that makes it easier on our end and that's why we're looking more into a database type thing where they can just submit it via Web form and it will be put into our database so we can just deal with it from there. Instead of just having to do the HTML coding by hand, which is simple, but it's actually tedious and it's, you know, doesn't need to be done anymore with things like Cold Fusion out on the market. We're trying to implement that probably within the next couple of weeks.

NO: wow. That kind of leads to the next question...what are the different languages you use for the site? I mean like HTML, Java, and you mention Cold Fusion a lot.

P2: Well, it's a Microsoft web server so we do a lot of asp and Perl, Java, Javascript, VB [Visual Basic] script sometimes...we try to stay away from that because it's a total Microsoft technology with that. It doesn't cross-platform to any other thing, any other browser I should say. So, yes, we do have some hard-core programmers here that can do some, I know a little V, but enough for, not enough for what we, some of the server-side scripting that we do. We have one programmer here in-house that does C and VB programming you know, full time, so he helps us out when we need something really intricate worked on. We kind of cover all bases...anything that's related to the Web right now, we really have someone in house that can do it. I know most of it myself but, when you get down to the, something real intricate, you don't want to waste the time and take a week to do something when somebody can probably just throw it out in a day. Just about all of them

NO: Okay, that leads to the next question. From the survey that you filled out, I see that you haven't taken any Web courses. How is it that you were able to learn the various languages that you know.

P2: Well, a lot didn't come around, like applets, Java and things like that were spawned from the Web, but the other ones was just really playing around with them, no formal training at all, just you know, grab the, go to the store and buy the software and start breaking it.

NO: So how did you learn HTML?

P2: Read one book and went from there. One thing people are really kind of...I read one book probably about 3 ½ years ago, and if you just go to W3C [http://www.w3.org/], they have the whole entire spec for every level of HTML there. I never really noticed that until I read that first book. And everything I ever learned was right directly from, you know, W3C and their RC's and everything.

NO: Have you worked with similar material before coming to this site? Like with Hockey stuff, like in print or anything.

P2: No print, no. No print at all. I wouldn't know the first thing about how to make anything into print.

NO: What about, have you worked with Web stuff before working with InTheCrease?

P2: Oh ya. I mean, I did more like, router programming and things like ISP based. Nothing design-wise. InTheCrease was just a, like I said, we used to play with it. It was just something just fun to do, and it just kind of took off. We were getting, you know, like two or three hundred thousand people a week, and it was like, wow people actually like this, maybe we should take it a little seriously. So, you know, we put some time and effort into it, and now it's, it gets hammered. It's still...I'm amazed every time I read a server report. It is, it's kind of amazing to me. But, ya, I did work for local companies, but after InTheCrease got a little notoriety Nike got ahold of us, we just did a skate catalog for them, ah, they flew us to Beaverton, we met with them, we did their catalog, went to the all-star game with them, it was a lot of fun, ah came back and, you know, that was probably the beginning of last year...Made a decision to do this full-time, and started a business, and you know, it just took off from there. We do a lot of local work, ah, waste management-the garbage company-their corporate Web site, and we work for fortune 100 companies as well as like a "mom and pop" grocery store up the street from here. So we've kind of done the whole range of, you know of income levels, what ever you want to say, or company size levels. So...

NO: That's great. Let's see...Now, I know that you've said that InTheCrease can be viewed from any browser, but at any point in time did you use any coding that you knew most browser's couldn't candle, just because it made the site look better, or work better?

P2: Well, we do now, but we kind of, I've never really been one to do something that was totally one browser oriented...like layers or I-Frames or things like that, that either only Microsoft of Netscape can see. So we, like right now, it's full of style sheets, and if you run it in IE you'll be able to see them, you'll see the "mouse-over facts," you'll see things like that, but it's not going to break them in Netscape. And that's really what we do. We enhance it for IE but don't break it in any other browser. So

we can't go as far as the technology will go, but we're trying to take it up to the edge and stop.

NO: That's a good way to do it. Okay, So how does the data flow between the pages of the site? Like, is there a logical structure or is each page independent of the others?

P2: What do you mean by independent?

NO: Well, like if somebody is doing a search, and the happen to hit something in the middle of your site, would they be able to understand where they are...would that page stand alone?

P2: Every page has navigational button or a bar that tells you exactly where you're at...what issue you're in, everything else. So, yes. That's a whole other issue, and that takes a whole lot of effort on our end to keep it logical and keep it so that there is no broken pages, because the thing is like, 5,000 pages big right now. And to make sure, that we might get maybe 100 404 errors [Page Not Found Error] a month, I think that's a really good average.

NO: When preparing for the site did you have flow charts for visual representation before actually coding?

P2: nope.

NO: Not at all. Hmm.

P2: Seat of the pants. We do that for clients...but I mean, us? We don't. Well, this year when we did it, we kind of did write some stuff down, but we never really, went goofy with the flow charts and things.

NO: Okay, how long would you say it took to create this site, start to finish? Obviously, it's not FINISHED, but...

P2: Oh ya, it's never...it's always a work in progress just like everything else, but it's, I know the redo, from last year's version to this year's version, it probably took a good month and a half to redo all of the, what I call the stock graphics. The navigational buttons, the headers, the logos, the images...I mean we're always adding images like players and things like that to it, but everything else is just...probably about a month and a half...that's a bout how long it took to do the over-all look of it.

NO: How long did the actual coding take?

P2: well, it's probably longer to do the graphics. I mean once you do the graphics, and get everything set, it's really, you want the site to look the same, so you can really work with templates. Once you make one, you can just cut and paste and change

things around. So, probably about maybe a week after that to get all of the templates in the different sections set. And then we used them all year long. We've been using them since late October, early October.

NO: Wow. Okay, did you conduct a usability test of the site?

P2: We have, in the past, asked people for feedback and we've really had nothing really negative, oh they grab us for spelling errors every now and then, but everything else, every review that we've read about ourselves have all said the navigation is super, and we take pride in that because I hate when you go to a site and you're lost. Right away you have no idea where you're at.

NO: So, the usability test probably didn't bring about any changes?

P2: No, none at all.

NO: Okay, How different is what I'm looking at right now from the original idea?

P2: Oh god, it's grotesquely, it just got huge. It's so much bigger than the original idea. The original idea was to just cover the Pittsburgh Penguins. Now there's 175 teams there.

NO: Yup, this is a lot bigger.

P2: So we've kind of grown exponentially.

NO: wow. If you had it all to do over again, what would you do differently next time?

P2: oh my. I guess, I don't know, we were never really organized with this. I guess we could get better organized. I don't know what else I would do differently. I think if we had done this version of InTheCrease last year it would have been good, well, last year wasn't as big as this year, but looking back, I think we had the ability to do what we did this year last year, we just didn't take advantage of it. So, I mean, next year's is going to be even bigger, better, but I don't think we would have been able to do what we're going to do next year this year, but we would have been able to do what we did this year last year. If that made sense.

NO: Yes, it took me a minute to process it, but it made sense. I guess I'll finish up by asking if there's anything else you'd like to tell me about it.

P2: About InTheCrease? I don't know...just really the biggest thing we do by far. It's the one we get paid the less for, paid nothing for it. I think it starts off with a lot of good sites on the web. I don't want to say free sites, but sites that were done out of a love of something that just got really big and huge and got some notoriety and now we're like, we're credential with NHL teams now...I mean our writers, you know, two years ago, they were just fans. And now for the face we put on the writers, and

the face we put on InTheCrease we're just as a legitimate source for hockey as CNN or anybody else, so that's pretty amazing to me.

(closing comments)

Participant 3

This transcript is taken from a cassette tape.

(Beginning rapport, and introductions)

Nancy O'Daniel: Many people have taken the risk to try to become Web developers and have failed. What made you decide to create Web sites?

Participant 3: Because it's a whole lot cheaper than doing a printed magazine. And you don't kill any trees. Because we do a magazine.

NO: Okay, each designer has a greatest strength. For example, the ability to create unique graphics, or cutting edge coding. As related to online work, what do you view your talents to be?

P3: A background in classic design. In traditional design, and not falling for all the bells and whistles.

NO: Do you have any weaknesses?

P3: Ah, ya, I'm not nearly so good on some of the technology as I'd like to be. But I have somebody to do that so...

NO: That makes life easier. Did you recognize your background as a talent or strength when you started out?

P3: Oh sure. Very much so, because that's why Spank!'s been so successful, because of it's design.

NO: And how long have you had these talents.

P3: Ohh...I don't know that that's something you can put a date on. It's something you develop over years. But I've been doing, let's see, I've been laying out my own newspaper sections since about '88, '87.

NO: And you have said traditional design, but is graphic design on of...

P3: Well, that's what I mean.

NO: So you create all of your own graphics.

P3: Um, no, but for instance, traditional page layout concepts, traditional magazine design, there are lots of people out there who know their HTML programming, but know nothing about what the human eye likes to see. The same sort of thing as

when PageMaker came out, people called themselves desktop publishers, just because they knew how to use the program.

NO: Right. Do you know who your intended audience for the Web site is?

P3: Ya, it's um, readers between 14 and 28.

NO: Okay, and what culture or community do they represent?

P3: Oh, it's world wide, so it's hard to tell. But by the definition of the 'Net [internet] the tend to be middle class.

NO: Okay, and what's the intended purpose or goal of your site?

P3: Oh I don't know that there is a goal. It's, you know, a big all encompassing goal. It's a magazine that gives youth a voice.

NO: And do you think you've reached this goal?

P3: Oh ya, very much so.

NO: What's the biggest problem you ran into while creating this site?

P3: Making a living.

NO: And have you overcome that?

P3: Not yet. Getting there.

NO: What different languages do you use on the site? Like HTML or Java.

P3: Ahh, as far as I know, it's just HTML. We're staying away from Java yet, because not everybody has it.

NO: Okay. From the survey you fill out for me from before, I see that you don't have any Web courses, what is your background with the Web material? I mean, how did you learn...

P3: Oh, it's easy. You teach yourself.

NO: But did you buy a book...

P3: No, no, Just looked at what other people were doing. I learned it that way. You know, you go "view source" [from your Web browser] and that's how you view some of the basics.

NO: Okay, have you worked with … oh, actually, you said you have. You said you have a magazine. Had you worked with the Web overall before coming to this?

P3: No.

NO: Okay. Have you…well, you said it's plane HTML, so you probably haven't used coding that you knew user's browsers couldn't handle?

P3: Well that's we endeavor not to. That's the whole point because a lot of our readers are looking at our magazine from like, schools and libraries and stuff. So the machines are older. We don't want to lose anybody just because we have too many bells and whistles.

NO: Right. And how does the data flow between the pages. I mean is there a logical structure, or each page independent of the other?

P3: Both. But for the most part, as far as, we endeavor to make it as logical as possible and as fluid as possible.

NO: While preparing for the site did you have flow charts for visual representation before actually coding the site?

P3: Um, yes and no. Um, we did a lot of it by the seat of our pants. Um, and we did some flow charts, but it was a very sort of Zen sort of thing. That's because Stephen and I are so close, because he does all of the design now, that, you know, that's just the way we are able to communicate, and it's grown over time.

NO: That's what I've heard a lot actually: "it's grown." How long would you say it took to create the site from start to finish?

P3: Oh, 2 months.

NO: And do you know how long the actual coding took?

P3: No. Not a clue.

NO: Did you conduct a usability test on the site?

P3: Nope. We just went and did it.

NO: How different is what I'm looking at right now from the original idea?

P3: Not a great deal. Um, we've enhanced it, and we've redesigned it. But the basic design concepts are pretty well the same. And we've tried to stay true to that because it worked right away.

NO: If you had it all to do over next time what would you do differently?

P3: hmm I don't know if I'd do anything differently.

(closing comments)

Participant 4A & B*

This transcript is taken from a cassette tape.

* I was put on speakerphone and spoke with two developers of this site. Participant 4A is the one who filled out the initial survey.

(Beginning rapport, and introductions)

Nancy O'Daniel: Many people have taken the risk to try to become Web developers and have failed. What made you decide to create Web sites?

Participant 4A: Um, I had, let's see I started to do it because some people asked me to create Web sites for them.

NO: Okay. Each designer has a greatest strength. For example the ability to create unique graphics or cutting edge coding. As related to the online work, what do you view to be your talents?

P4A: What do you think...coding?

P4B: oh ya.

P4A: He says coding.

P4B: Well, it's not graphics.

NO: Okay, that's the next question. Do you have any weaknesses?

P4A: Nope. None whatsoever.

P4B: Oh boy, I can think of a few.

P4A: For me, graphics.

NO: Okay. Did you recognize your talents—the coding—when you started out?

P4A: Ah, I guess so.

NO: How long have you had the talents.

P4A: Let's see about...

P4B: 20 years?

P4A: ya, about 19 years.

NO: Okay, and you've already said that graphic design is not one of your talents...
P4A: Well it's, no it's not, it's okay, but I'm not a professional graphic designer.

NO: Okay, did you create the graphics for the Web site?

P4A: Yes.

NO: Who is your intended audience for this Web site?

P4A: Ah, the general public.

NO: And do you know what culture or community they represent? Just like, anybody and everybody? Or...

P4A: Um...Pretty much, yes. People who are interested in News. Business decision makers.

NO: What's the intended purpose or goal of your Web site?

P4A: What's the intended purpose of the Web site? Your turn.

P4B: Well the Web site has two purposes. One is, ah, it's a place where we sell advertising space, and the other purpose is that it's a technology showcase of the products we develop.

NO: Ohhh. Okay. And you've reached this goal?

P4B: That's an ever, continuous goal. It's a process more than a goal.

NO: Okay. What the biggest problem you've run into when creating this site?

P4B: Consistently answering polls and questionnaires about it.

(laughter)

NO: Oh no!

P4A: Legal problems I guess.

P4B: Ya, legal problems.

NO: Like what?

P4B: Um, well there's ah, since we run both a directory and a search engine, there's a great deal of hubbub on the 'Net [internet] as to the laws between linking and copyright, between trademarks, and ah, linking and framing, and whatnot. And Fair use and whatnot.

NO: I see. Have you been able to overcome it?

P4A: We wound up settling with some very major publishers.

P4B: The answer is yes.

NO: Okay. What are the different languages you use for the site? Like HTML, Java...

P4A: HTML, Javascript, Java, Perl and C.

NO: Wow. Okay. On the survey that you filled out for me, it says that you haven't taken any Web courses. What is your background with the Web material? How did you learn the various languages you know?

P4A: Over time.

NO: But from books, or...

P4A: From Books.

NO: Okay, Have you worked with similar material before coming to this site?

P4B: Um..Oh ya.

P4A: You could say yes. Yes.

NO: Had you done any other Web stuff before coming to this site?

P4A: A little bit, yes.

NO: On this site did you use any coding that you knew most users' browsers couldn't handle?

P4A: Some of it. And ah, we made sure that we had versions that all the browsers could handle.

NO: Ah, I see. Okay, and how does the data flow between the pages of the site? Like, is there a logical structure, or is each page independent of the others?

P4A: No, there's a logical structure.

NO: Okay. While preparing for this Web site did you have flow charts for visual representation before actual coding?

P4A: Nope.

P4B: They think we're professionals!

(laughter)

NO: And how long would you say it took to create this site, start to … now?

P4A: Once again, it's an ongoing process…we're still modifying it over time—as we speak actually. The first step probably 2 months, 3 months.

NO: And do you know how long the actual coding took?

P4B: Oh, if you count the search engine?

NO: Sure.

P4A: If you count the search engine it's much more.

P4B: I'd say about 5 months if you count the search engine.

NO: Did you conduct a usability test of the site?

P4B: No.

NO: Okay. How different is what I'm looking at right now from your original idea?

P4A: It's version number 4, and it is, I'd say probably about 40 percent different, 30 to 40 percent different.

NO: If you had it all to do over again, what would you do differently?

P4A: That's a tricky question.

P4B: Charge money sooner.

P4A: You mean in terms of building the site itself right? Not in terms of managing the company.

NO: Yes.

P4A: Um, probably less Javascript.

NO: And is there anything else you'd like to tell me?

P4A: What are you doing exactly? Because I had a few email from you, but what is your education about…?

(More about my background, and what I'm doing with this thesis)

P4A: Have a lot of people had formal training in the past?

NO: None. Nobody that I've talked to has ever taken any Web courses.

P4A: I'm not surprised.

NO: No, actually, I'm not either. But…

P4B: I think you will find people taking Web courses who may manage some of the content within Intranets, but not if you're looking for something that's commercial. It takes a very savvy combination of good coding knowledge, graphic knowledge, content knowledge, it's a real renaissance type of person that you find doing that.

NO: Yes, that's what I'm finding.

P4B: And they're all underpaid!

(laughter)

P4A: Absolutely true.

NO: I'll be sure to put that in my report.

P4A: Are you surprised by what you find compared to what you thought you were going to get?

NO: ….Well, it's going to be hard to put any statistics out.

P4B: Well you know, I think it's kind of like, it's still in the pioneer stage, it's not settlers yet. And in the pioneer stage it's mostly people with gumption and brains. And I think that's where it's at also.

NO: You're right.

P4A: It's not an industry yet, it's still a craft.

P4B: Very well put. It's not an industry yet, it's still a craft.

P4A: You can quote me on that

NO: Okay I will.

P4A: You know, it's such a new area, that you're probably one of the first to start to collect some studies on the area itself.

P4B: I can think of several companies that would be interested in paying you for it.

NO: Oh! Well, heck, I'll email you and ask you for them!

P4B: If you look at people like Jupiter Communications or Thunder Lizard or people like that who, or Media Metrix, they would probably be very interested in trying to use that information.

NO: Okay, I'll keep that in mind.

(closing comments)

Participant 5

This transcript is taken from a cassette tape.

(Beginning rapport, and introductions)

Nancy O'Daniel: Many people have taken the risk to try to become Web developers and have failed. What made you decide to create Web sites?

Participant 5: Ah, at the time when I started doing it, it was probably the technology, because I wanted to, you know, be ahead of technology.

NO: Each designer has a greatest strength. For example, the ability to create unique graphics or cutting edge coding. As related to online work, what do you view as your talents?

P5: Ahh...Application development. And mostly backend tools.

NO: Okay, do you have any weaknesses?

P5: Probably graphic design.

NO: Did you recognize those as talents when you first started out?

P5: Ahh, no. Actually I started out as a graphic designer.

NO: And how long have you had the talents?

P5: Oh geez, I started doing it in late May '84.

NO: Wow. Do you create your own graphics on the Web site?

P5: Ahh, No. I have graphic designers.

NO: And who is the intended audience for the Web site?

P5: We have a wide audience. We're doing the dilbert.com and snoopy.com so we're getting children as well as adults.

NO: And what's the intended purpose or goal of the Web site?

P5: Entertainment.

NO: And do you think you've reached this goal?

P5: Yes.

NO: Okay, What's the biggest problem you ran into while creating this site?

P5: Probably hardware integrations.

NO: And have you been able to overcome it?

P5: Yes.

NO: How is that?

P5: We have specialists who are, who work on the servers. They know what they're doing.

NO: That's a good thing. What are the different languages that you used for the site--I'm looking at the Snoopy site right now. Like HTML or Java.

P5: HTML, Javascript, Perl, Python.

NO: Okay. From the survey that you filled out, I see that you have not taken any Web courses. What is the background with the Web material? Like, how did you learn the various languages that you know?

P5: I know, I just read the literature, and I learned it from that.

NO: Have you worked with similar material before coming to this site?

P5: Yes. I worked for Hypertext company.

NO: Have you worked with the Web overall before coming to this site?

P5: Yes. I did a site for Motorola.

NO: Okay. Have you used any coding that you knew most use's browsers couldn't handle just because it made the site look better or work better.

P5: No. We're doing cross-platform, you know, in the browser.

NO: Oh. Okay. How does the data flow between the pages of the site? Is there like, a logical structure, or is each page independent of the others?

P5: We have sections of the Web site, so there's games and like a history, so it's organized.

NO: While preparing for the Web site did you have flow charts for visual representation before actually coding the site?

P5: Yes.

NO: Did this help?

P5: Yes. Of course.

NO: Okay. How long would you say it took to create the site, start to finish?

P5: Ahh, Half a year.

NO: Okay and how long did the actual coding take?

P5: About 3 months, 4 months.

NO: Okay. Did you conduct a usability test of your site?

P5: Yes.

NO: Did it bring about any changes?

P5: Yes, we had to change some code. Some Javascript and stuff like that, so they'd be compatible with Netscape and Internet Explorer.

NO: Okay. How different is the finished product, like what I'm looking at right now, from the original idea?

P5: Ahh...It's not that different. Except some of the backend, but visually, it's almost the same.

NO: Okay. And if you had it all to do over, what would you do differently next time?

P5: Are you kidding. (mumbled words I can not decipher)

NO: And is there anything else you'd like to tell me?

P5: That's it I guess.

(closing comments)

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