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The Forgotten Teachers in K-12 Online Learning:
Examining the Perceptions of Teachers Who Develop K-12 Online Courses

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ABSTRACT

Like many K-12 online learning programs, the Illinois Virtual High School (IVHS) began by utilizing vendor content to populate its online courses. In its fourth year, the IVHS began a concerted effort to design more of its own online course content internals. The aim of this study was to examine the nature of the support needed and application of tools used by IVHS course developers. The data consisted of a two-part, web-based survey and telephone interviews that were analyzed using descriptive statistics and inductive analysis. The results showed these developers had a strong desire to use interactive elements in their course as well as working in cooperative teams. Further, developers were opposed to using a forced template, but indicated a need for general structural guidance and additional professional development. Finally, developers recommended that subject matter teacher-developers and multimedia specialists be split into two separate roles, and these individuals work together as a part of a design team. Further research should be conducted on the intended use of technology tools requested.

Keywords: Course Development, Instructional Designer, K-12 Online Learning, Online Tools, Virtual School

INTRODUCTION

The Illinois Virtual High School (IVHS) was a state-sponsored virtual school designed to provide online learning opportunities. The IVHS was not a school in the traditional sense, rather its purpose was to enhance and supplement the educational offerings of local schools. As a result, students registered in and received credit for IVHS courses through the school they attended. These schools were responsible for determining the students' ability to enroll and their final course grade (based upon feedback from the IVHS teacher).

During its first three years of operation, the IVHS primarily relied on external vendors for its course content. However, around 2004 they became more aggressive towards its own course development. As the IVHS began to develop more of its courses internally, there was a need to explore the experiences of teachers who had been contracted to design courses in the past to be able to recommend improvements and specific design principles for the adolescent learners who would be enrolled in these courses.

The purpose of this study was to explore the IVHS course development process based on the literature. In this article, we describe the evolution of online course development. We then outline our case study methodology; followed by a discussion of the results from surveys, interviews and course content reviews. Finally, we discuss our findings, as well as outlining lessons for future K-12 online course development projects and specific avenues for future research.

LITERATURE REVIEW

Formal and informal course development has been around for decades. The advent of online instruction has made significant impact on course development practices and how educational institutions at all levels approach this process. Developing a model and the support mechanisms to meet course development needs is critical to successful course development products, and it begins with understanding past practices of course development and continues through understanding what tools course developers use and desire to adequately produce their courses.

Online Course Development

Initially, most courses incorporated asynchronous components like "letter writing, fax, e-mail, and threaded discussions… [and some synchronous components including] the telephone, instant messaging or chat tools, and virtual classroom tools that allow file sharing, audio and even video communication" (Rice,

2006, p. 438). While this description was often the case, the complexity of the online course varied substantially throughout various offerings. McFeeters, Moore, and Chief (2008) stated theses synchronous and asynchronous features were used to "allow the instructors and students to communicate in this virtual learning environment" (p. 68) – both individually and in small group format, instead of just being a way to deliver instruction online or at a distance. "Some [online courses] had extensive lecture notes; others had minimal notes. Some used a real time chat room for lab sessions and homework discussions…. Some used bulletin boards as the primary method for group communications and discussion of assignments" (Gibson, & Herrera, 1999, para. 11). Perrin and Mayhew (2000) pointed out "many instructor-led classes rely heavily on the email and chat room systems" (para. 4). This was common among early online courses and still exists in many courses at both the higher and secondary education levels.

The majority of preliminary methods and tools have been usurped by increased needs from the course developers and teachers (Rice & Dawley, 2007). These users have developed a marked Internet savvy over the past few years and have come to demand increased functionality in online course offerings. A functionality that had not been accessible to the common instructional practitioner is now necessary in course development. Web, graphic and Internet game designers have influenced the user's technology palate in a tremendous way (e.g., the Florida Virtual School's [FLVS] Conspiracy Code) (Jantke, 2010; Searson, Monty Jones, & Wold, 2011), especially when it comes to experiential expectations while using the Internet. Davis, Roblyer, Charania, Ferdig, Harms, Compton and Cho (2007) noted that "effective virtual teachers have qualities and skills that often set them apart from traditional teachers" (p. 28). Only these advanced technical or academically trained practitioners were able to bridge the gap between rudimentary elements of online course development that was more of the norm in the past and the multimedia rich

environments users have come accustomed to through television media and commercially generated websites. With all of the advances in Internet technologies and functionality, there is an increased need to bring course development into a more formal process and increase the amount of technical support for instructors engaged in the process.

Ronnkvist, Dexter, and Anderson (2000) stated that by showing "that educational institutions' failure to support teachers in using instructional technology limits students' ability to learn with the technology" (as cited in Murdock, 2006, p. 76). Murdock (2006) further illustrated this view by pointing out that universities do not adequately provide training opportunities for their learning management system (LMS) in hopes that the technical competency would be sufficient with only a couple of training sessions and the user would be able to adequately use the system to develop and maintain online courses. It was also hoped that the users would be able to navigate the system and be proficient learners in the environment with only minimal training as well. Gibson and Herrera (1999) had also indicated out this necessity when they recommended the provision of technical support in the course development process for faculty involved and to students when the course is initially opened for the term. They indicated the need for technical personnel to be available to answer questions, determine functionality problems and address hardware and software problems as well as usability issues.

Faculty members raised a number of concerns when approaching online course development. Gerson (2000) marked this as one of the barriers to successful online education. He listed faculty concerns to include "insufficient online technical support; insufficient support for development of [online] courses; uncertainty regarding ownership of [online] course materials; uncertainty about released time and/or pay for development of online courses; uncertainty about workload issues" (para. 3). Additionally, he cited "uncertainty about how to accommodate the unique learning needs of [distance learning] students….

[and] no single [online] web site portal with all relevant information in one place" (para. 3). Further, Hughes, McLeod, Brown, Maeda, and Choi (2005) indicated the importance of having "a significant relationship between the number of professional development experience hours and… student support components" (p. 35). These concerns raised serious questions, and the young field of K-12 online learning came with few concrete answers.

An adequate amount of training sessions and access to support can be widely interpreted, but having components of support accessible to users at both ends of a course is important to successful implementation of online courses. There have been different approaches to these quandaries have been used over the years and adapted from the traditional face-to-face course development process where there is a successful foundation blueprint. The executive summary of the 2010 National Educational Technology Plan deemed that "professional educators will be supported individually and in teams by technology that connects them to data, content, resources, expertise, and learning experiences that enable and inspire more effective teaching for all learners" (U.S. Department of Education, 2010, p. 11). In 2011, International Association for K-12 Online Learning (iNACOL) released an update to its National Standards for Quality Online Teaching. The 10 standards addressed a multitude of topics ranging from knowledge of effective concepts to facilitate student success, the use of technologies current and future, and professional interactions with community, students and peers (iNACOL, 2011). Given this variety, as well as potential complexity, it is important to consider course development using a team of specialists to support teachers developing online courses to ensure a support network is in place for when the course is deployed to students.

K-12 Online Course Development

In the early years of K-12 online course development, teachers often used many of the same methods they relied upon for traditional

face-to-face course development and instruction (Barbour, 2007). For example, teachers used the software available to them (i.e., word processors, slide shows, internet links, etc.). However, disconnect arose because of the creation of specialized roles in online course development project teams. This specialization has put the teacher in an interesting position, as they have significant control over the look and feel of the course, also the delivery of the content (Davis, 2007). In their new role as content specialist, the designer is only able to directly control the information that is presented to the student, while the teacher is not necessarily able to control how the content is presented. Teachers also often no longer have access to and are sometimes unaware of what tools exist for them to utilize within their content. It is important for the project team of instructional designers, web designers and project leaders to provide the teacher with as complete a selection of tools as possible to maximize their creativity, and to be able to use their skill and training in designing instruction to its fullest through the LMS.

Many technically savvy instructors who have developed online courses are comfortable incorporating their lecture notes as text or as slide shows into most learning LMSes. Even adding simple stock digital pictures and clip art are within the standard online developers skill set. The problems arise in course development when the new web technologies, like Flash animations and Java scripted routines are infused within the LMS's functionality. Knowles and Kalata (2007) noted that, "many [teachers] became overwhelmed or frustrated in their attempts to adapt to the new technology [used in online courses]" (para. 4). It is most important to start the development process with the proper technical specialists in place to support faculty course developers. Knowles and Kalata also referenced the fact that "…the development process is somewhat difficult for people without a web design background" (para. 10).

To help gain the appropriate skill set, a variety of approaches have been made. For example, many online schools place a strong and early emphasis on training and development – both for online course development and online teaching. The Virtual High School Collaborative, one of the first supplemental online programs, require a 26-week graduate level program for new teachers, where participants spend at least 10 hours a week training and designing their own course (Zucker & Kozmna, 2003). Further, Barbour and Reeves (2009) described the approach to course development employed by the FLVS as using a team of specialists, who each take on a unique role on the project team and in the development process. The project team consisted of at least one instructional designer to guide the structure and application of the content provided by one or more subject matter experts, who are often teachers. Additionally, web designers are used to develop graphics, as well as instructional tools, and the look and feel of the student interface for the course all within the LMS scaffold. Another key position on the development team is the project manager who oversees continuity and the various personnel used in the development and who keeps the project on-course, on time and within budget (Johnston, 2004). The project team used by the FLVS is a culminating evolution in the overall K-12 online course development process much in the same way online teaching methods are continuing to evolve as more research is completed in the field.

However, these examples are isolated, at least within the K-12 online learning literature (Barbour, 2013). In fact, the majority of K-12 online learning literature that has focused on the role of the developer of K-12 online learning content has been slanted to students with special needs and not based on any form of systematic data collection (Barbour & Adelstein, 2013). Clearly more research is required to further investigate the K-12 online course development process.

METHODOLOGY

This study explored the course development process of the IVHS to determine what support mechanisms were needed for teachers as

they developed their course independently. Additionally, this study also examined what tools teachers wished to use and to have a better understanding in order to better develop their online content. The study aimed to address these goals by utilizing a mixed method case study design (Yin, 2003). Quantitative data were collected through a two part web-based survey (see Appendix A for a copy), while qualitative data were obtained through a review of existing IVHS courses and semi-structure interviews (see Appendix B for the interview protocol).

An e-mail list was created that included all former and current IVHS course developers as of September 2005. This generated a potential sample of 33 individuals. An e-mail requesting the course developer to participate in the survey was sent to each potential respondent. Four of the e-mail addresses provided were not longer active. Due to technical limitations, the survey had to be delivered in two parts. Potential respondents were contacted up to six times with requests to complete part one of the survey. Upon completion of part one, respondents were again e-mailed up to six times with requests to complete part two of the survey. The survey was conducted from November 2005 to February 2006. There was a 59% response rate for part one of the survey and a 52% response rate for part two. Further, the researchers conducted an analysis of two existing IVHS courses (i.e., one developed during its first two years of operation and one developed during its third and fourth years of operation).

Finally, semi-structured telephone interviews were also conducted with four IVHS course developers. Two of these course developers designed their course during the IVHS' first year of operation, while the remaining two developers completed their courses during the third and fourth years of operation. The interviews were conducted in January and February 2005. The interviews were recorded and transcribed, with copies of the transcriptions being provided to the interviewees for member checking (Patton, 2002).

Interview data were coded using an inductive analysis approach (LeCompte & Preissle,

1993), and constant comparative coding (Ezzy, 2002) using Microsoft Word® (see Ruona, 2005). Ruona (2005) outlined a four stage process for using a table format and the search and replace features of MS Word to conduct a more systematic analysis of qualitative data. During stage one, the data is formatted into a six-column table and saved in individual files. Stage two is a familiarization of the data to "tune into" many of the main. During stage three the data are coded to allow for the identification and development of concepts and insights. Stage four has all of the individually coded files merged into a single document, then organized into categories or themes.

RESULTS

The IVHS course development process evolved between the first two cycles and showed growth in the type and complexity of components utilized by the developers. Initially, developers had been independently creating their own course components. The developers used mechanisms of interaction easy for them to access in the framework of the development process the IVHS used at the time. There was a great deal of autonomy for the developers in creating their courses. No specific templates or models were used in the early stages of development. This would change as the IVHS improved the internal process in subsequent rounds of course development. During this evolution, developers continued to rely on each other and their development team for support and guidance when tools didn't exist or weren't readily available to them.

The developers responding to the survey were all highly qualified teachers and had strong teaching pedagogies in classroom instruction based on their qualifications and inclusion in the IVHS teaching requirements. They also had skills and experience in curriculum development in the traditional face-to-face classroom. All of the developers interviewed had previous online course development experience, one of which was with a community college and not just

the IVHS. The desire to use more interactive elements in their courses beyond their current technological abilities became critical to the developers as they pushed forward interactivity in their courses and the process evolved for the IVHS. A majority replied they strongly agreed with the statement "The design of their course utilized appropriate instructional materials and methods," (i.e., 58.8%).

Participants were also surveyed on the specific components they included in their courses. The developers used the components listed in Table 1 in their course development.

Developers from the second round of course development indicated, during the interviews, they spent more time with the LMS support staff to locate and include what they perceived to be more effective instructional course components than they had been previously using. Almost 60% of developers strongly agreed with the need for "the course to include more relevant examples and situations that promote transfer of learning from this content to that of one more personally meaningful to the learner." The foreign language developer echoed this need when she said she wanted the development process to "pull in wonderful real life situations" so the students are able to "interact with the information and to make it personal… because then I feel… they can really grasp it and retain it." The data indicated the need for additional support from the LMS development

team for these content developers to make this happen. Specialized skills from the LMS development team were needed to cull these types of examples from data sources or to be able to assist the developers in creating these types of materials in the course development process.

Along with the appropriate components, the participants indicated a strong desire in favor of receiving additional technology training in the use of particular software applications (i.e., 82.4%). When asked if they felt they had the required technical abilities to develop their course most developers indicated they did not (i.e., 76.5%). The developers were also provided a list of six common software applications used in the course development process and all but one of the applications were selected by at least half of the participants.

One developer noted they would prefer to see access to develop additional multimedia when they responded in the interviews, "basically the fact that you can pull in wonderful real life … video clips… from a movie, but those possibilities… can be more and more a reality." The data in Table 2 indicated the necessary direction of training for course developers in order to promote better communication amongst the project team.

In terms of the actual online course development process, a majority of the development process the developers worked remotely from other course developers, the IVHS staff, and

Table 1. Components included in course

Component Type	%
Tables	50.0
Charts	31.3
Java Applets	43.8
Flash Applets	75.0
Audio Files	50.0
Video Files	25.0
Other Media	18.8
PowerPoint	12.5
Activities from other websites	7.8

Table 2. Software training choices for instructors

Software Title	%
Dreamweaver/Frontpage	64.3
Fireworks/Photoshop	50.0
Flash	71.4
Java	57.1
Audio Programs	42.9
Video Programs	57.1

the LMS contracted development team. The interviewees reported using phone, computers, email, and related modes of communication as tools to develop their content. Some courses in the IVHS curriculum were developed by individual subject matter experts. However, for most other courses, the developers were paired together. Those developers who worked together on their course development found the experience to be a beneficial arrangement overall. There were developers who worked together at a distance who had never met each other previous to the development process and had still not met face-to-face at the time of their interview. This did not seem to be detrimental to the process as a foreign language developer agreed, indicating that it was "a real positive experience." That same developer said their working relationship was helpful because they were able to divide "up the responsibilities… [and] review each other's information" because they thought it was helpful to have someone review their content given the fact that "you just don't catch that because of the time factor." This sentiment was reiterated by an English course developer when she stated in her interview, "for obvious proofreading purposes, it was nice to have other people proof reading the course because you don't catch everything yourself." Another developer mentioned the camaraderie he enjoyed with his co-developer and their ability "to discuss things… talk back and forth and find solutions." He went on to state this interaction helped them "maintain alignment with the curriculum." He summarized his endorsement of the team approach to developing with the colloquialism, "two heads are better than one."

The personal interaction and reliance upon other individuals was necessary to develop an aligned and cohesive course when working as a team. One developer noted during her interview that she didn't "realize how much information was actually out there." She went on to say, "those possibilities… can be more and more a reality."

Beyond a focus on the individual tools, the responses from the initial survey were also strongly against a template in the course development process (i.e., 70.6%). Even those who responded in favor of the template indicated a need it to only provide a very general structure for the content to be placed in and a way to standardize the use of fonts throughout the course, especially in the foreign language courses where special characters were necessary. Developers also wanted a template tool to allow them to incorporate feedback mechanisms and multimedia file inclusion.

The developers did not want to be restricted by the template in a manner that limited their personality and engagement with the students. Conversely, when interviewed individually each of the four developers indicated a general need for a template of sorts. In fact, two of the four mentioned that they had developed their own templates for the course development work they had done for the IVHS. One said, "we sort of developed our own… points… we kept our own grid… we decided on our own that we wanted certain things and they were repetitive

throughout." The other developer said, "there's kind of a rubric that I… work with… that's kind of been out and about for a long time."

DISCUSSION

One of the main themes from the data was that the IVHS online course developers desired additional professional development, specifically training on the more interactive tools that they could incorporate into their courses. Rice, Dawley, Gasell and Florez (2008) reported that more online teachers were being asked to develop or update online course content. In the first year of the Going Virtual! The status of Professional Development for K-12 Online Teachers study into online teacher training and professional development, Rice and Dawley (2007) reported that only 38% of teachers had received any training in online teaching and/or online course development prior to beginning to teach online. In a 2012 national study, just 1.3% of education programs responded that they offer some form of online preparation. Even more jarring is that only 13% responded that they were planning to create a training program for online education in the future (Kennedy & Archambault, 2012).

Interestingly, of those who were trained prior to teaching online, two thirds to three quarters of these online teachers in the Rice and Dawley (2007) study reported they received training in multimedia presentation tools and asynchronous tools (respectively). In the second year report, Rice et al. (2008) reported that the use of communications technologies was the greatest professional development need identified by the 884 respondents. Other tool-based skills such as appropriate use of the LMS, incorporate Internet resources into course content, and Web 2.0 technologies (i.e. blogs, wikis, content creation tools) were also selected by a majority of respondents. These findings were quite consistent with the findings reported from the IVHS teachers.

Barbour (2007) described seven principles that course developers should follow when de-

signing online content for adolescent learners. One of these principles included a suggestion "to keep the navigation simple and to a minimum, but don't present the material the same way in every lesson" (p. 102). This advice was also consistent to the IVHS course developers' sentiments that they desired some structure and a common look and feel, but did not want to be boxed into a specific design template. These same developers expressed a great desire to be able to structure their lessons in creative ways that would enhance their particular subject area. Another suggestion made by Barbour was "to use multimedia to enhance the content and not simply because it is available" (p. 105). This was similar to the IVHS course developers interest in using additional interactive items in their courses (and hence their desire to be trained in how to use such tools). However, as noted earlier the original Barbour (2007) focused solely on the perceptions of teachers and developers and those perceptions were not independently verified (Barbour & Adelstein, 2013).

CONCLUSION

The K-12 online course developers who participated in this study showed a significant interest in receiving additional technology training in a variety of software applications. These teacher-developers were able to identify specific types of technology tools they wanted to use in the development of their online courses, but they were unable to identify specific ways these tools would be directly used in their courses. The data also showed a perceived knowledge by developers of tools necessary to perform basic to more complex instructional tasks in online instruction. The developers did express interest in the more complex applications, presumably due to the fact they had seen these tools used in other instructional sites on the Internet.

In terms of the implications for practice, developers enjoyed their freedom, and online program must be careful not to damper that excitement. As the use of template tools are provided to developers, these templates must

be flexible enough to encourage developer creativity. One option may be to invest in design, content and facilitation experts, especially since teamwork was so positively reviewed by developers. Putting together an appropriate team could foster a positive impact on the course creation process, and overcome even more rigid templates.

Research should be conducted to better determine online course developers intended use technology tools, as it was not clear as to why the developers in this study desired additional training on the use of tools (i.e., was it because they were simply aware those tools existed or because they had pedagogically sound uses for those tools). This could be accomplished through investigations into the application of these and other tools in course development models used by other school district, state, and international programs. It would also be beneficial to future online course development projects to understand why additional audio and video components were not developed for inclusion in online courses and why training was not as highly desired by developers in these areas. Logical questions to further explore this concern focus on equipment availability and technology skills for both production and editing, as well as the accessibility of the media to all users. These explorations could provide a greater connection between the developer and student and are worthy of further exploration. Finally, as the data for this study was collected during the early stages of this particular online program, a replication of this study would also be in order to explore whether the maturity of the program has led to maturity in the online course development process.

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Jonathan Morrison is the former Coordinator for Curriculum and Assessment for the Illinois Virtual High School (IVHS). After IVHS ceased operation, he consulted for the International Association for K-12 Online Learning and completed instructional design work in the private sector. Jonathan is currently a doctoral student in Instructional Technology at Wayne State University.

APPENDIX A

Illinois Virtual High School (IVHS) Course Developers Survey

Part A: Circle your level of agreement with each of the following 15 statements using the following scale:

- Strongly Disagree: 1
- Disagree: 2
- Undecided: 3
- Agree: 4
- Strongly Agree: 5
- Not Applicable: N/A

Circle the appropriate response.

1. An initial meeting was conducted to determine the scope and nature of your course. This meeting was helpful to you in understanding the nature of the development process.

    1   2   3   4   5   N/A

2. Tasks were identified and responsibilities were assigned in accordance with an acceptable timeline and this information was communicated to you.

    1   2   3   4   5   N/A

3. The quality of the work you completed was acceptable to the IVHS.

    1   2   3   4   5   N/A

4. The IVHS was accommodating with regards to the work that you completed.

    1   2   3   4   5   N/A

5. The design of your course utilized appropriate instructional materials and methods.

    1   2   3   4   5   N/A

6. The completed course fulfills the curricular goals and objectives.

    1   2   3   4   5   N/A

7.   The course engages your students in activities related to your learning objectives.

1   2   3   4   5   N/A

8.   Assessments and assignments were developed to elicit student performance to determine if learning is taking place.

1   2   3   4   5   N/A

9.   The course incorporates relevant examples and situations that promote transfer of learning from this context to that of one more personally meaningful to the learner.

1   2   3   4   5   N/A

10.   The IVHS staff was enthusiastic and enjoyable to work with.

1   2   3   4   5   N/A

11.   Your contributions to the course fulfilled expectations that were initially determined.

1   2   3   4   5   N/A

12.   The IVHS staff seemed well prepared for meetings with you, and thus these meetings were efficient and productive.

1   2   3   4   5   N/A

13.   IVHS staff members were responsive to any questions that you had, calls, and/or e-mails.

1   2   3   4   5   N/A

14.   IVHS staff members were accommodating to your schedule.

1   2   3   4   5   N/A

15.   Graphics, animations, and other media used were visually appealing and they reinforced course content.

1   2   3   4   5   N/A

Part B: The second set of question is a combination of yes/no questions and other selected scale questions. Circle the appropriate response.

16. Would you develop another course for the IVHS?

Yes   No

17. Would you recommend to other teachers that they develop a course for the IVHS?

Yes   No

18. Did you feel that you had the required technical ability to develop your course?

Yes   No

19. What components did you include in your course? *(circle all that apply)*

Images   Tables
Charts   Java Applets
Flash Applets   Audio Files
Video Files   Other Multimedia

20a. Would you have liked to have received some training on how to use particular pieces of software?

Yes   No

20b. If yes, which software? *(circle all that apply)*

Dreamweaver/Frontpage   Fireworks/Photoshop
Flash   Java
Audio Programs   Video Programs
Other (please name):

21. Did you enjoy the freedom to design the look and feel of your course?

Yes   No

22a. Would you have preferred that the IVHS provided a course template into which you could have written your content?

Yes   No

22b. If yes, describe how that course template could have been structured:

Part C: The final set of questions is open-ended.

23. Describe your decision making process when deciding which content to use and which content to exclude:
24. Describe the process you undertook to align your course to the state standards?
25. Describe your decision making process when deciding what media to include in your course:
26. Describe your decision making process when deciding what kinds of assessments to include in your course:
27. Describe the process you undertook to obtain permissions for copyrighted material?
28. Are there any other comments that you wish to make about the IVHS course development process?

APPENDIX B

Demographic Questions

1. How long have you been teaching?
2. What subjects have you taught?
3. Describe your educational background.

Curriculum Development Experience

4. Have you had any experience in curriculum development? If so, describe those experiences.
5. Have you had any experience in writing textbooks or course manuals? If so, describe those experiences?
6. What course(s) have you developed or are developing for the IVHS? Have you taught that course/those courses?
    a. If so, how often?
    b. For how long?
    c. In what format?

Course Development Experience

7. What do you think of the process that you experienced while developing your course for the IVHS?
    a. What aspects did you find particularly positive? Why?
    b. What aspects did you find particularly negative? Why?
    c. Did you like the open format in terms of course formatting? Or would you have preferred a standard template to work from? Why?
    d. If you would have preferred a standard template, what would it have looked like? Why?
8. In your development experience, how did you design your courses? Why?
    a. What elements did you try to include? Why?
    b. How did you try to structure your lessons? Why?

9. Describe a web-based lesson that you feel would be effective with students?
    a. Why was it effective?
    b. What type of multimedia components did it contain?
    c. What were the students' reactions to the lesson?
10. Describe a web-based lesson that you feel to be ineffective with students?
    a. Why was it ineffective?
    b. What type of multimedia components did it contain?
    c. What were the students' reactions to the lesson?
11. If you had to make one statement about designing web-based lessons for high school students, what would it be? Why?
12. If you were to include one item in most or all of your web-based lessons, what would it be? Why?