

Year 1 Progress Report [dtd. 03.31.00]
Triangle South Asia Consortium

A Door into Hindi:
Web Mounted Elementary Language Instruction

US Department of Education, International Research and Studies Program
CFDA 84.017A; Grant No. P017A990009 - Project Duration: 08.15.99-08.14.02

Executive Summary. [1] In the first four months of the project (Aug-Nov 1999) the Web Design Team experimented with a number of different audio, video, and data manipulation features to be incorporated into the final production of the Hindi program, while configuring and testing newly acquired equipment, including specially configured computers for audio-visual needs, the Media 100 non-linear video editor, a high-quality AV camera and sounds system, and a mid-level camera for ancillary and two-camera shooting. [2] In the second phase of the project (Dec 1999-March 2000) the Web Design Team reached final decisions on several key technical features, including AV formats, priority of features, and the most vexing problem of all, the standard for fonts. Delayed briefly by the font problem, we have now begun filming and inputting material for the lessons (17-24), and started the initial graphics work for animating the script-teaching module. We reached agreement with Rupert Snell of the School of Oriental and African Languages in London to collaborate, including the reference use of the new edition of his popular *Teach Yourself Hindi* textbook, and negotiated a formal sharing agreement with the Digital Dictionaries of South Asia project and the Digital South Asia Library. Expenditures are on target with projections and adequate to the project's needs. [3] The final four months of the first year should see us filming in India and assembling the first set of lessons. External evaluator Lutgendorf (University of Iowa) is scheduled to visit in late April to evaluate or early production.

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To evaluate our progress we must address three distinct areas: [1] mounting lessons; [2] technical considerations; and [3] budget expenditures. What follows is based on bi-weekly reports submitted by members of the Web Design Team. Page numbers in parentheses refer to the original proposal.

1. Mounting Lessons.

Lesson layouts (pp. 18, 55-57). In the fall semester 1999 Hindi instructor Taj began the process of revising his elementary Hindi instructional materials, rewriting the dialogues and grammar units for lessons 13-24 (the course's second semester).

Rupert Snell and "Teach Yourself Hindi." In October 1999 Stewart negotiated with Prof. Rupert Snell of the University of London's School of Oriental and African Studies, Department of South and South East Asian Studies to join the Web Design Team. With the permission of his publisher, Snell has agreed to allow the project to reference and incorporate directly portions of his new edition of *Teach Yourself Hindi*, which is the most popular first year Hindi instructional manual in North America and the United Kingdom. He very graciously supplied page proofs of the text so that we could begin the process of cross referencing. In addition, Taj has decided to change the order of presentation of his own material in "A Door into Hindi" to more closely parallel the order used by Snell. These revisions certainly slowed down the finalizing of unit materials, but the added value of this effort will make the program richer and ensure a wider dissemination because Hindi instructors who already use Snell's materials will find that they will not have to revamp their course in order to adopt Taj's program.

Test lesson no. 17. The basic unit modules for level one (video dialogues), level two (grammar), and level three (vocabulary) of our first test lesson, no. 17, have been successfully mounted and are ready for beta-testing by students in FLN 102 (second semester Elementary Hindi at NCSU). Now that the font problem has been solved, the inputting of material for other lessons is largely now a matter of mechanical execution, which began in earnest during the first week of March (about two months behind our projected schedule, but which will be easily adjusted by having the students work through the summer months, which in our original plan we were not certain we could manage).

Video production (pp. 17, 38-39). Hutcheson has filmed Taj and Caldwell in a series of short segments that will serve as a general introduction to the program, and introductions to individual parts of the lessons. Segments of the dialogues for Lessons 17-19 have been filmed with current student participation. Dialogues for the remaining lessons will be filmed in India during Summer 2000. Taj is selecting current language students to participate in filming in India from his Summer 2000 Study Abroad group.

Possible addition of Shabana Azmi. Shabana Azmi, one of India's most famous film actresses, a Member of Parliament, and social activist for women's issues, has verbally agreed to act in several of the dialogues. If we are successful in engaging her services (which will be donated!), the naturalness of the dialogues will be dramatically enhanced, and the "box office" attraction of her name alone will draw students and faculty to the program with a dedication and excitement that only comes with multi-million dollar productions. This will be an addition of inestimable value.

Video production for grammar modules (pp. 17, 38-39). For the grammar teaching modules, the decision was made not to film current Hindi classes since three years worth of high quality video is already archived from our prior experiment in interactive televideo instruction. Caldwell and Hutcheson have begun the laborious process of selecting, editing, and digitizing this archived video.

Video production in India. Rupert Snell is currently in India (under research support from SOAS) where he is filming short exercises that will bridge his *Teach Yourself Hindi* and Taj's "A Door into Hindi." His advance work has already proved invaluable because he has field-tested several of the novel techniques we planned to use when filming there in summer 2000. Specifically he has confirmed our suspicion that completely impromptu filming in public is haphazard with useful, but limited results: much effort, extensive filming, and heavy editing is required to splice together usable footage, although when the effort is made, the results are dramatic. He has had greater success in using lightly scripted scenarios in settings that are private and therefore do not create the commotion that is inevitable when filming in a public venue. While the actors are often slightly more wooden, quicker results are obtained—and it is clear that the combination will provide a wonderful exposure for first year students to hear and see the language in action. It should be noted that the project purchased a mid-level camera (Sony DCR PC 100 with Sennheiser mike) to enable Snell to start shooting these drill exercises. This item was not in our original budget, but the Triangle South Asia Consortium agreed to supply the laptop computers originally requested in the budget, a move which has added considerable value to the overall production. Snell will also return at SOAS expense during the summer of 2000 to intersect with the film team to provide second-camera shots and generally coordinate strategies of filming.

Script Writing Module (pp. 17, 56). Student programmers created a set of Devanagari alphabet image (jpeg) files and are animating the sequence using QuickTime™ to demonstrate how vocabulary words in each lesson are spelled. The derivative relationship of dependent vowels and conjunct consonants to their independent forms are animated as well. Pronunciation guides are likewise being recorded to provide a sound

track for the animation. This feature will serve to teach the writing of the script, help imprint vocabulary more concretely by the combination of visual aid and sound (versus the abstract memorization of terms), and serve as an important guide to pronunciation on the lowest phonetic level.

2. Technical Considerations.

Delivery of audio/video (AV) content (pp. 23-26). We have assembled the technical base necessary to deliver high-quality AV recorded in classroom settings and in culturally appropriate outdoor settings on location. We have selected, purchased, and tested a high-quality Canon AV camera with remote microphones (capable of recording up to one quarter mile away before degradation), digitizing hardware to transfer recorded video to digital files on a hard disk (using Firewire technology), non-linear editing software (Media 100), and 100-1 compression software that preserves very high quality sound and full-motion video. Our trials have verified that we can deliver studio-quality sound, fully synchronized with high-definition images, even in highly compressed forms suitable for Web-delivery. The quality of the reproduction with standard software on modestly priced hardware is excellent. Tests confirm that this high quality AV can be delivered equally well on the two popular Netscape and Explorer browsers, using both RealPlayer® QuickTime™ for the audio and video components. We have demonstrated equal success on both Windows and MacIntosh platforms, thereby meeting our original requirements.

Devanagari script input and display (pp. 15, 26). The input and display of Devanagari script is the most vexing problem for this project, primarily because the technical issues (e.g., what font technology to use for display within web pages, how to prepare text for inclusion in HTML, cross-platform and cross-browser availability, solutions that generalize to languages other than Hindi within the family of Indian languages) are intimately intertwined with issues of "standardization," that is, issues of human (often politically influenced) choice. In the case of Indian languages there are multiple provisional standards, but no one widely supported standard, so we are forced to take a two-stage approach.

- After evaluating our options, Levin and Stewart agreed to adopt a strategy to encode text according to the 8-bit ISCII standard, which is the most common for Indic language computing, and which will be fully convertible when Unicode standards are finally fixed and software is available to manipulate the 16-bit encoding that Unicode requires (currently Unix-based programs handle it well, but few others). Most of the current fonts are based on the 8-bit standard, although some do follow a less flexible 7-bit standard. The Indian Institute of Technology in Madras has proposed a 32-bit font that would eventually make the manipulation of text for linguistic purposes much more accurate, but that is at present impractical.

- We have adopted the Saral Hindi Font, which is an elegant freeware Truetype™ font that follows a particularly easy, if not intuitive, keyboard mapping that will make it simple for students to learn to type Hindi in the program itself. The keyboard mapping is critical because the relationship of glyphs (the actual figure that represents the Hindi

devanagari character or its partial character) should be as close as possible to their equivalent characters in QWERTY keyboards which predominate the microcomputer industry.

- The Saral font will be resident on the project server and downloaded as a "dynamic font" with the program, creating on screen and printable versions of the font without requiring the user to install any special software. This was a solution that we had not anticipated when the project began, but one that has the tremendous advantage of leaving control of the font in the project's hands, and not requiring then the user to install any special fonts or programs. The keyboard mappings, which will be supplied using Java script (an automatically downloadable module that controls the keyboard) and will be easily adjusted to any Unicode font later adopted.

- The Web Design Team evaluated more than a dozen fonts before choosing a font, but it should be noted that the Team is continuing to evaluate fonts (currently more than 30 that are available in freeware or inexpensive commercial packages; see the listing provided by Luc Devroye of the School of Computer Science at McGill University in Montreal <http://www.jeff.cs.mcgill.ca/~luc/indic.html>). As a value-added feature of the project, we plan to mount a web page that shares our evaluations of the fonts (including encoding standards, keyboard mapping, character and conjunct aesthetics, etc.) so that others will not have to duplicate this painstaking technical work.

- In an effort to seek standardization on such issues, the project has established formal relations with the Digital South Asia Project (DSAL) headed by James Nye of the University of Chicago, David Magier of Columbia University, and James Simon of the Center for Research Libraries. Project Director Stewart has been named to the Board of Trustees of the DSAL. Nye, PI, Magier, and Stewart are also directing the Digital Dictionaries of South Asia Project, which will utilize many of these same technologies (e.g., the fonts). That group met in Madison, WI, at the Conference on South Asia in October, along with technical specialists Harold Levin of NCSU, the technical head of the Hindi Web Design Team, and Mark Olson of the University of Chicago's Archive for the Treasury of the French Language (ARTFL), who is the chief programmer for the two Chicago-based projects. We agreed at that time to trade insights into technical issues in an effort not to duplicate efforts, which has already paid off by isolating a number of technical considerations that had not been encountered by the other.

Full Course Packaging of Instructional Content (pp. 17, 21-23). The delivery shell includes the so-called "administrative back-end" of the program, which packages the content into a framework that supports major web course activities such as access control, assignment collection, testing, and even low-level grading. This shell will be based on an independently developed program from NCSU called Wolfware® and full installation will begin during project year two when that software is fully integrated with licensed programs from WebCT® major commercial courseware delivery vendor (originally we had planned to use NCSU's WebAssign®, but this package has been superseded). This strategy will allow us to provide high-end course delivery with a variety of instructor's tools, but independent of NCSU hardware and software. This will also allow for on-site customization by instructors who choose to erect the program on a mirror site on their campus, and for more localized small-scale use with CD-rom. For those campuses using the Andrew File System or AFS for creating a common file

structure for intra-university computing environment (e.g., registrar's office, student records, library, etc.), the Wolfware component will provide a series of value-added features that will enable the instructor to integrate course management more deftly and completely into the university's systems (e.g., accessing course rolls from within the program, submitting grades, global e-mail to registered students, etc.). It should be noted that NCSU is moving to adopt a policy of "open source software," which is consistent with the Triangle South Asia Consortium's desire to deliver this first-year Hindi program free of charge and to make its structure transparent to users.

3. Budget expenditures

Current expenditures. As of 03.01.00 (6.5 months into the first fiscal year) we have expended just approximately \$48K of the \$115K total direct costs, approximately 42% of year one funds. We anticipate expending approximately 92-96% of the first year funds, carrying forward only the small amounts for two of the external collaborators (those precise amounts to be determined later) and some supplies.

- The bulk of the expenditures to date have been in supplies (2 cameras, microphones, mobile lighting, software, storage media) and salaries.

- It should be noted that the Triangle South Asia Consortium decided to furnish at its own expense the necessary laptop computers for AV programming in lieu of adding a mid-level camera to provide ancillary footage (which Snell is currently preparing in India—that travel funded at SOAS expense) and two-camera footage when the film team is on location this summer.

- Expenditures will increase during the early summer months when the film crew (Taj, Caldwell, and Hutcheson) will travel to India to complete "on-location" dialogue and exercise filming.

Carrying forward funds. The delay from solving some of the technical problems will necessitate only minor requests for carrying forward funds into fiscal year two.

- Our external collaborators (van Olphen of the University of Texas, and Francis Pritchett of Columbia University; see original budget lines 3 and 6) have both agreed that it is in the best interests of the project to defer their first site visits until fall semester 2000, which will occur at the beginning of fiscal year two of the project.

- Beta-testing of materials on other campuses of the Triangle South Asia Consortium (see budget lines 1 and 2 for Phukan and Khanna) will not begin until fiscal year two, so those funds will be shifted to extend the film crew travel in India this summer (budget line 3).

Project Director's overall assessment. Most of the technical issues that we had anticipated as major hurdles to production were fairly rapidly and easily solved, with the sole exception of the font problem. The font issue created momentary delays, but the creative solution of using dynamic fonts has opened the door to a much greater level of sophistication and master control from the program site. The addition of Rupert Snell to

the team and the incorporation of his textbook materials represents a major step toward cooperative arrangements that will extend the scope of the program and increase its consumption. The possible addition of Shabana Azmi to the production of video will have an immeasurably salutary impact on the final product, helping us to reach a professional quality that we had not originally imagined possible. In short, we have overcome the major hurdles that slowed down initial production, but added new technical and personal features that will only enhance our final product.

submitted by
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31 March 2000