

Modeling Health-care Giver/Patient Task-specific Dialogues: Phase 3

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Health care givers' lack of training in their patients' language could compromise their ability to provide these patients appropriate health care. Although the use of interpreters (usually relatives) can minimize the problems, training the health care giver in their patients' language seems still to be the most effective option. Lack of appropriate teaching materials to train health care givers to perform tasks they have to do in the workplace, however, hampers efforts to deliver effective training. Training materials for teaching francophone nurses to develop fluency and accuracy in speaking are particularly wanting. In the last few years our group has worked on developing the Virtual Language Patient (VLP), a speech recognition tool, to help nurses develop fluency and ease in taking a patient's medical history (Walker, N. Trofimovich P., Cedergren, H. & Gatbonton, E., 2010).

Using the technology of the original VLP, but modifying it slightly to produce a more flexible interview tool, we created a second training device, the VLP-In Pain to train Francophone nurses to conduct pain assessment interviews in the work place. The VLP –in-pain was designed to play the role of three patients instead of one so that the length of training it provides would be similar to that of the original VLP. Like the original VLP, the three patient's responses to the questions directed at them could also only be triggered when questions were properly formulated and articulated by the users. To enhance the VLP-in-Pain's efficacy as a language-training tool: (1) We designed the pain assessment interview to be genuinely communicative in the sense that users had a goal in doing the interview. They had to create the pain profiles of three patients to be filed after the interview and they can only reach their goal by asking questions they did not know the answers to. (2) We also designed the VLP so that the virtual patients used authentic language that reflected language used in the workplace in terms of content and discourse characteristics. To achieve this authenticity, we analyzed the transcripts of 10 nurses conducting pain assessment interviews while doing their regular jobs in a local hospital. We categorized the utterances used into questions, response, and discourse strategies employed (e.g., sociolinguistic strategies used to signal non comprehension or to seek confirmation, speech fillers pauses and so on) we also did a content analysis of these utterances to indicate topics discussed, how frequently, and when in the interview structure each is asked. Then, using a mix and match procedure that ensured that essential elements were taken into account we created dialogs for three patients with different physical traumas to study and use in a videotaped pain assessment interview. These taped interviews were later programmed into the VLP so that when "interviewed" each virtual patient gave appropriate responses only to questions that met a predetermined intelligibility criteria asked during the training session. (3) We designed the VLP-in-pain so that after the three virtual patients have been interviewed the nurses using it will have been exposed to repeated tokens of certain recurring utterances in the interviews (e.g., *On a scale of 1 to ten, how would you rate your pain?*) or sentence frames (e.g., *How long have...?*)

Finally, to make the interview less linear and less closed than in the original VLP, we also built in alternative ways of formulating some of the pain assessment questions so that the

trainees had a choice of what to ask rather than be forced to ask the questions offered by the VLP. Likewise we built alternative ways of answering the same question.

To test the VLP-in-pain, we recruited several Francophone student and practicing nurses (n=15) to use the training tool in a 35-minute training. Before training, these learners completed a biographical data questionnaire. After training, they completed three other questionnaires seeking information about their perception of (1) the authenticity of the dialogs, (2) the ease and comfort in using the tool, and (3) the efficacy of the VLP in improving their pronunciation. Each person's training session was also recorded. The questions they posed and the number of times they repeated the questions before they could trigger the responses they needed were also recorded. More importantly, a record of their pronunciation of each word and each utterance was kept by the VLP. In this paper we summarize only the results of questionnaire data. The results of the analysis of the pronunciation data were presented at another conference and a report is being prepared for this (Cedergren, Gatbonton, & Surtees, 2013, in preparation).

Authenticity: Asked to comment on their impressions of the VLP-in-pain interview the participants reported that they found it very realistic in terms of its portrayal of what goes on in the workplace and in terms of the language used.. For example, they gave a score of 6.7 on a seven-point scale (SD = .59, n=15) for how realistic it was. Among the things they liked about the VLP are exemplified in statements such as ... *We have a real conversation with a patient, le realisme des videos*, etc... In terms of language, they observed that it *corresponded to what was used in the real world* (5.81 on a 7 pt scale, SD=1.5, n=15). One mentioned that it was ... *assez interactif lorsque nous parlons et qu'il ne nous comprend pas*.

Ease of use: They found the VLP *interesting and easy to use* and were comfortable using it (5.7/7, SD=1.4 n=15) . They reported *being absorbed by the interviews* (5.8/7, SD=1.0, n=15). Some did find the interviews *a bit long* and were frustrated that they *read the questions*, and had no choice in the questions to ask.

Efficacy: A qualitative analysis of their responses to questions whether they thought the VLP could improve their skills showed that they had confidence that the VLP would deliver on this because *feedback was instantaneous*. "*The pronunciation scores combined with repetition of words permitted us to compare and to improve. Le fait que j'etais guidee dans mon intervention was one reason given to support their confidence in the tool as are: It allowed us to improve instantaneously. The context is truly interesting and realistic*"

To sum up, the nurses' reactions to the VLP-in-pain were positive despite the fact that the dialogs were simulated (put together and acted out). Most of their comments suggested that the patients were real, rude in one case and suffering a great deal in another case and garnered sympathies. More importantly the nurses' thought the VLP-in-pain had potential as a tool for improving pronunciation. Our study, however, focused only on its general features. A follow up study in which we analyze the changes in pronunciation, speech rhythm, and tempo resulting from the use of the VLP-in-pain would give us a better idea of what role it could play in training. Examining the role of utterance and sentence frame repetitions on pronunciation accuracy built into the VLP-in-pain would also be useful.

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