

Using Visual Aids in Translation of a Spasticity Symptom Questionnaire

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OBJECTIVE

The objective of this study was to determine the effectiveness of visual aids for translation of the Spasticity Symptom Assessment-Upper Limb (SSA-UL) [1] questionnaire. Some items in the SSA-UL concern specific physical positions and motions experienced by stroke patients, due to muscle spasticity, which is involuntary shortening or flexing of the muscle that can persist after a stroke [2]. It was theorized that the translation process and quality of the finished product would be improved by providing translators with a visual of the physical positions to supplement the textual descriptions. These physical positions may be difficult to describe and therefore open to multiple interpretations. If deemed effective, visual aids can be created for translation of future questionnaires containing physical positions and motions.

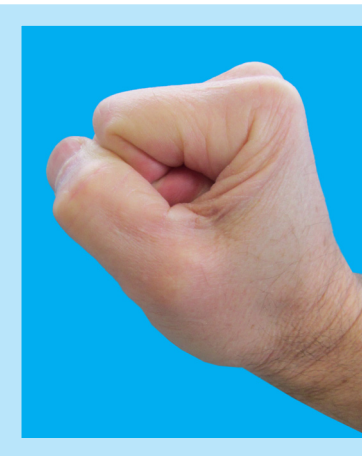
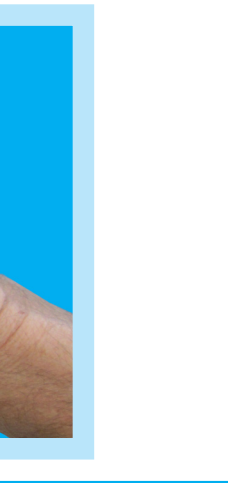
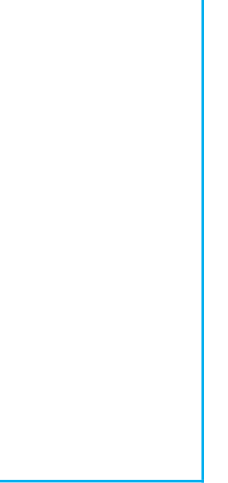
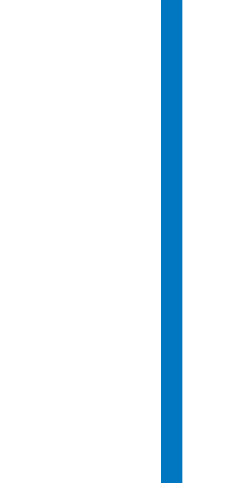
BACKGROUND

Stroke patients with muscle spasticity experience involuntary movements that may cause pain and tightness [3]. These involuntary movements [4] may include *clenching* of the hand or fingers, and *curling* of the hand or fingers [5], as assessed in the SSA-UL. It was theorized that linguists translating the SSA-UL would benefit from receiving an image of each of the four movements referenced in this instrument. Differentiating between the very similar concepts of *clenching* and *curling* can be difficult. Additionally, distinguishing *hand clenching* from *finger clenching* and *hand curling* from *finger curling* without a visual aid were expected to pose considerable difficulty in maintaining conceptual equivalence across languages.

METHODS

The SSA-UL was translated from English-United States into the following languages: Chinese-Taiwan, Czech-Czech Republic, French-Canada, German-Germany, Hungarian-Hungary, Korean-South Korea, Polish-Poland, Russian-Russia, Spanish-United States, Swedish-Sweden, Tagalog-Philippines and Turkish-Turkey.

Linguists were given the following textual definitions and images to assist with translation:

Source Item	Textual Description	Image
Hand Clenching	To make a tight fist with your hand.	
Hand Curling	To bend or roll up your hand.	
Finger Clenching	To tightly hold down your fingers.	
Finger Curling	To bend or roll up your fingers.	

To compare the effectiveness of the visual aids, previous translation projects containing movements of similar difficulty were analyzed: *Bending, stooping and feet dropping forward*. These concepts were translated using a textual description only.

Following translation of the SSA-UL, translators were sent a voluntary questionnaire asking them if they used the images to help them come to the correct translation and to provide additional feedback.

LINGUISTIC VALIDATION

Linguistic Validation is a process that is conducted to confirm that a Clinical Outcomes Assessment (COA) is acceptable for use in different languages and in different cultural contexts. Without this careful development of a translation and subsequent cognitive debriefing, one could not be reasonably certain that the adapted instrument is both conceptually equivalent to the original and can also be clearly understood by the average patient. The linguistic validation process begins with two translators independently translating the instrument into the target language. The translators then exchange drafts and work together to develop one reconciled or “harmonized” version. At that point, the harmonized translation is provided to a third translator who translates the text back into English without access to the original English. Both the harmonized translation and the English back translation are reviewed by a project manager and a survey research expert; adaptations to the translation are made as needed.

RESULTS

Back-translation Analysis:

- *Finger Clenching* and *Hand Clenching* were translated with conceptual equivalency for all languages (12/12, 100%).
 - Only two languages needed to revise their initial translation; Swedish-Sweden and Hungarian-Hungary. The linguists for these languages used the images to correct their translation.
- *Finger Curling* and *Hand Curling* were also translated with conceptual equivalency in all languages (12/12, 100%).
 - For French-Canada and Polish-Poland, the closest alternative possible was *bending of the fingers and hands*. The respective linguists confirmed that *bending* was the best depiction of the action according to the images.

Comparative Analysis: bending, stooping and feet dropping forward:

- *Bending* was translated with conceptual equivalency for 10 of 12 languages analyzed (83%).
- *Stooping* was translated with conceptual equivalency for 7 of 12 languages analyzed (58%).
- *Feet dropping forward* was translated with conceptual equivalency for 6 of 12 languages analyzed (50%).
- Comparative analysis shows that translation of *Bending* may have benefitted by inclusion of the visual aid. However, results clearly indicate that *Stooping* and *Feet dropping forward* would have benefitted from the addition of a visual aid.

Results from the Questionnaire:

- All 24 linguists were given the visual aids prior to translation, in addition to being given a questionnaire on the usefulness of the visual aids.
- 18 responded: 13 of 18 (72.2%) reported that they utilized the images and found them helpful.

RESULTS (Continued)

Written Questionnaire Results			
Language	Did you use the visual aids during the translation process?	Did you find the visual aids to be helpful?	Do you think visual aids can be useful in future translation projects?
German-Germany-1	Yes	Yes	Yes
German-Germany-2	Yes	I found the photos very helpful.	Yes
Hungarian-Hungary-1	Yes	Yes, I mostly concentrated on the pictures rather than dictionaries when trying to find the best Hungarian phrase. I could even compare two slightly different pictures of two different English terms and that was very useful.	Yes
Hungarian-Hungary-2	No	No	No
Italian-Italy	Yes	Yes, especially for these concepts.	I think these aids can be extremely helpful in certain cases when describing body movements and people's activities.
Korean-South Korea-1	Yes	Yes	Yes
Korean-South Korea-2	Yes	Yes	Yes
Polish-Poland	No	No	While I felt the pictures were not needed for these concepts, visual aids can certainly be useful for other concepts.
Russian-Russia	Yes	Yes	Yes
Spanish-US-1	Yes	Yes	Yes
Spanish-US-2	No	No, I felt the English was clear.	Yes, pictures would be useful for future projects.
Swedish-Sweden-1	Yes	Somewhat	Yes
Swedish-Sweden-2	Yes	I found them very helpful, together with the explaining words.	I would definitely appreciate them to help with more unusual medical expressions/words.
Tagalog-Philippines	Yes	The pictures were very helpful during translation.	Yes, it will help the translator to use a more accurate term than what he/she only pictures in his/her mind. With the pictures the translator can accurately determine what term to use in the context of the sentence or paragraph.
Turkish-Turkey-1	Yes	Yes	Yes
Turkish-Turkey-2	I was pleasantly surprised to receive pictures (prior to translation).	Absolutely	Yes, I think this is an excellent idea.
Czech-Czech Republic	I reviewed them but they did not show me anything I would not have known otherwise.	Not quite, but then again, I did not find the concepts they illustrated difficult to understand.	Yes, especially for difficult concepts.
Chinese-Taiwan	No	No	No

Additional linguist feedback:

- The German-Germany linguists had initially translated incorrectly. However, they were able to correct and confirm their translation using the images.
- Hungarian and Swedish linguists said both the text and images together helped them form an accurate translation.
- Only one of the two Hungarian linguists stated that they used the visual aid. Interestingly, the translation for *Clenching* chosen by the linguist that used the visual aid (ujjmerevség) more closely reflects the source text than the translation by the linguist who declined use of the visual aid (ujjgörcs).
- Overall, an overwhelming majority of the linguists found the visual translation aids to be advantageous.

CONCLUSIONS

Analysis of back-translations showed that visual aids added value to the translation process. One of the more interesting findings was the difference between the two Hungarian linguists, where one declined to use the visual aid, while the linguist who chose to utilize the visual aid rendered the optimal translation. Quality review of the back-translation was also found to be more efficient, as there were fewer rounds of review between the linguists and project managers. Discussions over translated concepts were resolved swiftly because linguists confirmed their translation using the pictures. Furthermore, the linguists surveyed reported that the visual aids assisted them in selecting the correct terminology for the physical positions. Moving forward, translation of questionnaires containing items about physical positions may benefit from visual aids.

REFERENCES

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