Objectives, methods, and techniques for learning in LanguageNation

Recommendations for Persian Maintenance and Somali Surge instruction

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Executive summary

PURPOSE

The LanguageNation platform is being designed to support anytime, anywhere, any-language learning. But different learning scenarios bring different requirements, in terms of time scale, relevant activities, and desired outcomes. Moreover, unique challenges are introduced when teaching low-density languages: relatively little is known about the science of teaching or acquiring these languages, and few contemporary reference, pedagogical, or computational resources have been developed in aid of learning these critically important languages for diplomatic and defense purposes. Combining expertise in second language acquisition (SLA) and linguistics, researchers at the University of Maryland Center for Advanced Study of Language (CASL) have explored objectives, methods, and techniques for learning low-density languages, with a focus on two learning scenarios.

The first scenario, Persian Maintenance, targets advanced learners of Persian aiming to maintain Interagency Language Roundtable (ILR) Level 3 proficiency in reading and listening. Attaining and maintaining Level 3, i.e., general working proficiency, to support occupational and employer requirements is a well-known challenge for adult language learners, and this challenge is compounded with low-density, less-commonly taught languages, such as Persian and Somali.

The second scenario, Somali Rapid-Rise, targets ab initio (Level 0) learners who aim to achieve Level 3 proficiency in an expedited time frame (i.e., a strategic surge). Principles and techniques discussed in this scenario are also applicable to learners who, in response to a recent world event, must rapidly obtain limited working proficiency to handle a specific crisis on a highly contracted time scale (i.e., an operational surge).

APPROACH

CASL researchers conducted a preliminary needs analysis by interviewing Persian and Somali language instructors and learners, as well as reviewing available learning materials and consulting with U.S. government (USG) subject matter experts with experience in maintenance and surge language instruction. This needs analysis revealed that ideal instruction should be focused on knowledge of and facility in real-world tasks and mission-relevant skills. Researchers also identified characteristics of Persian and Somali that make them typologically distinct and potentially challenging relative to more commonly taught languages.

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Because the LanguageNation Learning Management System (LMS) necessitates that such tasks be automated, to the extent possible, researchers explored training techniques aimed at self-instruction that could be further supplemented by CASL Human Language Technology (HLT) tools.

**CONCLUSIONS**

1. **Instruction** should be based on four key principles of contemporary SLA theory and pedagogical findings.

   Successful learning in both scenarios should build on four key principles, namely:

   1. **Input**—Target language input must be sufficient, varied, authentic, and rich, while still being comprehensible;
   2. **Output**—Target language output must be in various modes (oral and written), in various contexts, as well as in isolation;
   3. **Interaction**—Learners must learn to interact in the target language, negotiate for meaning, and notice target language features; and
   4. **Feedback**—Feedback must be provided in order to allow learners to process and correct errors.

2. **Tasks should take into account complexity and sequencing appropriate to proficiency level.**

   An appropriate curriculum involves conducting a more thorough needs analysis to determine learners’ specific needs for the language and then using this analysis to create pedagogical tasks that step learners closer to mastering the skills needed to fulfill their goals. Focus on grammatical structures should occur in the context of meaningful activities so that learners acquire such features in context. Table 1 offers a goal-based overview of recommendations for language instruction alongside details related to tasks and activities to achieve a particular goal. Note that while particular goals may apply to either maintenance or surge, most apply more generally to any language learning scenario.

3. **Maintenance and surge scenarios should incorporate similar learning principles but have distinct implementations.**

   The maintenance scenario for Persian targets individuals who have already achieved fairly high levels of proficiency in the language and are striving to maintain this proficiency. Tasks in the LMS targeting these learners can take advantage of CASL HLT tools and other computational and big data techniques to suggest relevant and appropriate materials, automatically elaborate text for better understanding, and facilitate intelligent feedback and interaction to keep learners on a trajectory for continual improvement.

   The rapid-rise scenario for Somali applies to individuals with no previous knowledge of the language facing one of two types of conditions. For strategic surge, learners must attain

### Table 1. Overview of goal-based recommendations for language instruction

<table>
<thead>
<tr>
<th>Goal</th>
<th>Recommendation</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Improve learner selection for surge courses | Consider learner’s previous knowledge and experience | • Select learners with background in a related language, demonstrated advanced proficiency in any second language, or heritage speakers  
• Select learners with higher language learning aptitude or similar domain knowledge |
| Provide rich target language input | Select authentic texts | • Choose texts written by and for native speakers  
• Make use of target language corpora  
• Provide texts from a range of sources |
| Provide comprehensible input | Consider learner’s current proficiency level when selecting texts | • Select target texts for appropriate complexity and difficulty  
• Use text-leveling when possible |
| Elaborate texts | | • Build in redundancies to the original text (e.g., add synonyms, explanations, paraphrasing)  
• Incorporate interactive, multiple-choice glosses or textual and pictorial glosses |
| Focus on form, occasionally | | • Make lexical and grammatical structures salient  
• Use input enhancement (e.g., highlighting, underlining, graphics, animation, font size/color, audio repetition)  
• Incorporate inductive or deductive activities for focus on the structures of the language, especially for complex morphology and syntactic patterns |
| Utilize resources to aid comprehension | | • Incorporate dictionaries, glosses, and pictures for reading tasks  
• Utilize HLT tools such as CASL’s Did you mean…? (DYM), parser, and concordancer  
• Provide electronic gloss/annotation to electronic dictionaries  
• Supply grammatical information and paradigms as supplementary tools |

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Table 1. Overview of goal-based recommendations for language instruction (continued)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Recommendation</th>
<th>Actions</th>
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</thead>
<tbody>
<tr>
<td>Engage learners in interactive tasks using the target language</td>
<td>Use tasks, not texts, as the unit of analysis</td>
<td>• Use task-based language instruction</td>
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<td></td>
<td></td>
<td>• Incorporate simulations, virtual worlds, and tutorials</td>
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<tr>
<td>Provide opportunities for practice in the target language</td>
<td>Engage learners in production, not only comprehension checks of the input, e.g., use open-ended activities (creative/extended writing, summarizing/gisting, generating questions, free production) or cloze tasks (e.g., fill-in-the-blank)</td>
<td>• Provide opportunities for practice in the target language</td>
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<tr>
<td>Maximize interaction</td>
<td>Add task-based activities or discussion in synchronous text chat</td>
<td>• Add task-based activities or discussion in synchronous text chat</td>
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<td></td>
<td>Use messaging/discussion board posting in asynchronous communication</td>
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<td>Provide virtual reality or collaborative games</td>
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<tr>
<td>Ensure that learners notice and correct their own errors</td>
<td>Provide negative feedback on error</td>
<td>• Can be computer generated, peer mediated, instructor/coach mediated, or native speaker mediated</td>
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<tr>
<td></td>
<td></td>
<td>• Can be synchronous (given immediately) or asynchronous (given after some time has lapsed)</td>
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<tr>
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<td></td>
<td>• Can be explicit (e.g., “you made an error in verb agreement”) or implicit (e.g., teacher repeats or models the correct utterance without explicitly discussing the error)</td>
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<tr>
<td>Provide immediate feedback</td>
<td>Incorporate tools for automated feedback (e.g., intelligent tutoring systems, automatic speech recognition and pronunciation)</td>
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<td>Ensure exposure to vocabulary most likely encountered in the real world</td>
<td>Select for instruction high-frequency vocabulary with a wide range of uses</td>
<td>• Develop high-frequency vocabulary lists based on corpora</td>
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<tr>
<td></td>
<td></td>
<td>• Incorporate high-frequency vocabulary in activities</td>
</tr>
<tr>
<td>Ensure exposure to vocabulary needed to understand texts on specialized topics</td>
<td>Select for instruction specialized vocabulary geared toward learner needs</td>
<td>• Conduct needs analysis to determine learners’ future language needs</td>
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<tr>
<td></td>
<td></td>
<td>• Use target language corpora or dictionaries to create specialized vocabulary lists</td>
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<tr>
<td></td>
<td></td>
<td>• Incorporate specialized vocabulary in activities</td>
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<td>Facilitate long-term retention of information</td>
<td>Maximize cognitive principles of learning</td>
<td>• Provide information in redundant formats</td>
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<td></td>
<td></td>
<td>• Avoid making initial learning too easy</td>
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<td></td>
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<td>• Spread activities across different lessons</td>
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<td>• Test frequently by recall of information</td>
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</table>

ILR Level 3 in an abbreviated period of time, to provide sustained mission support within a short time window. For operational surge, in response to specific geopolitical developments or crisis events (e.g., the tsunami and resulting Japanese nuclear disaster of March 2011), learners must attain limited working proficiency, often within a constrained domain (e.g., disaster relief, nuclear meltdown), to accomplish specific tasks. For both surge types, learners must be prepared to deal with the demands of the mission, which can be accomplished by focusing on the types of language (i.e., genre and topic) and skills needed to perform the target tasks. This is done by task-based language instruction, rather than by exhaustive coverage of grammatical features in a decontextualized fashion. Tasks in the LMS targeting these learners can be organized around real-world tasks and mission-relevant content that the learners will encounter post-training. Grammatical information can be supplemental and provided via feedback and access to CASL HLT tools.

SUPPLEMENTS

Beyond these principles and recommendations for language learning, CASL researchers have provided supplemental information in the larger technical report for decision makers and LanguageNation platform designers focusing on a number of important topics related to the Persian and Somali learning scenarios. These include:

1. Review of available learning materials (e.g., dictionaries, grammars, textbook) for Persian and Somali
2. An example approach to an operational surge scenario
3. Linguistic Correlates of Proficiency as they relate to task-based language learning
4. Recommended tasks and activities that incorporate CASL HLT tools into instruction
5. Interviews with experienced instructors and learners of Persian
6. Challenging typological and grammatical features of Somali

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