

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

The Ohio State University

CALICO, May 19, 2006

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs

FLT practice

An opportunity?

From CALL to ICALL

ICALL today

Lack of interactivity

The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input

2. Task specification

3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



1 / 28

Pedagogical Needs

- ▶ Computers widely used in foreign language teaching to help learners experience a foreign language & culture.
 - ▶ multimedia presentations, web-based TV/radio/news, email/chat with native speakers, . . .
- ▶ Apart from the undisputed role of contextualized, communicative language use, which other aspects of language learning are relevant in this context?
- ▶ Research since the 90s has shown that **awareness of language forms and rules** is important for an adult learner to successfully acquire a foreign language.
 - ▶ (cf., e.g., Long 1991, 1996; Ellis 1994; Schmidt 1995; Lyster 1998; Lightbown and Spada 1999; Norris and Ortega 2000; Schulz 2002)

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs

FLT practice

An opportunity?

From CALL to ICALL

ICALL today

Lack of interactivity

The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input

2. Task specification

3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



2 / 28

Real-life constraints

- ▶ The time a student can spend with an instructor/tutor typically is very limited.
- ▶ In consequence, work on form and grammar is often deemphasized and confined to homework so that the time with the instructor can be used for purely communicative activities.
- ▶ The downside is that the learner has relatively few opportunities to gain awareness of forms and rules and receive individual feedback on errors.

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs

FLT practice

An opportunity?

From CALL to ICALL

ICALL today

Lack of interactivity

The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input

2. Task specification

3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



3 / 28

Real-life constraints

OSU practice confirming dilemma

A series of interviews with Spanish/Portuguese language instructors (cf., Amaral and Meurers 2005) finds that

- ▶ it can be difficult to achieve the communicative goal of an activity when students have problems using the appropriate language forms and sentence patterns.
- ▶ But class activities that focus on form or grammar patterns are perceived as problematic since
 - ▶ they reduce the pace of a lesson, and
 - ▶ individual differences make it impossible to have all students do the same tasks in exactly the same time.
- ▶ While instructors were very sceptical of CALL tools aiming to replace human interaction, they support tools
 - ▶ practicing receptive skills
 - ▶ reinforcing acquisition of forms
 - ▶ raising linguistic awareness in general

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs

FLT practice

An opportunity?

From CALL to ICALL

ICALL today

Lack of interactivity

The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input

2. Task specification

3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



4 / 28

An opportunity for instructional technology!?

- ▶ The situation seems like an excellent opportunity for developing CALL tools to

- ▶ provide individual feedback on learner errors and
- ▶ foster learner awareness of relevant language forms and categories.

- ▶ But existing CALL systems which offer exercises

- ▶ typically are limited to uncontextualized multiple choice, point-and-click, or simple form filling, and
- ▶ feedback usually is limited to yes/no or letter-by-letter matching of the string with a pre-stored answer.

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Mearns

Background

Pedagogical Needs
FLT practice

An opportunity?!

From CALL to ICALL

ICALL today

Lack of interdisciplinarity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constanting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



6 / 28

From CALL to ICALL

- ▶ Linguistic modeling is needed to improve on this situation, e.g.:

- ▶ tokenization: identify words
- ▶ morphological analysis: identify/interpret morphemes
- ▶ syntactic analysis: identify selection, government and agreement relations and word order requirements
- ▶ formal pragmatic analysis: identify coreference relations, information structure partitioning, . . .

- ▶ Computational tools identifying such linguistic properties need to be integrated into CALL systems to obtain language-aware "Intelligent" CALL (ICALL).

- ▶ These tools must be extended/written to permit and diagnose errors made by language learners.

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Mearns

Background

Pedagogical Needs
FLT practice

An opportunity?!

From CALL to ICALL

ICALL today

Lack of interdisciplinarity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constanting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



6 / 28

ICALL today

- ▶ Despite the clear potential, virtually no ICALL systems are integrated into FLT practice today. Exceptions:

- ▶ Trude Heift's German Tutor (Simon Fraser University)
- ▶ Noriko Nagata's Japanese Tutor (U. of San Francisco)

- ▶ Why?

- ▶ Lack of interdisciplinary research combining computational, linguistic, and FLT/SLA expertise. (cf., also Garrett 1995)
- ▶ Large ICALL projects tend to be overly ambitious, attempting to revolutionize foreign language teaching instead of addressing realistic FLT needs.
- ▶ Lack of empirical evaluation of systems & components:
 - ▶ coverage of phenomena and learner error types handled by diagnosis module
 - ▶ nature of implemented activities, the feedback and the effect on language learners

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Mearns

Background

Pedagogical Needs
FLT practice

An opportunity?!

From CALL to ICALL

ICALL today

Lack of interdisciplinarity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constanting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



7 / 28

ICALL today

Lack of interdisciplinarity

- ▶ Intelligent Tutoring Systems consist of at least three components (Hartley and Sleeman 1973):

- ▶ the expert model
 - ▶ here: linguistic modelling & analysis, error diagnosis
- ▶ the student model
 - ▶ here: static/dynamic record of student's profile
- ▶ the instructor model
 - ▶ here: activity setup, feedback strategies, error taxonomy

- ▶ ICALL research has focused on the expert model; the vast majority of ICALL research

- ▶ does not include an explicit model of the learner or the typical errors of the targeted audience
- ▶ is not informed by SLA/FLT research on
 - ▶ good, contextualized activity design
 - ▶ effective feedback strategies
 - ▶ methodology for evaluation with real-life language learners

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Mearns

Background

Pedagogical Needs
FLT practice

An opportunity?!

From CALL to ICALL

ICALL today

Lack of interdisciplinarity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constanting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



8 / 28

ICALL today

The best current systems in relation to SLA/FLT insights

BANZAI/ROBO-SENSEI (Nagata 2002)

► Positive:

- Good contextualization (traveling in Japan)
- Good cross-referencing with current textbooks
- Based on FLT research (Nagata 1993, 1996, 1997)

► Limited integration of SLA and FLT insights:

- Activity design:
 - extensive use of translation task
- No learner model (as far as observable), e.g.:
 - no learner-dependent selection of feedback, i.e., system reports all errors
- No instructor model (as far as observable), e.g.:
 - flow of instruction, i.e., which activities are chosen, purely based on student choice
- Feedback, interface, and instructions make extensive use of L1.

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Meunier

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



9 / 29

ICALL today

The best current systems in relation to SLA/FLT insights

German Tutor (Heift 2001)

► Positive:

- Learner model
 - which errors detected in deep processing to report
- Consistent use of L2
- Ongoing FLT/SLA research, feeding back into system design (Heift 2004, 2005)

► Limited integration of SLA and FLT insights:

- Activity design:
 - decontextualized activities
 - few activity types (dictation, build-a-phrase, which word is different, word order practice, fill-in-the-blank, build a sentence) Heift (p.c.): the current version of German Tutor, called E-Tutor, includes additional exercise types
- No instructor model, e.g.:
 - flow of instruction based on student choice
 - activity type not shaping feedback
- Nature of feedback:
 - explicit grammatical instruction is only type of feedback

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Meunier

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



10 / 29

ICALL today

The best current systems in relation to SLA/FLT insights

Spanish for Business Professionals (Hagen 1999)

► Positive:

- Very nicely contextualized units
- Good inclusion of audio material
- Good sequence of exercises
- Texts with hyperlinks to electronic bilingual dictionary

► Limited integration of SLA and FLT insights:

- Activity design:
 - extensive use of translation as an input trigger
- No learner model, e.g.:
 - no learner-dependent selection of feedback, i.e., system reports all errors
- Nature of feedback:
 - extensive use of grammatical terminology (in L1)
 - inconsistent, interleaved use of L1 and L2 for feedback

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Meunier

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



11 / 29

Challenge 1: Constraining Learner Input Problem

- Processing completely free production input, allowing any number and type of errors, is not tractable.
- Systems must control/limit the type of input received.
- Current ICALL systems typically control input using outdated activity design: translation, dictation, etc.
 - Constraining activities in this way also circumvents need for semantic analysis of task appropriateness of input.
- Some consequences of this choice are:
 - decontextualized activities that do not fit communicative purposes
 - limited number of activity types

Where does ICALL fit into Foreign Language Teaching?

Lutz Arnsel and
Christine Meunier

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



12 / 29

Example: Translation in Spanish for BP

Expresión - Unidad 12 Translation

Click on a sentence to select, then translate it into Spanish. Command - click to see the answer.

- Once the contract is signed, we will establish a time line for the construction of the store.
- We will need four months to contract all the personnel.
- I doubt that our budget can cover costs of that magnitude.
- It is important that the clients associate the new store with the parent store.
- I'm happy that you're so optimistic.
- We have read the reports which include the financial projections of the company.
- We have to discuss the details with the accounting department.

Use the words to the right to say Spanish words in the form below. Press ENTER to check your sentence.

Archivos | Salidas | Tutor | Notas
Diccionario | Gramática | Ayuda | Ejercicios

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



Challenge 1: Constraining Learner Input Suggestions

- ▶ How to control the input and be pedagogically sound?
 - ▶ Free vs. controlled input is a continuum, not a dichotomy.
 - ▶ Modify types of exercises so that they become communicatively significant.
 - ▶ Constrain form and content of input through communicative setup of the activity.
- ▶ The activity design and explicit learner models needed here serve double duty:
 - ▶ make activities and feedback pedagogically sound
 - ▶ constrain which language expressions and learner errors the processing needs to be able to deal with.

Example:

- ▶ Vocabulary practice in Spanish for Business Professionals vs. in the TAGARELA system

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



Example: Vocabulary practice in Spanish for BP

- ▶ While *Spanish for BP* contextualizes activities with texts and audio, it only does so for multiple choice activities.
- ▶ Vocabulary practice:

Expresión 6

Current: Puntaje: 0/0 0/0 7/8

the hour

Unidad 6

Respuestas | Ayuda | Tutor | Ejercicios

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



Example:

THE TAGARELA SYSTEM - THE OHIO STATE UNIVERSITY CENTER FOR FOREIGN LANGUAGE TEACHING

Listening Reading Description Fill in blanks Analyzing Vocabulary

Compreensão Auditiva

Atividade 1

Instrução:
Ouvir o áudio e completar a ficha com o que cada cliente pediu.

Complete

ENTRADA:
 BEBIDA:
 PRATO PRINCIPAL:
 QUANTIDADE:
 SOBREMESA:

Análise

Ajuste:
 Dificuldade:

OK Cancel

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



Challenge 2: Task specification (L1 vs. L2)

Problem

- ▶ ICALL systems rely heavily on L1 to provide instructions
 - ▶ Should L1 be avoided completely?
 - ▶ What is the right measure?
- ▶ Instructions used in ICALL systems often are
 - ▶ too long for students to actually read them
 - ▶ too complex to be given in L2.
- ▶ Interface design is typically not used to help students identify different exercise tasks.

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background

Pedagogical Needs
FLT practice
An opportunity? From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLAR/CT insights

Challenges

1. Connecting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



17/28

Example: Long instructions in Spanish for BP

Ejercicios 6 Conjugación

Welcome to your verb conjugation exercises!

In each of the SBP dialogs, certain verb forms or tenses are emphasized. For example, in Unidad 1, (regular -ar verbs and the present tense are emphasized and certain stem-changing verbs are emphasized in Unidad 3. Your conjugation exercises give you the opportunity to work with this material in context.

Read the instructions on this card, then click **Continue** to start from where you left off last time or **Initialize** to start over from a clean slate and erase any previous work in the conjugation exercise.

Note: The **Continue** button will work only if you are running your exercises from your hard drive. If you run SBP from the CD-ROM, all answers

Buttons: Continue, Initialize, Previous, Other Exercises

Ejercicios 6 Charadas

Close

¡Por fin, una actividad sencilla en un parágrafo en español de vuelta en su original, unscrambled form.

These sentences themselves form a cohesive paragraph, but only when they are placed in the proper order. And not only does **Charadas** scramble the letters inside words, it also scrambles sentences inside paragraphs. You have to reorganize the sentences into a paragraph that makes sense and flows smoothly. You do this by clicking directly on top of a sentence inside the dialog near the top of the window. When you click on a sentence, it will move towards the top.

Buttons: Charadas 1, Charadas 2, Previous, Other Exercises

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background

Pedagogical Needs
FLT practice
An opportunity? From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLAR/CT insights

Challenges

1. Connecting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



18/28

Challenge 2: Task specification (L1 vs. L2)

Suggestions

How to provide instructions without or limiting the use of L1?

- ▶ Make activity types clear (list types of activities)
 - ▶ If exercise types are consistent, students experience with a given type of exercise can help avoid the problem.
- ▶ Use specific designs to indicate tasks
 - ▶ colors and icons identifying each activity type
 - ▶ page layout supporting task.
- ▶ L1 can be used as a resource, but demand-driven and not be mixed with L2
 - ▶ provide buttons that allows students to look at
 - ▶ illustrating examples
 - ▶ instructions in L1

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background

Pedagogical Needs
FLT practice
An opportunity? From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLAR/CT insights

Challenges

1. Connecting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



19/28

Example:

THE TAGARELA SYSTEM | THE OHIO STATE UNIVERSITY DEPARTMENT OF LINGUISTICS

Listening Reading Descriptions CTB-to-Blocks Rephrasing Vocabulary

Leitura

Atividade 1

Instrução: Leia o texto e responda as questões usando o vocabulário apresentado pelo texto.

Comer bem no Rio de Janeiro não é problema. Aqui você encontra excelentes restaurantes das mais diferentes culinárias. Desfrute pratos de franceses, italianos e portugueses, as melhores da cidade. Não se esqueça de provar um feijão carioca.

Charcutaria Moinho: Refeição de Carne. Buffet com fartura de saladas, acompanhamentos, comida japonesa e lanches de mar. A unidade do Leme se destaca pelo ótimo ambiente e decoração. Excelente variedade de carnes, que inclui Jorjão, jacaré e frango caipira. Rua Francisco Ottonário, 9, Ipanema (tel. 2521-2500) / Av. Atlântica 290-8, Leme (tel.2542-2393), 55

Cafeteria: Pizza de massa fina e ruibarbo salgado. Forno a lenha. A pizza é preparada no pédo do restaurante e é feita diariamente. Grande variedade de sabores. Desfrute também com a massinha de burlina. O preço é um pouco alto. Rua Vinte e Nove de Abril, Ipanema (tel. 2523-3394), Outrem Filas no Jardim, Serra, Indústrias e Copacabana, 55

Questão 1: Que tipos de restaurante você encontra no Rio de Janeiro?

Input field with a text area and a "Submit" button.

Resposta:

Buttons: Anterior, Próximo, Ajuda, Dicionário, Gramática, Home, Logout

Where does ICALL fit into Foreign Language Teaching?

Luz Arnedo and Christine Mearns

Background

Pedagogical Needs
FLT practice
An opportunity? From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLAR/CT insights

Challenges

1. Connecting learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



20/28

Example:

- ▶ Activity page design for the TAGARELA system

Example:

THE TAGARELA SYSTEM

Compreensão Auditiva

Atividade 1

Instrução: Clique e arraste e complete a ficha como eu cada cliente pediu.

Complete

ENTRADA:

SÉRIA:

PRATO PRINCIPAL:

QUANTIDADE:

SOBREMESA:

Analisar

Enviar

Where does ICALL fit into Foreign Language Teaching?

Last Annual and Online Measures

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



21 / 28

Challenge 3: Appropriate Feedback Problem

- ▶ ICALL system design has made little use of SLA research on different types of feedback and their effectiveness. The systems
 - ▶ rely heavily on L1 to provide feedback,
 - ▶ mostly focus on explicit, meta-linguistic error feedback,
 - ▶ using linguistic terminology which students are not necessarily familiar with.
 - ▶ When should linguistic terminology be avoided?
 - ▶ When does it help?
 - ▶ Does it depend on the student?
- ▶ Most systems have no student model:
 - ▶ Feedback is only based on type of error.
 - ▶ No adaptation of feedback messages to student needs.

Where does ICALL fit into Foreign Language Teaching?

Last Annual and Online Measures

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



22 / 28

Example: Feedback in Spanish for BP

Ejercicios 6 (50)

Expresión 1

Not a complete sentence.
Word 6 (se) doesn't agree in GENDER with word 7 (farmacia).
¡1.1
The RELATIVE PRONOUN (word 4, que) is used with verbs which take a DIRECT OBJECT.
Check the verb (word 5, se). ¡1.12
The verb 2 (yo) doesn't agree in PERSON with SUBJECT (cf. word 3 times). ¡1.6, ¡3.0

Unidad 6 DICTATION

Choose a level of difficulty, from slow on a sentence below to hear it spoken out loud. Type in what you hear in your Exercise window and press return. "Completed" will be the signal.

Delay	Rate	Repeat
1. tengo	a	
2. Quiero comprar	es	
3. Yo	pasillas para	
4. Tengo una	me	
5. No	andar	
6. La	osía	la
7. Monterey	más	e
8. comaridad		del
9. La zona	distancia m'rima	
10. Le prometio	a llegar	once es

Use the words to the right to type in say Spanish sentence in the form below. Press ENTER to check your sentence.

primero yo necesito que se ir a la farmacia

Where does ICALL fit into Foreign Language Teaching?

Last Annual and Online Measures

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



23 / 28

Challenge 3: Appropriate Feedback Suggestions

- ▶ The role of meta-linguistic feedback for student uptake in ICALL (Heift 2004)
 - ▶ Exploration limited to few, decontextualized exercise types.
- ▶ Integrate SLA research results on types of feedback and their effectiveness, e.g.:
 - ▶ Predominant role of noticing (cf., e.g., Robb et al. 1986)
 - ▶ No difference in students self-correcting errors based on uncoded vs. coded feedback (Ferris 2002)
 - ▶ Feedback on agreement errors less effective for beginners (Pieneman 1984)
- ▶ The context influences the effectiveness of different types of feedback, so the transferability of the ICALL context needs to be tested (cf., e.g. Sagarra to appear).
- ▶ Well defined learner and instructor models can help us determine better feedback strategies.

Where does ICALL fit into Foreign Language Teaching?

Last Annual and Online Measures

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of interactivity
The best current systems in relation to SLA/FLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



24 / 28

The TAGARELA project

- ▶ Our project develops a web-based intelligent workbook as a new instruction component of the Portuguese Individualized Instruction Program at OSU.
- ▶ It includes exercises typically found in current workbooks:
 - ▶ listening and reading comprehension
 - ▶ picture description
 - ▶ contextualized fill-in-the-blank and vocabulary
 - ▶ phrasing and re-writing
- and will provide immediate, individual feedback on
 - ▶ spelling, subcategorization, missing/extra words, agreement, selected case and verb forms, word order.
- ▶ Status: Project at half way point, with the
 - ▶ web-based intelligent workbook currently worked on
 - ▶ undergoing prototype testing in Autumn 06 and
 - ▶ a full test with regular Portuguese students in Spring 07.

Where does ICALL fit into Foreign Language Teaching?

Luz Arred and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of intelligibility
The best current systems in relation to SLA/FLT insights

Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

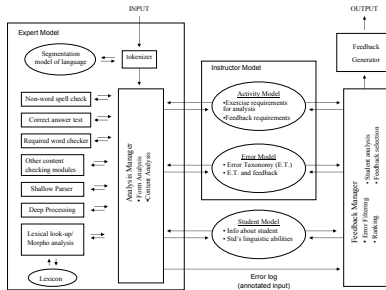
References

Appendix
Overly ambitious projects



25 / 28

TAGARELA system architecture



Where does ICALL fit into Foreign Language Teaching?

Luz Arred and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of intelligibility
The best current systems in relation to SLA/FLT insights


Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



26 / 28

Summary

- ▶ Integration of computational, linguistic, and FLT/SLA expertise opens up opportunities for ICALL research.
- ▶ For instructors to be able to rely on ICALL systems as part of their teaching methodology, we need more
 - ▶ explicit models of learners, activities, and error types
 - ▶ web-forms with activities that are designed according to specific pedagogical objectives of a course
- ▶ To advance as a field, ICALL needs more replicable evaluation of
 - ▶ the pedagogical effectiveness of ICALL systems
 - ▶ the error detection, localization & diagnosis techniques
 - ▶ e.g., using freely available, task-specific, error-annotated learner corpora

Where does ICALL fit into Foreign Language Teaching?

Luz Arred and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of intelligibility
The best current systems in relation to SLA/FLT insights


Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



27 / 28

Acknowledgements

We are grateful to

- ▶ the OSU Office of Research and the College of Arts and Humanities for funding the Innovation Grant *Bridging the Gap between Research in Natural Language Processing and Individualized Language Instruction*,
- ▶ the Student Technology Consultants Cory Shain and Chris Kovach, and their HIS advisors Scott King, Dickie Selfe and Jody Croley for the web design support,
- ▶ Glauca Silva, Donna Long, Terence Odlin, and Alison Mackey for helpful discussion of SLA/FLT, and
- ▶ the participants of the OSU ICALL research group and the OSU CLippers computational linguistics discussion group for helpful feedback on our work.

Where does ICALL fit into Foreign Language Teaching?

Luz Arred and Christine Mearns

Background
Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today
Lack of intelligibility
The best current systems in relation to SLA/FLT insights


Challenges
1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project
TAGARELA architecture

Summary

References

Appendix
Overly ambitious projects



28 / 28

References

- Amaral, Luiz Alexandre and Walt Detmar Meurers (2005). Towards Bridging the Gap between the Needs of Foreign Language Teaching and NLP in ICALL. In António Pedros-Gascon (ed.), *Electronic Proceedings of the 8th Annual Symposium on Hispanic and Luso-Brazilian Literatures, Linguistics, and Cultures*.
- Ellis, Nick (1994). *Implicit and Explicit Language Learning - An Overview*. In *Implicit and Explicit Learning of Languages*, San Diego, CA: Academic Press, pp. 1–31.
- Ferris, Dana R. (2002). *Treatment of error in second language student writing*. University of Michigan Press.
- Garrett, Nina (1995). ICALL and Second Language Acquisition. In V. Melissa Holland, Jonathan D. Kaplan and Michelle R. Sams (eds.), *Intelligent language tutors: theory shaping technology*, Erlbaum, pp. 345–358.
- Hagen, L. Kirk (1999). Spanish for Business Professionals. Project Web Page. <http://www.uhd.edu/academic/research/sbp/>.
- Hartley, J.R. and Derek H. Sleeman (1973). Towards intelligent teaching systems. *International Journal of Man-Machine Studies* 5, 215–236.
- Heift, Trude (2001). Intelligent Language Tutoring Systems for Grammar Practice. *Zeitschrift für Interkulturellen Fremdsprachenunterricht* 6(2). <http://www.ualberta.ca/~german/ejournal/heift2.htm>.
- Heift, Trude (2004). Inspectable Learner Reports for Web-based Language Learning. *ReCALL Journal* 16(2), 416–431.

- Norris, J. and L. Ortega (2000). Effectiveness of L2 Instruction: A Research Synthesis and Quantitative Meta-Analysis. *Language Learning* 50(3).
- Pieneman, M. (1984). Psychological constraints on the teachability of languages. *Studies in Second Language Acquisition* 6, 186–214.
- Robb, Thomas, Steven Ross and Ian Shortreed (1986). Salience of feedback on error and its effect on EFL writing quality. *TESOL Quarterly* 20, 83–93.
- Sagarra, Nuria (to appear). The effect of computer-delivered recasts and working memory on L2 development and modified output during face-to-face interaction. In Alison Mackey (ed.), *Conversational interaction and second language acquisition: A series of empirical studies*, Oxford University Press.
- Schmidt, R. (1995). Consciousness and foreign language: A tutorial on the role of attention and awareness in learning. In R. Schmidt (ed.), *Attention and awareness in foreign language learning*, Honolulu: University of Hawaii Press, pp. 1–63.
- Schulz, Renate A. (2002). Hilft es die Regel zu wissen um sie anzuwenden? Das Verhältnis von metalinguistischem Bewusstsein und grammatischer Kompetenz in DaF. *Die Unterrichtspraxis—Teaching German* 35(1), 15–24.

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLARFLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



28 / 29

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLARFLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



28 / 29

Heift, Trude (2005). Corrective Feedback and Learner Uptake in CALL. *ReCALL Journal* 17(1), 32–46.

Lhaire, Sébastien (2004). Vers un feedback plus intelligent. Les enseignements du projet FreeText. In *Proceedings of the Journée d'étude de l'ATALA on NLP and Language Learning*, pp. 1–12. <http://www.u-grenoble3.fr/lidilem/atala/actes/JourneeATALA-041022-lhaire.pdf>.

Lightbown, P. M. and N Spada (1999). *How languages are learned*. Oxford: Oxford University Press.

Long, M. H. (1991). Focus on form: A design feature in language teaching methodology. In K. De Bot, C. Kramsch and R. Ginsberg (eds.), *Foreign language research in cross-cultural perspective*, Amsterdam: John Benjamins, pp. 39–52.

Long, M. H. (1996). The role of linguistic environment in second language acquisition. In W. C. Ritchie and T. K. Bhatia (eds.), *Handbook of second language acquisition*, New York: Academic Press, pp. 413–468.

Lyster, R. (1998). Negotiation of form, recasts, and explicit correction in relation to error types and learner repair in immersion classroom. *Language Learning* 48, 183–218.

Nagata, Noriko (1993). Intelligent Computer Feedback for Second Language Instruction. *The Modern Language Journal* 77(3), 330–339.

Nagata, Noriko (1996). Computer vs Workbook Instruction in Second Language Acquisition. *CALICO Journal* 14(1), 53–75.

Nagata, Noriko (1997). An Experimental Comparison of Deductive and Inductive Feedback Generated by a Simple Parser. *System* 25(4), 515–534. .

Nagata, Noriko (2002). BANZAI: An Application of Natural Language Processing to Web based Language Learning. *CALICO Journal* 19(3), 583–599.

ICALL today

Overly ambitious projects

Large ICALL projects tend to be overly ambitious, attempting to revolutionize foreign language teaching instead of addressing realistic FLT needs.

- For example, the €2,200,000 project FREETEXT, aimed at providing feedback on free production of language learners, fell short of its ambitious goal and ended without ever being evaluated with learners.

Par rapport à nos ambitions de départ, FreeText a vu ses ambitions réduites. La technique de la comparaison de phrases a dû être reportée après la fin du projet et les performances du système de diagnostic peuvent sembler relativement faibles par rapport aux espoirs soulevés. Il est aussi un peu frustrant de ne pas disposer de résultats sur l'accueil réel de nos outils d'aide chez les apprenants. Nous ne disposons que d'une évaluation de spécialistes et des réactions suscitées par les diverses présentations du logiciel que nous avons faites. (Lhaire 2004, p. 10)

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLARFLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



28 / 29

Where does ICALL fit into Foreign Language Teaching?

Luiz Amaral and Detmar Meurers

Background

Pedagogical Needs
FLT practice
An opportunity?
From CALL to ICALL

ICALL today

Lack of intelligibility
The best current systems in relation to SLARFLT insights

Challenges

1. Constraining learner input
2. Task specification
3. Appropriate Feedback

Our Project

TAGARELA architecture

Summary

References

Appendix

Overly ambitious projects



28 / 29