TOWARDS A BROAD-BASED UNDERSTANDING OF EFFECTIVE CALL PRACTICE: REACTIONS AND RECOMMENDATIONS OF UNIVERSITY-LEVEL MOROCCAN ENGLISH LANGUAGE LEARNERS

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Abstract

This paper explores effective uses of technology in teaching with a focus on a case study of English Language Learning (ELL) at a Moroccan university. A review of literature reveals a wide variety of pedagogical practices that are recommended by theory and implemented in practice. These theories and practices describe a spectrum of activities ranging from "traditional" practices that develop specific skills at a similar pace and with a high level of teacher monitoring to "emerging" practices that emphasize independent learning, collaboration, and project- or group-based tasks that assist students in becoming life-long learners and users of technology. The case study focuses on grammar courses in which these Moroccan students improve their knowledge of English grammar in order to be prepared to use English at the academic level. The results reveal that grammar teachers employ a variety of pedagogical practices in their use of the CALL but the majority tends toward "tutorial" or "traditional" approach whereas some of the practices employ the "authentic materials engagement" or "computer-mediated communication" approach as identified in the literature review. Students, when asked what they would do differently if they were the teacher, often identified practices that would be consistent with the emerging practice paradigm even if they had not been exposed to that kind of CALL practice.

1. Introduction to the use of CALL and its use at a Moroccan university

Technology continues to define the modern age, and its impact on education is an innovative and disruptive force. Teachers of any subject and of English specifically who want to use the computer as an instructional aid often start with a simple question such as "What resources are useful to my class?," and, as one realizes the depth and breadth of the material available, that question often changes to "How can I keep up with this innovative educational space?" Indeed, classroom teachers of any subject face an increasingly powerful collaborator and even competitor from computer-based learning tools.

At universities using English as the language of instruction and particularly those with a significant number of non-native speakers, one of the most pressing goals is to move students from Cummins' "Basic Interpersonal Communication Skills" (BICS) to the "Cognitive Academic Language Proficiency" (CALP – Cummins, 1979). This process may take many years, but the final goal of the teacher is to prepare students to be able to read, write, listen, and speak about academic topics at a level commensurate with native speakers. In addition to this challenge, technology has deeply impacted notions of literacy, which now requires not only the ability to read and write but also to access information online, learn independently, and may even extend to a rudimentary understanding of computer languages. Thus, for the language learner, particularly those wishing to attain academic competence, the computer is becoming more and more a central tool.

For the classroom ELL teacher, effective CALL practice has also undergone a rapid evolution, requiring a large investment in terms of infrastructure, training, and quality improvement for universities and teachers. At the Moroccan university using English as the language of instruction described in this paper, Multi-Media Labs (MML) have been built to provide CALL opportunities to teachers and students. One pre-academic course for ELLs, the subject of this study, focuses on improving students' command of English grammar and their ability to use that grammar to communicate at the university level. These MMLs are used extensively, with each class going to the MML once per week for 20% of instructional time. Such extensive use inevitably leads to the question: "How effective is the use of these resources?" This has led to the formulation of the following research questions:

1) How did the practice under analysis compare to other colleagues?
2) How did the present practice and colleagues' practices compare with the recommendations of other experts in the field of CALL or Information and Communication Technology (ICT) implementation in education generally?
3) How did teachers and students conceive of and respond to the use of CALL in these courses?

2. Literature review

2.1. Emergence of a theoretical and practical approach to effective use of CALL and ICT in education

Teachers and students have been using computers to learn for several decades now (Warschauer, 1996), but teachers and students are still in the process of learning how to use

CALL effectively (Hampel, 2014). The technology continues to advance so quickly that what seemed impossible 20 years ago is now a regular part of life. In addition to advances in computer technology, the field of teaching in general and TESOL specifically has undergone a major pedagogical shift from the behaviorist or cognitive theories of learning to the socio-cultural and/or socio-constructivist (Palincsar, 1998). Thus, this tension between the computer's capabilities and theories about effective language learning continues to be debated in spaces ranging from the classroom to academic journals (Levy, 1997). Teachers and institutions who are trying to implement CALL in their language programs face challenges ranging from developing the computer infrastructure, training and supporting teachers, evaluating students' attitudes, changing learning cultures, and showing the effectiveness of CALL on learning outcomes. This process is often quite time-consuming and difficult, especially in developing countries such as China (Li & Walsh, 2010; Wiebe & Kabata, 2010) or Egypt (Warschauer, 2002). Morocco is no exception to this process, and the present study sheds additional light on CALL efforts in this region.

Despite this changing CALL landscape, there are a number of useful guideposts available to both encourage the use of technology and promote innovative practices. One of the first realizations is that simply transferring pen-and-paper tasks to the computer without taking advantage of the computer's unique capabilities may not produce significant gains in learning (Bowles, 2004). On the other hand, effective use of CALL can help instructors reduce the amount of class time spent drilling vocabulary and grammar and free up time to focus on language proficiency tasks (Brown & Jahn, 1990). Indeed, carefully designed CALL teaching of specific grammar items can even be superior to in-class instruction (Torlakovic & Deugo, 2004).

In addition, use of computers offers a number of reciprocal benefits including introducing variety to the class, individualizing learning, providing immediate feedback, increasing interaction, saving time, capitalizing on students' inclination towards using the computer, and developing general computer skills for students (Hall, 1998). For specific skills such as writing, CALL can be a motivating factor for students as they engage with the computer and produce accurate, neat, and organized texts (Fidaoui, Bahous, & Bacha, 2010). Listening and reading skills can also be improved through carefully constructed CALL activities such as video enhanced with hypertext glosses for students listening to music (Román-Odio & Hartlaub, 2003). In summary, CALL offers teachers a powerful resource, but its effective use requires that teachers not simply transfer what they do in the classroom to the computer but rather design tasks that make full use of the computer's abilities.

Chapelle and Jamieson's 2008 book *Tips for Teaching with CALL* offer a series of practical recommendations divided into chapters for vocabulary, grammar, writing, reading, writing, listening, speaking, communication skills, and content-based learning. The most essential recommendations presented by the authors are as follows:

1. Carefully select CALL materials that are appropriate for the learners' level.
2. Choose CALL materials that explicitly teach the content item.
3. Choose CALL materials that promote interaction with the computer.
4. Choose CALL materials that promote interaction with other learners.
5. Evaluate learners' responses to the CALL activities.
6. Help learners develop personal approaches to using the computer for personal self-improvement outside of the classroom. (Chapelle & Jamieson, 2008)

A useful extension to the tips offered in Chapelle and Jamieson's work is Garrett's 2009 article in which she revisits her own 1991 review of the use of technology in teaching. The article defines three categories of software and activities used in CALL:

1. Tutorial activities - cover a wide range of online and software applications for language learners including grammar review, vocabulary, dictation, pronunciation, listening and reading comprehension, and writing tasks. Much of this software offers learners feedback and correction even on complex tasks such as writing or speaking. Thus, these types of tutorial programs offer language teachers and learners powerful and sophisticated tools for improving language either as part of a classroom or independently.
2. Authentic materials engagement (AME) - engages language learners with materials made by native speakers for native speakers. These materials do not have an explicit pedagogical purpose and teachers play an active role in selecting, editing, and annotating the material to aid student comprehension. In contrast to the tutorial software, AME may require an active teacher presence to make these types of activities accessible.
3. Communication uses of technology or computer-mediated communication (CMC) - ask students to use CALL to connect with other learners and teachers. Applications here include a diverse and growing body of programs and activities ranging from Web 2.0, social networking, contributing to blogs, and other means to extend a learner's frame from him/herself to that of a larger community of learners (Garrett, 2009). These approaches and activities are also described by Warschauer as an application of

socio-cultural teaching theory and collaborative learning techniques. These activities allow the learner to communicate in real time, with individuals or groups and with people from different cultures, ages, and personal backgrounds (Warschauer, 1997).

Although the approaches outlined above have the potential to help students, even beginners, progress in their language confidence quickly (Ko, 2012), Warschauer's 2002 article makes the larger point that the use of technology in education is not simply a convenient add-on for the classroom teacher but an essential part of the development of individuals and society in the modern age. Students who do not develop the knowledge, skills, and attitudes necessary to use a computer autonomously, access information online, critically evaluate sources, communicate effectively electronically, and adapt quickly as technology innovates throughout their lives may be doomed to lag behind others who do (Warschauer, 2002). In turn, students who engage in these skills show the ability to create new media, participate in dynamic and creative communities, and pursue their own interests independently (Kafai & Peppler, 2011).

Through these theoretical and practical perspectives, a pedagogy of CALL emerges that asks the teacher to carefully choose software or design activities for students that are appropriate for their level, push them to engage with authentic materials, develop their ability to communicate with others, and ultimately be able to learn on their own and use the computer as a life-long learning tool. Support of this pedagogy on an international level comes from the International Association for the Evaluation of Educational Achievement's (IEA) SITES Module 1 and 2 surveys. The SITES Module 1 survey was a comparison of 26 different countries' approach to ICT integration and pedagogy (n.b. Morocco was not a member of this study, nor were any other countries in North Africa or the Middle East with the exception of Israel). The SITES Module 2 is a qualitative study of the same countries that sought to find examples of uses of ICT that were considered innovative by administrators and teachers. These case studies do not represent, in the words of Kozma, the study leader, "what is typical in each country but the aspirations that each country has for the future of their educational system (SITES-M2, 2011)." These two studies identify what is called the "emerging paradigm for life-long learning," which stands in contrast to a "traditional" approach. These approaches to ICT are characterized through the SITES Module 1 survey questions as follows (Pelgrum & Anderson, pp. 89-90):

1. **Traditional:**
    a. Students use computers to develop specific skills
    b. Students work on the same learning materials at the same pace

c. Teachers keep track of all student activities and progress

2. **Emerging Paradigm:**
   a. Students develop abilities to undertake independent learning
   b. Weaker students are provided with additional instruction
   c. Teaching and learning are organized so that differences in entrance level, learning pace, and learning route are taken into account
   d. Students learn to search for information, process data, and present information
   e. Students are largely responsible for controlling their own learning progress
   f. Students learn and/or work at their own pace
   g. Students are involved in cooperative and/or project-based learning
   h. Students determine for themselves when to take a test
   i. Students learn by doing
   j. Students combine one school subject with others (multidisciplinary approach)

The SITES Module 2 survey confirmed the SITES Module 1 survey's findings and noted that, in the most innovative uses of ICT in teaching as identified by administrators and teachers, "students were actively engaged in what are sometimes called "constructivist activities," such as searching for information, designing products, and publishing or presenting the results of their work. Students often collaborated with each other on these projects and occasionally they collaborated with others outside the classroom, such as students in other countries. Productivity tools, such as word processors and presentation software, were used in a majority of the cases, as were World Wide Web resources, email, and multimedia software. These tools and resources were used to create products and presentations, support communication, and search for information." (SITES-M2, 2011)

This emerging paradigm described by the SITES surveys both confirms and challenges the recommendations given by Chapelle and Jamieson, Garrett, and Warschauer above. While the traditional paradigm may fit well with the idea that the teacher should carefully select CALL materials for the students and monitor their progress closely, the emerging paradigm pushes the students to learn actively, make decisions for themselves, produce, and work together using a variety of media and communication tools that draw on a number of different fields.

When one steps back from these studies and resources, a pedagogy of CALL starts to come into focus that acknowledges the usefulness of the "tutorial" or "traditional" perspectives to help students master the discrete language skills necessary while pushing them to progress to the kinds of knowledge, skills, and attitudes represented in the "emerging paradigm." The conceptual chart in Figure 1 shows the relationship between the student's general language level and the theoretical or practical approaches described above.

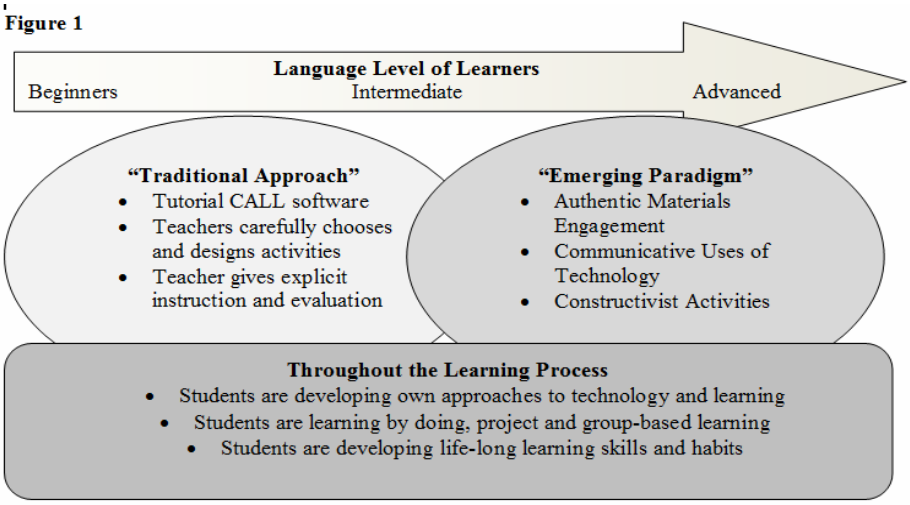

Figure 1. The relationship between language learner's level, CALL tasks, and skill development (own source).

In this model, CALL pedagogy balances the student's language level with the kinds of tasks represented by the traditional or emerging paradigm. For example, a beginning student may need to rely on tutorial activities before they can be reasonably expected to watch an authentic *YouTube* video without a significant amount of help. In turn, as the learner develops, he/she may begin to seek out authentic materials, communicate with others inside and outside the class, and engage in more complex learning projects. In addition, and perhaps most importantly, all along the spectrum, students are honing their abilities to use technology, working on projects individually and in groups, and, ultimately, becoming life-long learners. Teachers arriving at this level are described in the SITES 2006 survey as "taking on a more facilitative role, providing student-centered guidance and feedback, and engaging more frequently in exploratory and team building activities with students (SITES 2006, 2012)."

In summary, the emerging pedagogy identified by the SITES surveys dovetails with the CALL pedagogies of Chapelle and Jamieson, Garrett, and Warschauer in that it represents the end goal for all language teachers. The challenge comes in looking critically at CALL practice in light of this emerging pedagogy and making improvements that are appropriate for one's own learners.

2.2. CALL in the Moroccan context

Investigating the Moroccan context gives additional insight into how CALL is being conceived of and applied in this region. Although Morocco's educational system has lagged

behind in world rankings (cf. e.g. the education ranking of the 2013 UN Human Development Index, which placed Morocco at 130 of 186 countries (United Nations Development Programme, 2013, p. 172), the country has, especially in the last decade or so, put particular focus on educational reform and has given ICT a place of importance in this area. This push starts with the installation of computers in schools around the country and extends to teacher training and evaluation of learning outcomes related to ICT. The National Charter of Education and Training (NCET) and the Special Commission for Education and Training both identified ICT integration in 1999 as part of a comprehensive educational reform package (Agnaou, 2009). However, the practical implementation of reform is often at odds with the stated philosophical goals of such programs.

The NCET put forth a 10-year plan for improving education in Morocco with ICT integration as part of that strategy. The Ministry of National Education (MNE) allocated funds for this project and entered into various partnerships in order to achieve the ends of outfitting schools with computers and training teachers in their pedagogical use (e.g. Microsoft's Partners in Learning project or USAID's Computer-Assisted Teacher Training project). In addition, the MNE created a project entitled "2008 Plan: a classroom-multimedia-the Internet" to push schools to have a concrete plan for using ICT in teaching (Agnaou, 2009). Today, one can see the fruits of this effort by simply visiting a local school in Morocco as most have, at least, a multi-media center with computers, projectors, and other materials. However, many do not yet have these resources, and, furthermore, teacher training and oversight continues to develop.

One of the most recent developments in this sector is the MNE's Improving Training for Quality Advancement in National Education (ITQANE) project. This effort aims at developing a core group of educational leaders throughout the regions of Morocco, and one of its modules focused on e-learning. Participants in this year-long program learned about various ways to incorporate ICT into their teaching and, ultimately, produced online learning materials appropriate to their discipline, which ranged from English learning to science education (USAID, 2012).

Thus, it is clear that ICT integration and CALL are key parts of Morocco's educational reform strategy, but at the individual student or teacher level, ICT acceptance and integration depends on a variety of factors. Agnaou's 2009 study strove to assess these factors through a survey of 600 students and 200 teachers from around Morocco within the particular frame of language teaching and learning. Throughout this study, Agnaou pointed out several key findings, including:

1. Moroccan students generally have more positive attitudes towards CALL and ICT than teachers due to generally increased computer literacy among the students' generation.
2. "Use of CALL" and "Sex" were statistically significant predictors of a student's or teachers' positive attitude towards ICT whereas "Occupation," "Age," "Place of Residence," and "Computer literacy" were not.
3. "Computer ownership" was a statistically significant predictor of the teachers' CALL integration whereas "computer literacy," "age," "access to computers," and, interestingly, "prior ICT training" were not.

These points are important to the current study because, at the Moroccan university where this case study was done, all of the factors pointed out by Agnaou and other researchers as necessary conditions for CALL adoption exist. The university has invested in an elaborate computer infrastructure, all teachers have computers in their offices and own computers at home, and all teachers have either prior training in ICT or access to in-service training as the university has a dedicated Center for Learning Technologies that regularly offers workshops in ICT integration either in-person or online. In addition, and in concert with previous research in the European context about teacher uptake about ICT, the teachers in this study have agreed, as an academic unit, to devote one day a week of the grammar courses to using CALL, implicitly showing their belief in the efficacy of CALL practice, even if they have their own attitudes and practices that are discussed below (Beaven, et al., 2010). In short, the university should be a place ripe for strong ICT integration. Thus, a case study of CALL practice at this university may shed light on the strengths of CALL as well as additional issues that impact its implementation.

3. A case study of the use of CALL at a Moroccan university

The current case study focuses on a review and analysis of teachers' and students' attitudes towards the use of the MMLs by grammar teachers in light of the recommendations for effective CALL practice outlined in the literature review, particularly the split between "tutorial" and "AME/CMC" approaches to CALL. This case study highlights some of the conflicting voices and issues related to CALL practice and calls into question the notion of "effective" as perceived by teachers and students.

3.1. Research questions

There were several research questions involved in this study, including:

1) What are the current CALL practices of grammar teachers in the MML?
2) Why do teachers employ these practices?
3) What are students' responses to these practices?
4) Are there any correlations between the students' responses to these practices?
5) Do any specific practices produce statistically significant differences in final grades or standardized assessments such as the TOEFL?

3.2. Methodology

In order to analyze teachers' and students' attitudes towards CALL in general and the use of the MMLs in particular, several steps were taken to gather data. First, teachers were asked to give the author reflections and ideas about their use of CALL and the MMLs either through email, in grammar meetings, or in-person. This qualitative data offers a glimpse into the teachers' perception of their own goals and practice when implementing CALL activities.

Second, to analyze the students' perceptions, a two part study was implemented: 1) a Fall semester online questionnaire was given to all grammar students, and 2) in the Spring semester, individual interviews were conducted by the author with 15 students who represented different CALL approaches of grammar teachers.

The Fall questionnaire had a series of questions that were intended to determine:

1. The individual teacher's use of the MML in terms of:
    a. The kinds of activities done during the MML,
    b. Whether the MML time was graded,
    c. Whether students had homework as a result of the MML,
    d. Whether the teacher varied the kinds of activities in the MML or relied primarily on a specific type of activity.
2. The student's perspective about:
    a. How helpful the MML was for learning,
    b. How difficult the MML was,
    c. How much time students spent on MML lessons.
    d. The use of technology in learning.

The Spring semester individual interviews focused on three different groups: Students whose teachers used primarily tutorial-based exercises in the MML, students whose teachers used primarily AME/CMC activities in the MML, and students who had experienced both types of MML use during the Fall semester and a prior/subsequent semester. The goals of the interviews were to:

1. Have the students describe in detail the kinds of MML activities to learn:
    a. Whether the activity could be described as tutorial, AME, or CMC uses of CALL,
    b. Whether the activity was graded.
2. Learn about the student's perspective on the activity itself, including
    a. The activity's organization,
    b. What they learned during the MML,
    c. Whether the activity related directly to the material in the grammar course,
    d. Whether the activity helped with other LC classes,
    e. Whether the activity helped the students generally with their English skills,
    f. How difficult the activity was,
    g. How the MML compared to the classroom.
3. Ask the student to speculate about what he/she would have done differently if he/she had been the teacher.
4. Gain any additional student insights about the MML.

Students were asked to volunteer for the interviews, which took place in the author's office. The audio of the interviews were recorded, and the responses to a series of questions were written down at the same time as the interview. The combination of the two survey methods shows what was happening in the MML, how student's felt about the MML in general, and some indications about future recommendations for the use of the MML. A final point of comparison incorporated into this study is the results of the final exams for all 170 Fall semester students and the TOEFL exams given to 38 students in a special super-intensive class.

3.3. Participants

The participants in this study included both teachers and students. The teachers and students all were teaching the grammar course in the Fall semester. There were 11 teachers (8 male and 3 female/5 American and 6 Moroccan). The online survey given to all grammar students in the Fall semester received 148 responses from all the grammar sections. The Spring

interviews were with 15 Moroccan students (9 male/6 female) who had been in these Fall grammar classes, in essence a sample of the 148 online survey respondents.

Additionally, in order to analyze this data more closely, two groups were constructed by the author from the group of 148 survey respondents: a "tutorial" group representing those teachers whose students identified receiving specific websites each week to practice their grammar directly, and an "AME/CMC" group whose teachers gave them specific assignments that required engaging with authentic materials or completing specific assignments, usually writing, as a key part of the assignment. By doing this, the author created two comparison groups, with 77 students in the "tutorial" group and 72 students in the "AME/CMC" group. This division, though imperfect due to the variation in individual teacher practice, was useful for analyzing the differences, if any, between the two approaches. However, it is important to note the limitations of this group of teachers and students in the study because no teacher in the grammar courses in the Fall semester achieved the "constructivist" activities as described in the literature review.

The individual interviews were designed to dig more deeply into the questions raised in the survey, particularly the question of the kinds of activities teachers used as well as students' responses towards them. Thus, students who took the Fall semester survey were used as the population from which to take a sample representing the two groups "tutorial" or "AME/CMC" above as well as a third group that had experienced both approaches during their time studying grammar at the university. In the end, 15 students were interviewed with five of these 15 students representing the tutorial-based approach, seven representing the AME/CMC approach, and three having experienced both approaches. Each group of students was asked to describe the kinds of activities they did in the MML and to reflect on the merits of the approach as well as its downsides.

3.4. Results and findings

3.4.1. Teacher attitudes and practices

The grammar teachers were asked to qualitatively report on what they did in the MML and why either in-person, email, or during group grammar meetings. The responses revealed some of the complexity surrounding CALL practice. Some teachers preferred to allow the students to use the MML time to review various grammar items on their own and only gave the students some links to pertinent websites to start them on the self-discovery process. Two teachers specifically, justified this approach through the lens of autonomous learning; they felt

that, once a week, students should have the opportunity to study at their own pace during the MML class time. Certainly this approach and rationale fits well with parts of the "emerging paradigm" described above, even if the students spent most of the time on "tutorial" types of websites.

Other teachers reported that they preferred to give students the opportunity to study on their own for some time but also required the students to produce something, usually a written text, as a part of their MML time. These teachers felt that, if left completely alone and without the pressure of a (graded, usually) assignment, the students would not take the MML time seriously and would instead spend the time on *Facebook* or other sites. In addition, these teachers felt that they needed to see some evidence that the students were benefitting from the MML time. This, again, conforms in part to both the "emerging paradigm" and even parts of "AME/CMC" tasks, particularly in that the students often used email or other software to submit their work or communicate with the teachers (but, it must be noted, not between students).

Still other teachers sent the students an assignment via email that offered some tutorial websites that the students could visit at their own pace during the class time but also listening and writing assignments using *YouTube* videos or other authentic materials that pushed the students to listen, read, and ultimately synthesize various types of information into a written text that would be submitted as homework after the MML period. These teachers felt that such activities were good examples of AME/CMC tasks while being both "traditional" in that they required the same steps from all students and also "emerging" in that the students could do the task at their own pace, provided they respected a reasonable deadline for submission of written work.

In sum, the practices and rationales offered by the teachers show the complex relationships between "traditional" and "emerging paradigm" practices as well as the use of "tutorial" or "AME/CMC" tasks.

3.4.2. Student attitudes and responses: online survey

The Fall semester online survey was delivered to all 170 GAC students by the 11 different grammar teachers. 148 students completed the survey for a 87.1% return rate. While students were asked a variety of questions on this, only those responses related to the research question about the students' responses to teacher practices are focused on here.

Kinds of activities done in MML

This question was at the heart of the survey and revealed some of the complexity in identifying the kinds of activities the students did in the MML.

Table 1: Types of activities done in the MML.

Question: What kind of activities do you do in the MML?	**Percentage of respondents**
The teacher tells us exactly what to do or gives us a specific assignment	84
The teacher lets us do what we want	1
A combination: Sometimes the teacher tells us that to do, sometimes we can do what we want	16

Table 2: Variety of activities done in the MML.

Question: What do you do from week to week?	**Percentage of respondents**
Variety of activities and assignments	74
Same thing most of the time	26

Finally, the students were asked to select one or more of the kinds of activities the teachers assigned with the following results ranked from most to least common:

1. 99 students (67%) responded that "Our teacher gives us some websites where we can practice our grammar."
2. 65 (44%) responded that "Our teacher gives us a specific assignment that we have to complete either during the MML or as homework.
3. 40 (27%) responded that "We use the programs on the computer, such as the Focus on Grammar program, to practice our grammar."
4. 29 (20%) responded that "Our teacher lets us search the internet for useful sites to practice our grammar.
5. 1 (1%) responded "Other" without giving any more specifics.

The question, "What activities do you find most useful in the MML for you to master the material in the course and English in general?," asked students to select one or more choices to help shed light on the variety of activities in the MML. In response to this question, 108 (73%) chose "Using specific websites like the CCC Grammar website or others give to me by the teacher," 38 (26%) students chose "Using installed computer programs like the Focus on Grammar program," 34 (23%) chose "Doing specific listening, reading, or writing

activities that my teacher assigns, and 23 (16%) chose "searching on my own for websites that are helpful."

From this data, one can see that the majority of students were given specific websites by the teacher to work on at their own pace whereas a significant minority received an assignment that required them to do listening, reading, or writing activities. Some students also reported that they were allowed to search on their own for websites that are helpful. Thus, this information dovetails with the reported practices by the teachers above.

General student attitudes toward the MML by "Tutorial" or "AME/CMC" approach

As a group, the students reported liking going to the MML by answering either "Yes," "Undecided," or "No." These answers were set numerically to 3, 2, and 1 respectively, yielding an average of 2.82, showing that students had a generally positive attitude towards the MML. This finding is not surprising, given previous research about students' attitudes towards using CALL in general and even in other Arab countries such as Saudi Arabia where CALL practice is relatively underdeveloped (Arishi, 2012). In addition, a *t*-test was run on this variable between the "tutorial" and "AME/CMC" group, revealing that the "tutorial" group had an average of 2.89 and the "AME/CMC" group 2.75. The *p*-value for this test was 0.034, which is statistically significant at the .05 level. Thus, the data support the finding that students in the "tutorial" group enjoy going to the MML more than the "AME/CMC" group.

Difficulty and types of the MML activities by "Tutorial" or "AME/CMC" approach

When asked to rate the difficulty of the MML time on a Likert scale of 1 being easy and 5 being hard, the average across all student responses was 2.36, indicating that the students found the MML to be moderately difficult. In addition, a *t*-test was run on this variable between the "tutorial" and "AME/CMC" group, revealing that the "tutorial" group had an average of 2.20 and the "AME/CMC" group 2.54. The *p*-value for this test was 0.011, which is statistically significant at the .05 level. Thus, the data support the finding that students in the "tutorial" group find going to the MML easier than the "AME/CMC" group. Perhaps this explains why the "AME/CMC" group also does not like going to the MML as much as the "tutorial" group.

Usefulness of the MML by "Tutorial" and "AME/CMC" approach

When asked to rate how useful the MML time was on a Likert scale from 1 being "Not at all useful" to 5 "Very useful," the average was 3.81, indicating a general sense among students

that the MML was useful. However, when a *t*-test was run between the "tutorial" and the "AME/CMC" group, the average for the "tutorial" group was 3.91 whereas the "AME/CMC" group was 3.71. The *p*-value for this difference was .10, which is not statistically significant at the .05 level. In addition, two other questions assessed this area by asking students to rate whether the MML helped them on 1) grammar quizzes and exams and 2) with English generally. Both of these responses showed that students felt that the time helped them with the "tutorial" group feeling a stronger though not statistically significant connection to their learning than the "AME/CMC" group.

Correlations between variables

In order to shed further light on the student responses, a correlation analysis was performed on the students' responses in terms of difficulty, usefulness, and enjoyment of the MML time. Of these correlations, the strongest was between the students' responses to the questions "how difficult is the MML time" and "the MML has helped me understand English better, with a correlation coefficient of .209. In addition, the relationship between "how difficult is the MML time" and "do you like going to the MML" yielded the value of .151. Thus, these correlations are not particularly strong; however, the correlation between "do you like going to the MML" and "how useful is the MML to master the material in the course" yielded a value of .465, a relatively strong relationship. Thus, the relationship between the values reveals that difficulty of the MML and the factors of enjoyment or usefulness are not particularly strong whereas enjoyment and usefulness of the MML show a much stronger relationship.

In conclusion, the results of this analysis of the survey data showed that the students were involved in a variety of activities in the MML that the author was broadly able to group into teachers using "tutorial" or "AME/CMC" approaches. The most interesting findings from this grouping is that the "tutorial" group enjoys a statistically significant advantage over the "AME/CMC" group in terms of general student attitude. In addition, though not statistically significant, this group also elicits greater student satisfaction in terms of the usefulness of the MML for learning grammar or English generally. However, the "AME/CMC" group does have a statistically significant advantage in terms of the student's perception of the MML's difficulty. Thus, this complex relationship between enjoyment of the MML time, difficulty, and usefulness required deeper analysis, which the qualitative interviews were designed to untangle. The correlation analysis showed that difficulty and usefulness or enjoyment did not

have a strong relationship whereas enjoyment and usefulness did. These results form a basis upon which to analyze the qualitative data elicited through the student interviews.

3.4.3. Individual interviews

Tutorial group

The first group described their MML activities as going to websites or using installed programs that offered the students some description and practice of grammatical items that were being studied during the week. The students did not have to produce any materials such as writings or speeches as part of the MML time.

In summary, the five students who experienced primarily tutorial-based MML activities came up with the following pros, cons, and recommendations for change:

1. Pros:
    a. Chance to work on discrete items in a focused way because the classroom does not always allow for individual practice and some students are also shy,
    b. Direct connection to material studied in class,
    c. Some connection to other skills such as writing and speaking,
    d. Relatively easy activities,
    e. Assistance with quizzes and other examinations.
2. Cons:
    a. Activities become boring week after week,
    b. Weak connection to other skills,
    c. Too great simplicity of exercises.
3. Recommendations for change:
    a. Group work,
    b. More variety of activities,
    c. Teacher should grade assignments,
    d. More frequent participation.

AME/CMC group

The second group of seven students whose teachers used more AME/CMC described a variety of activities. Students described receiving an email from the teacher with links to exercises and *YouTube* videos that had the grammar item being used. Some students' teachers would ask the students to find videos on the Internet where the grammar item was being used and send

the teacher, via email, a list of the links to the videos and how the grammar item was being used. Also, other students were asked to watch videos that explained a certain grammar point explicitly or a video in which students would answer grammar and comprehension questions prepared by the teacher. Finally, some students were asked to do writing activities, ranging from short summaries of videos and up to as long as a five-paragraph essay about a topic related to a video.

In short, the activities that students were asked to do included 1) tutorial websites and videos designed to teach explicitly a certain grammar topic, 2) AME that included the grammar point in the video in an indirect way and were used by the teacher to focus on the use of grammar in the video and comprehension of the video in general, and finally 3) CMC or production tasks that required the students to write, at a minimum, short summaries of authentic materials and, at maximum, five-paragraph essays about a topic in which the grammar point would be used as part of the communicative task.

In summary, the students who experienced AME/CMC activities came up with the following pros, cons, and recommendations for change:

1. Pros:
    a. Well organized nature of the process,
    b. Connection to class material,
    c. Integration with other skills, particularly writing and listening,
    d. Generally low difficulty level, but harder if longer writing assignments were given,
    e. Greater freedom than the classroom.
2. Cons:
    a. Some materials not well chosen or connected to class,
    b. Can be difficult, especially longer writing activities,
    c. May come at the expense of tutorial websites that offer clear practice.
3. Recommendations for change:
    a. Careful selection of materials to be appropriate for class content,
    b. Balance between tutorial and AME/CMC activities.

Comparison tutorial versus AME/CMC group

The third and final group of three students who had experienced different approaches to the MML was able to provide a comparison between the two approaches described above. In summary, the three students who had experienced both approaches felt that:

1. The tutorial approach, while useful, can be boring and repetitive.

2. The AME/CMC approach was preferable and connected more with the other skills.
3. There was still room for growth, specifically through more interactive activities such as group or project-based work.

Thus, the student interviews helped to further illuminate the findings of the survey. Students in the tutorial group found a direct relationship to their learning and felt that the MML instruction was relatively easy. However, they also stressed that activities of this kind become boring week after week and would have preferred more group work and/or interactive activities. The AME/CMC group also found a link between the MML and their learning, but sometimes the tasks were not well designed or proved to be confusing to the students. In addition, some of the writing activities could be quite difficult and time-consuming, especially when the students felt that they would have benefitted more from focused practice. Finally, the students who had experienced both approaches highlighted the contrast between the two groups but also, which is an important point, wished that their teachers would go even farther in the design of interesting and engaging CALL activities.

3.4.4. Comparison between the exam results of "Tutorial" and "AME/CMC" approach

Although looking at test results as a measure of student learning is problematic due to the complex nature of learning through CALL, it remains useful as a common basis for comparison. Thus, an analysis of the final exam results for all 170 grammar students and the TOEFL results for 38 super-intensive students was helpful to compare the tutorial and AME/CMC groups.

Final exams

A *t*-test of the final grade results for all students in the Fall semester group broken into revealed no statistically significant difference between the two groups (see Table 3 below).

Table 3. *t*-test of Fall semester final grades of "AME/CMC" and "Tutorial" groups.

Group	AME/CMC	Tutorial
Mean	79.4302	79
SD	9.5715	9.5092
SEM	1.0321	1.0566
N	86	81
The two-tailed *p*-value equals 0.7712		
The mean of AME/CMC group minus Tutorial group equals 0.4302		
95% confidence interval of this difference: From -2.4867 to 3.3471		
t = 0.2912		
df = 165		
standard error of difference = 1.477		

TOEFL exam

In addition, an institutional TOEFL was given to all grammar level 3 students as a pre- and post-test during the course. The gain from the pre- to the post- tests thus shows in Table 2 the students' average gain on the grammar-focused Structure and Written Expression section as well as the overall gain, which also includes listening and reading comprehension.

Table 4. TOEFL results for grammar of 3 students of "Tutorial" or "AME/CMC" approaches.

Group	AME/CMC	Tutorial
Mean	7.111	8.931
SD	3.855	6.670
SEM	1.285	1.239
N	9	29
The two-tailed *p*-value equals 0.4436		
The mean of AME/CMC group minus Tutorial group equals -1.820		
95% confidence interval of this difference: From -6.585 to 2.945		
t = 0.7747		
df = 36		
standard error of difference = 2.349		

Thus, the average gain for the "tutorial" group is higher than the AME/CMC group, but not statistically significant. However, it must be noted that the populations for this group were quite small with only 38 students. Regardless, the lack of statistical significance for the TOEFL exam and the final grades gives some evidence that the teacher's approach to CALL, whether "traditional" vs. "emerging paradigm" or "tutorial" vs. "AME/CMC" may not have a strong relationship with a student's final grade in a class or on a standardized test such as the TOEFL. Of course, measuring test scores only does not address other language competencies

that an "AME/CMC" approach might develop such as motivation, ease of communication, development of computer skills, etc.

4. Discussion

The results of the teacher input, Fall semester online student survey, the Spring semester interviews of a sample of the same student group, and the final and TOEFL exams, may all lead to several conclusions related to the current use of the MML in the grammar courses and perhaps for CALL in general.

Tutorial-based websites and software are useful for students' learning. The majority of teachers in the Fall semester used these kinds of activities, had a rational argument based on student autonomy for that choice, and students did feel that they were beneficial to their learning. Even if the final grades and TOEFL results were not statistically significant, these kinds of activities have a direct link to the target knowledge and help the students practice in a controlled environment that builds student confidence through repeated practice and correction by the computer and/or teacher. However, students do report that these activities, if used exclusively and repetitively, can lead to boredom. On the other hand, this kind of activity enjoyed a statistically significant advantage over the "AME/CMC" group in terms of student enjoyment and perceived usefulness for learning English, even if (or perhaps because) these activities are perceived as less difficult. Despite this finding, in the individual interviews, students recommend that teachers consider using a greater variety of activities, grade the activities, allow for group work, and consider going more often to the MML.

AME/CMC activities are also useful for students' learning. A strong minority of teachers in the Fall semester used these kinds of activities, and students are interested in their authentic content, connection to the other skills, and the teacher's assessment of the tasks. These kinds of activities are either directly or indirectly linked to the target knowledge and ask the students to practice and apply the knowledge in a controlled environment. These activities challenge students and build confidence, particularly through listening and writing activities, even if the results of the final exams and TOEFL do not show a statistically significant advantage for these types of activities. In addition, the student interviews showed that most students prefer this approach, but there are some who want to remain focused on the clear and direct learning offered by tutorial activities. Finally, students recommended that teachers continue to develop by introducing more group work, critical thinking, and interactive activities.

However, it must be underlined that that no teacher in the grammar courses in the Fall semester adopted a "constructivist" approach or used advanced CMC activities in which students were pushed to collaborate and co-create in their use of the MMLs. In general, students worked individually in the MML and were not asked or required to work with others on projects. In addition, teachers did not make significant use of CMC tasks such as wikis, Web 2.0, or social networks. Thus, it must be admitted that this case study, while representing a broad range of CALL activities, does not encompass all applications of CALL as currently conceived in theory and practice. This might, in part, explain some of the similarities and slight differences between the "tutorial" and "AME/CMC" approaches in the paper in that these may not be as divergent as they could be. Indeed, teachers may consider how they might move their students more towards these kinds of "constructivist" activities when using technology and see if greater differences in learning might result. Indeed, the students, although they were not exposed to these activities directly, asked for them when asked to give recommendations for improved MML practice.

The ambivalent results of the Fall semester final/TOEFL exams help to make a final and important point about the use of CALL. While the theory of CALL described in the literature review may point teachers in the direction of more AME/CMC, constructivist, and interactive activities intended to help students become life-long learners, it must be noted that the tutorial activities do have a positive effect on student learning. The students themselves acknowledge this and show similar if not statistically significant results on exams.

5. Final conclusions

This case study revealed the complex nature of CALL and the implementation of ICT in teaching in general. From the teacher data to the final grades, several interesting tensions arose. Central to the issue is the question of the "traditional" versus the "emerging paradigm" as well as the "tutorial," "AME," and "CMC" types of tasks. Many teachers, espousing an "emerging paradigm" perspective that allows for student choice and autonomy, used the MML as a time of personal reflection and study on the part of the students, effectively giving the students control of their own learning process. However, most students reported simply using tutorial websites during this time. In contrast, some teachers took on a more "traditional" approach but also gave the students "AME" or "CMC" tasks that pushed the students to listen, read, and write; thus, the teachers felt these tasks were more challenging, and the students confirmed this through the student surveys.

With the recent adoption of a blend of "traditional" and "AME/CMC" approach to the MML, the researcher had hoped to find a statistically significant advantage to this type of CALL practice. However, the final exam and TOEFL results showed the opposite, challenging the author's notions of effective CALL practice. In the end, perhaps it is more appropriate to put "effective" into parentheses due to the fact that what may be "effective" for one teacher in terms of the challenge of a CALL activity's use of AME or CMC may be trumped by another teacher's superior test results as a result of focused tutorial activities.

In the Moroccan context in which this university resides, the CALL practices of the various teachers highlights that "effectiveness" is a highly debatable term, and the results of this case study bring this into full relief. Thus, the question for teachers or students may be simply to choose what understanding of "effective" is to be sought. However, teachers should strike the balance between activities focused on discrete learning outcomes and those that push students to gain the skills necessary to understand information online, connect and collaborate with others and, ultimately, to be fully confident members of society as life-long learners. In Morocco or other developing countries, these questions may be even more significant as the educational system strives to improve from one generation to the next.

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