MALL—SOMEWHERE BETWEEN THE TOWER, THE FIELD, THE CLASSROOM AND THE MARKET: A REPLY TO PROFESSOR STOCKWELL'S RESPONSE

Oliver James Ballance, The University of Nottingham, Ningbo, China

In the previous issue of *LLT*, I commented upon Stockwell (2010), suggesting that the learning activities investigated limited the scope of his research on the effects of the MALL platform. Professor Stockwell responded in the same issue with a spirited riposte. However, it became clear that much of the disagreement lay in a matter of definition. The reply I present here provides a definition of *learning activity*, intended to clarify any misunderstanding. I then proceed to outline a design for learning activities that would be highly relevant to MALL platforms: I attempt to address the learning activity not only in terms of the constraints imposed on MALL by technological limitations, but also in terms of the psychological and environmental contexts MALL is likely to be used in. My original commentary suggested "that more care needs to be taken to develop a research framework within which the platform is not artificially separated from the learning activity" (Ballance, 2012, p.21); the reply presented here concludes with reflections on the limitations of the design presented herein and implications for future MALL research, with particular reference to "working within constraints in mobile learning" (Stockwell, 2012a, p.24).

INTRODUCTION

Professor Stockwell's generosity in replying to my commentary (see previous issue of *LLT*) was greatly appreciated, as his response was both lively and thought provoking, just as the article I had been commenting upon had been (Stockwell, 2010). However, I feel my comments and Stockwell's response are, to some extent, speaking at cross-purposes, and I hope to clarify my point in the reply which follows. While Stockwell expresses disappointment that I failed to understand many significant points in his work, I will argue that it would be more precise to say that I failed to make myself understood, and I hope that by taking more care to define my terms, the point my original commentary failed to make will become clear: research which separates the platform, MALL for example, from the learning activity that is being engaged with on this platform constrains its relevance in very important ways. Professor Stockwell organised his response under two subheadings which he presented as the core claims of my commentary: "response to claim one: nature of the activities" and "response to claim two: the impact of smart phones." They will be discussed in turn. In line with a criticism in Stockwell's response, a sketch will be offered of a potential smart app, concluding with a discussion that draws on Professor Stockwell's highlighting of constraints in app production, raising the question of how MALL research can be positioned in relation to learners, teachers, publishers, and educational institutions as variously both consumers and producers of MALL research and MALL technology.

Regarding Claim One: "the nature of the activities"—What is *an activity*?

Stockwell (2012a) begins by suggesting that I failed to understand the MALL vocabulary activities reported on. However, the fault may actually have been a failure to clearly define what was meant by a learning activity, a serious oversight. The term *learning activity* was intended to refer to any task the learner engages in which is purported to improve the likelihood of the learner acquiring a new skill or level of understanding. Thus, if we take Nation's (1998, 2001) three-stage model of vocabulary acquisition as a point of departure (noticing, retrieving, and generating), any task which purported to help the learner notice, retrieve, or generate target vocabulary could be viewed as a learning activity in a piece of software. If, for instance, Laufer's (2010) framework for skill acquisition is preferred, a learning

activity would be any task which was purported to help the learner achieve declarative knowledge, proceduralisation, or automatisation of target language. No matter which theory of language acquisition is operationalised, with the term *learning activity* only referring to tasks that are specifically intended to facilitate language acquisition, it becomes clear that the disagreement between Stockwell and I was basically one of definition. With this clarification made, the claim that the learning activities the learners engaged with could have been completed either in pen and paper format or else on a PC quite clearly does not constitute a misunderstanding of the activities the learners engaged with.

Some of the features that Stockwell (2012a) argues make his software incomparable to pen and paper activities are the software's ability to: (a) keep records, (b) regulate the frequency with which learners were exposed to items in response to their performance, (c) be seen clearly on a range of platforms and (d) utilise push and pull modes. Stockwell also emphasises how the mobile delivery differed from the PC in terms of (e) formatting, (f) pacing, and (g) modes of access. However, it can be argued that, while each of the features is excellent and contributes greatly to the utility of the software used in the study, none of these features pertains directly to the concept of a learning activity, as defined above.

Stockwell (2007, p. 371) lists the task types selected as follows: "choose the appropriate word for a sentence, choose the appropriate word for an English definition, choose the appropriate word for a Japanese meaning, match a list of words with their English definition, and write the appropriate word for an English sentence." It would seem fair to say that these are all fairly well-accepted pen and paper vocabulary learning activities used in classrooms around the world. Not wishing to overburden the point, taking the concept of *task* to be synonymous with the concept of *learning activity* as given above, Stockwell (2007, p. 374) writes "the tasks for both the PC and mobile platforms were the same." If more care to define terms had been taken, and if greater awareness of the details of Professor Stockwell's work had been demonstrated, this misunderstanding could clearly have been avoided.

Given that my commentary was somewhat cavalier in tone towards Professor Stockwell's research, a certain degree of hyperbole on his part is quite understandable. Thus, regarding his second point, that I believe "activities carried out on mobile devices must not replicate paper-based activities" (Stockwell, 2012a, p. 24), I feel sure he would accept that I am not committed to this by claiming that separating the design of learning activities from the platforms they are to be delivered on raises issues about their relevance. I am only committed to the claim that, if the activities are basically just pen and paper activities delivered on a mobile platform, then the scope of those findings, taken in isolation, will be limited to just that. This, however, is perhaps the contentious point: whether it is reasonable to ask whether MALL technologies might not have a very different impact when providing learners with some genuinely different types of learning activity.

Regarding Claim Two: "The impact of smart phones"

The abstract of Stockwell (2010, p. 95) complains that "we still have little knowledge of how the mobile platform affects the way in which activities are completed and how learners make decisions about using mobile phones," and concludes with, "the results of the study are discussed in terms of how the platform affects learners' ability to complete tasks, whether continued usage contributes to improved performance or sustained use of the platform over time." Stockwell (2012a, p. 29) suggests that my commentary exhibits "an inflated expectation that new technologies will solve the problems of earlier ones because they have enhanced functionality." I would counter that if new technologies are not explored in terms of the potentialities brought about by their enhanced functionality, it would be unwise to hope they will ever be able to solve any of the problems which previous technologies could not address. Indeed, it may not even be a question of enhanced functionality solving old problems, but perhaps enhanced functionality allowing smart phones to supplement learners' learning experiences with something new and complementary to existing learning activities and practices. Perhaps learner engagement with the mobile platform in Stockwell's study (2010) would have been very different if the learning activities had been

designed for the MALL platform, perhaps running in tandem with more traditional activities, as opposed to replicating existing ones on a different platform.

Ironically, Stockwell's (2012a) response that there were factors at play which I failed to take account of is actually very much the point my commentary failed to express with sufficient clarity. When Stockwell (2008, p. 260; 2012a, p. 27) points out that some students reported that studying on a mobile "didn't feel like studying" or that the mobile platform is "not a tool for studying," or that others did not want to even try the mobile platform because they felt their surroundings when using the mobile would be inappropriate for study, I then wonder whether learning activities could be designed which do not feel like study, which would not be affected by distractions, and for this very reason, could foster sustained usage on the mobile platform.

Of course, Stockwell (2012a) is quite correct to point out that I "failed to provide any concrete suggestions beyond using smart phones and apps, or more importantly, any empirical evidence." However, as my commentary was intended as a call for more empirical evidence, I will only attempt to address the issue of failing to offer something hypothetical in place of that which I, to some extent inadvertently, critiqued. The following section will outline a particular language acquisition need identifiable in the literature and provide a sketch of a hypothetical app which could potentially provide a learning activity to address this need and how it could be realised on the MALL platform. I will then conclude with a discussion of the limitations of the app presented.

A SUGGESTION FOR A MALL VOCABULARY APP: SEMANTIC FEATURES GAMES

A Vocabulary Problem

Nation (2001) has long warned of the dangers of unlearning, resulting from trying to learn vocabulary in inappropriate lexical sets: presenting semantically similar form-meaning pairs at the early stage of acquisition can easily result in confusion between signs and their referents. However, research from Llarch (2011) suggests that as learners become more advanced, subtle distinctions between semantically similar form-meaning pairs become an increasingly important issue:

> Semantic lexical errors are relevant because they become more prominent as learning progresses as our results have shown. Therefore, L2 semantic associations, which are complex for the learner, will demand higher attention in classroom. Presentation of semantic fields and typical associative networks will enhance acquisition (Fernández, 1997; Gu, 2003). In this sense, in the light of the results that learners seem to acquire first the formal aspects of words and afterwards the semantic or meaning aspects, we call for classroom activities that focus on meaning, particularly at higher proficiency levels (McNeil, 1996). (Llarch, 2011, p. 200)

Thus, if we assume learners are being exposed to new vocabulary, either in class or through some other CALL or MALL application, and some care has been taken to present new vocabulary items in a manner which minimises the potential for unlearning, it can be assumed at some point the learners would benefit from engaging in a learning activity which helped them with semantic disambiguation, whether this was undertaken in a classroom environment or through CALL.

A Hypothetical MALL App

From a Saussurean perspective, translations never have true equivalents, as "signs are not positively definitive by virtue of their inherent characteristics, but instead are negatively significant as a result of their differentiation from other signs in the system" (Elhindi, 2005, p. 243). Thus, one goal of semantic awareness would be to represent the semantic space particular lexemes occupy within their system, through a semantic box diagram, (see Murphy, 2010, pp. 125–127, for a concise introduction to this topic).

Scanning through Hsu's (2011) Business Word List, one finds seven verbs commonly used for reporting in academic writing: *acknowledge*, *allege*, *conclude*, *contend*, *infer*, *imply*, and *posit*. These seven words could be presented in a box diagram, with movement across the box representing relationships of synonymy (words being written within the same box) or near-synonymy (neighbouring boxes), through to a degree of antonymy (distance between boxes), and with boxes above and below representing relationships of hypernymy (superordinate words) and hyponymy (words with a higher degree of semantic specificity). Thus, the box diagram presented in Figure 1 represents words so as to suggest their contrastive relations to one another.

<table>
<tr><td colspan="4">Report</td></tr>
<tr><td colspan="3">Posit</td><td>Conclude</td><td>Acknowledge</td></tr>
<tr><td>Imply</td><td>Allege</td><td>Contend</td><td>Infer</td><td></td></tr>
</table>

Figure 1. Semantic box diagram for BWL reporting verbs.

This kind of analysis could be used to create a simple puzzle game wherein players have to fill in an empty box diagram, dragging the appropriate words into the appropriate spaces (see Figure 2).

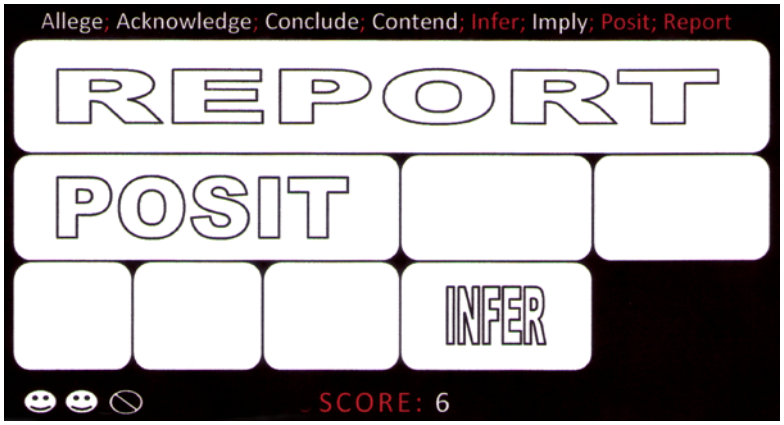

Figure 2. Semantic box puzzle game for BWL reporting verbs.

To give a thumbnail sketch, when the app is accessed, a semantic set could be selected, which would open a window displaying the target words at the top, the semantic spaces in the middle, and the player's score and lives at the bottom. Utilising touch screen technology, the player would select target words by touching them, and then drag these words to a space. When positioned correctly, the word would then expand to occupy the space (see the words *report*, *posit*, or *infer* in Figure 2). The score would reflect how many words the player had placed correctly. Correct answers could be confirmed both graphically, by colour or animation, and aurally, by the word clicking into place; incorrect answers would be signaled by a quick vibration, the word snapping back to its original position, the sound of an incorrect answer familiar from game shows, and the loss of a life. Given that research has shown that learners show a tendency to select more general words, as more specific words will have a higher learning burden and more restrictions on use (Laufer, 1997, p.150), one could score the words differently, with the words which occupy a more specific semantic space being assigned a higher score for a correct answer. To put it succinctly, a wide range of game mechanics could be employed to make the learning activity feel as much

like an app game as possible.

This activity would do little to establish the exact nature of the target words, only their relations to one another in terms of their relative semantic space; however, assuming the fundaments of word knowledge have been established previously, whether through self-guided word card study or in class, this may not be too serious an issue, as its aim would be to promote connections between the lexemes in the learners lexicon, not to establish their meanings. However, a different kind of semantic analysis may have more potential for more detailed semantic exploration. Schmitt suggests that, in learning the meaning of words which do not refer to very conceptually basic entities, learners "have to assimilate enough additional features to disambiguate similar words that may have almost the same core meaning, but with subtle differences" (2000, p. 125). Thus, a second game-like activity aimed at helping learners engage with semantic features of vocabulary could be based on a taxonomic analysis. While it is not suggested that words are learnt by additively compiling lists of semantic features, lists of semantic features can serve as a checklist when trying to decide whether a word is semantically appropriate in a given context or not (Schmitt, 2000; Hatch & Brown, 1995). An example using the same seven verbs is presented below in Figure 3.

	(CAN report) thoughts (as well as words)	(MUST report a) reply (to someone else's view)	(MUST report the) conclusion (of an argument)	(MUST have) indirect (quality)	(MUST report a) claim	(SUGGESTS existence of) disagreement (with reported view)	(SUGGESTS what is reported was used to) accuse
Acknowledge	+	+					
Conclude	+		+				
Infer	+		+	+			
Posit	+				+		
Imply				+	+		
Allege					+		+
Contend					+	+	

Figure 3. Semantic field analysis for BWL reporting verbs.

Clearly, for the exercise to have pedagogical validity, it would be necessary for the target words to be explained through simpler words. Thus, the words chosen to provide the taxonomy of semantic features were all within the BNC 3,000, (with all except *accuse* being in the BNC 2,000), as the seven target words were all from the BNC fourth 1,000 or above. However, using simple words necessitates fairly lengthy descriptions of the semantic features, which conflicts with the typical screen sizes encountered on the MALL platform, so it is suggested that a single word be provided as a shorthand for each of the semantic features, with a pop-up expanded definition being accessed via touch screen. To turn the grid into a potentially engaging game-like activity, it would seem necessary to do little more than transfer the grid into a game set up like the classic game *Battleship* or the Windows OS game *Minesweeper*, the difference being that guessing would be based on lexical knowledge as opposed to probability. Selecting a

given point on the grid could open a radial menu, allowing the user to select an answer option, which would then be revealed as either correct (i.e., a filled in blank or removal of the blank), or an explosion icon. These results would simultaneously be represented as either points or as a reduction in the number of remaining lives respectively (see Figure 4).

Figure 4. Semantic mine field puzzle game BWL reporting verbs: showing a pop-up expanded definition (left) and a radial menu (right).

Relevance to the MALL Platform

Discussing the potentialities of MALL, Godwin-Jones writes:

> It is not just the mobility, enhanced hardware, and better software of new mobile-devices that should encourage new thinking. The devices in and of themselves encourage a new kind of relationship between user and machine. The responsive touchscreen interface seems to create a more personal, even intimate connection, becoming part of one's personal identity. According to a recent report on creating mobile apps from Forrester Research, the emotional bond is something to bear in mind when developing mobile apps. The devices are more personal also in the sense that they are individually highly customizable and small enough to always have within reach… the screen size and touch interface tend to invite users to focus exclusively on one task at a time, this may present a welcome opportunity to capture, at least for a short time, the full attention of the learner. (2011, p. 8)

The app outlined above attempts to take advantage of the touch screen interface available on most modern mobiles and the potential for intense and personal engagement between learner and machine. Utilising the touch screen for a drag and drop interface allows of incredibly fast and effortless engagement on the part of the user, with no fiddly typing required, something Stockwell (2012b) identifies as a potential concern in MALL design. The feedback mechanism, which could be customizable so as to give the learner the choice as to whether or not they have visual, aural, and/or tactile feedback on their answers, could also provide quite a powerful emotional element to the learning activity: the two falling tones used by quiz shows worldwide to denote an incorrect answer is, arguably, one of the most iconic sounds in the world today (see Oswald, 2012 for a relevant discussion). Similarly, anyone familiar with computer games will be well aware of the powerful motivational effect that the game concepts of lives and score can have on engagement with even very simple or repetitive puzzle game formats, the sense that one must get to the next level or beat one's old score, so you'll play just one more time. Though such game concepts as lives and score may be very basic, it is worth exploring whether they yet have the potential to stimulate a motivational *game cycle* wherein iterative play is self-perpetuating through "repeated judgment-behavior-feedback loops" (see Garris, Ahlers, and Driskell, 2002, p. 445, for a detailed exposition of the notion of a *game cycle*). Indeed, by the design of the learning activity attempting to simulate popular pre-existing game formats, concerns over psychological barriers, appropriateness to MALL contexts of use and learners' technological competencies should be minimised (Stockwell 2012b).

Stockwell (2012b) notes that mobile use is likely to be focused on transient concerns, with more concentrated activity likely to be taken up on non-mobile devices. To replicate this app with pen and paper would be laborious and fiddly; in contrast, drag and drop, automatic refreshing of the activity and answer checking, and the conceits of lives and scores could encourage rapid and repeated play. Stockwell (2012b, p. 211) urges that MALL researchers bear in mind "the ways in which learners typically use mobile devices for personal purposes." If the app outlined above did not feel like study, but did feel in some ways like playing popular apps like *Angry Birds* or *Fruit Ninja*, it could potentially be considered as somewhere between killing time and a learning activity, bridging the gap between what one ought to do and what one is willing to do in those little snippets of time that crop up in the course of a day, moments when one is unlikely to open a textbook. Given that it would be, first and foremost, a learning activity, it may not be as enjoyable as a pure gaming app, yet if such an app were developed, it would surely be worth conducting comparable research to that of Stockwell (2007, 2008, 2010) to establish the extent to which engagement with MALL is sensitive to the design of the learning activity being tailored to the likely psychological and environmental contexts of MALL use. It is worth asking whether a learning activity like this would be able to convince the learner of its educational utility while maintaining a design which reflected the likely psychological and environmental contexts of MALL use, persuading learners to while away odd snippets of time by improving their depth of semantic vocabulary knowledge instead of on some other entirely non-educational pursuit and, thus, in a supplementary manner, "increase the amount of time that individual learners spend engaged in language learning activities" (Stockwell, 2012b, p. 201).

Limitations

Obviously, the sketch given above is very rudimentary, and even if the app were actually made, whether or not it would foster greater semantic sensitivity in users in a task transferable manner would of course require careful investigation. Furthermore, there is no guarantee the activity would be enjoyable from a gaming perspective, and a good deal of play-testing might be required to make it so. From an instructional perspective, its pedagogical value would only be clear to users if it were contextualised in a wider context of study, be this CALL or classroom-based, emphasising the value of the target vocabulary and motivating learners to engage with this facet of word knowledge. However, these may not actually be the greatest challenges to producing a successful app. While current technology can certainly deliver an app such as the one outlined above, and assuming that trials evidenced that the learning activities were both genuinely enjoyable and educationally effective, Stockwell's (2012a) typology of apps based on their mode of production (commercial apps, teacher created apps, and web apps) raises questions about the practicalities of actually producing such an app.

Clearly, the app outlined would benefit from being downloaded as opposed to being a web app: access costs and data transfer speeds would both limit its potential as a tool for ubiquitous learning. However, as a teacher-generated app, its potential is equally unclear. From the technical perspective, the app could be designed open source, or probably preferably for most teachers, it does not seem farfetched to suggest it could be programmed in such a way that teachers could access a user-friendly interface online into which they enter the semantic information required for the program to then reproduce the games with reference to that lexical set, which could then be downloaded as additional data for the app when convenient: a kind of "hybrid app" (Godwin-Jones, 2011). However, the sheer amount of lexical research which would need to be done for a meaningful number of semantic sets to be developed is staggering. Even if the app were linked to a site at which different sets could be exchanged, the number of practitioners that would have the time or inclination to do this is highly questionable, especially if there were no financial interest involved to promote it. From the learners' perspective, if the app were not developed on a meaningful scale, or developed as is without contextualisation within a larger program of language learning, or even just not developed to a high enough standard from a technical perspective, it would seem equally as unlikely to be adopted. Thus, it would appear that, unless such issues can be addressed, a commercial

developer might be the only viable way forward.

IMPLICATIONS FOR FUTURE RESEARCH

The discussion above has attempted to highlight the significance of conceiving of MALL design from more than a just technological perspective. To only discuss MALL in terms of the technology it is realised on is to discuss little more than mobile-enabled CALL. Though discussion of how a design is realised through available technologies is certainly important, there are clearly other important factors in designing for MALL which must also be considered: (a) how, or indeed whether, it is to be integrated within a wider pedagogical context, whether as a supplement, a substitute, or a core component of a clearly delineated program of study; (b) how the design attempts to account for MALL's likely psychological contexts of use, whether in terms of motivation, learner autonomy or learners' views of MALL as an educational resource; (c) how the design attempts to account for MALL's likely environmental contexts of use, in relation to issues such as times of use, spaces of use, and their various implications for engagement and cognitive load; and (d) the design's potential for learners, educators, and possibly even investors in terms of such constraints as how to make the software available, how to promote it and, in some cases, even just how to produce it on an adequate scale. When these various design factors are considered simultaneously, it becomes clear that MALL designs could be usefully delineated by the degree to which they are either mobile-enabled CALL (designs which have been adapted to the technological potentials of MALL so as to deliver a generic learning activity), MALL-responsive (in the sense of learning activities having been designed so as to accommodate a specifically MALL profile of use, such as the design sketched above), or MALL-imperative, designs in which mobility is truly the *raison d'être* (see Stockwell, 2012b, *Emerging Directions*, for an insightful discussion of potential developments in this area relating to MALL and environmental responsiveness). If research on MALL can address such issues in a more explicit and systematic manner, then the field would surely be better positioned to form an integrated view of the potentialities of mobile platforms in all their various guises.

CONCLUSION

My commentary (Ballance, 2012) really was not intended as a critique of Stockwell (2010), but rather a call for more field research like Stockwell's to examine some of the exciting potentialities of MALL, and to bring back comparable data to that of Stockwell's, only with reference to learning activities designed specifically for the platform. Indeed, this would allow of a comparison which could potentially tell us something about the effect of the platform regardless of the learning activities it carried, and perhaps even of the potentialities of learning activities designed specifically for specific MALL platforms. However, through discussion of what a learning activity for MALL would be, a gap between research and production seems evident. While research on teacher-generated and web-based apps is certainly of value, the potentials of MALL increasingly point towards qualities which would seem very difficult to achieve for individual teachers or researchers working within typical constraints. Indeed, while I applaud efforts to utilise technology on a teacher-by-teacher basis, whether such efforts will have a mainstream impact remains doubtful. My commentary questioned the scope of Stockwell's (2010) research in terms of the significance of the type of learning activity engaged with as a variable in regards to research on "the effect of the platform;" however, as the discussion has moved forward, it also seems important to question the positioning of MALL research in relation to learners, teachers, publishers and educational institutions as variously both consumers and producers of MALL research and MALL technology. How MALL research can be positioned within the constraints researchers find themselves within so as to be most relevant to mainstream contexts of production and consumption is, it could be argued, one of the most pressing issues in MALL today.

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ABOUT THE AUTHOR

Oliver James Ballance has been teaching English for Academic Purposes in the United Kingdom and China since 2004, and is currently researching Vocabulary Apps for Mobile Assisted Language Learning. His research interests include vocabulary acquisition, language for specific purposes, corpora, and computer assisted language learning.

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