Foreign Language Education

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Dear Professor Čermák and esteemed colleagues:

My name is Eric Dwyer. I am an associate professor of Foreign Language Education at Florida International University in Miami. I have been asked to serve as a referee with respect to Dr Eva Maria Luef's application for promotion to the position of associate professor. Most specifically, I have been asked to comment on her habilitation thesis within the field of English language.

I come to this task with the following qualifications: I hold the rank of Associate Professor at my institution, having achieved tenure in 2005. I have served on four previous tenure and promotion reviews, though this is the first where my primary task is exclusively dedicated to a promotion-based thesis.

Dr Luef has submitted a dissertation entitled Phonological networks and their growth in second language learners for review. I have read the entirety of the thesis, and I offer the following comments for your consideration and conversation.

I come to this work with the following orientations with respect to second language learning. I appreciate theoretical orientations, and I have long enjoyed linguistic underpinnings that guide us in our teaching. I suppose to some extent I am a failed phonologist, and I say this a) to assert that I know a thing or two about phonology, particularly as it resonates with language learning and b) to promote the notion that that's about all I know as my scholarship shifts from the theoretical to the practical, always asking the question, "So what does that mean for teachers and students?"

For the course of a decade or so, vocabulary acquisition has been a key interest of mine. My principal aims have been to develop corpora that help us understand how to achieve lexical coverage in efficient manners. My graduate students have been stalwart in acquiring material such that we can assist children with the language adults give them to navigate in their schooling.

Since Dr Luef's thesis is an examination of how phonological systems have impact on vocabulary acquisition, I was quite excited. Really, while almost every student dissertation leaves me thinking, "Hey, I learned a good nugget – a doozie piece of data – that I'll hang onto," I wasn't quite prepared to learn as many juice nuggets as I did with this piece. And for that, I'm grateful.

I therefore offer this review as a play-by-play of some of my think alouds as I navigated the dissertation.

The dissertation is an inquiry into networks – a topic I know practically nothing about – with respect to predictions of how we add on new vocabulary. Of interest are the concepts of acquisition and retrieval. Dr Luef notes that a good deal of work on L1 networks already exists, so her goal is to

contribute to how L2 learners' networks might operate. At the heart of the concept is the notion of *phonological neighbors*.

One of the first orientations for me was this line:

> goal of this book is a network-theoretical description of lexical knowledge and its growth in learners of English as a second language (ESL).

For me, I had this question:

> I take it then that the audience is ESL teachers who will use this info to help them make choices in lexical learning. Or is the audience of the book exclusively those who do this kind of research?

I was totally jazzed by the prospect of understanding vocabulary acquisition, including suggested vocabulary size counts for the six CEFR levels. And I appreciated the use of the British National Corpus in making these assessments.

I was also pleased to read about the concept of phonological confusability, as I often fight with my phonics-based L1 reading teachers for having students learn oodles of vocabulary that all sounds super similar at one time.

To this end, I constantly craved more and more examples. At page 19, I wrote the following note:

> I've been thoroughly enjoying the book thus far. It's only here, where the complications of neighborhoods get more robust that I'm feeling like I'd like more examples.

On page 20, I was sparked by the work of Fricke, Baese- Berk, and Goldrick (2016), who discussed neighbors. I found myself thinking about the notion of phonetics in terms of L2. One language's phoneme is another's allophone. Thus, I had to wonder how these considerations would be manifested for say Korean learners of English who then have [p] and [f] as allophones for /p/. Wouldn't learning a new L2 word entail possible phonological interference?

Also on page 20, Luef writes:

> High onset density or a high number of phonological neighbors sharing the same onset phoneme generally slows down lexical processing.

To which I wrote:

> Sounds great! Still, I'm craving an L1 interference comment. I mean, in English, one would likely eliminate an /sf/ or /sv/ combo, where northern European languages wouldn't sneer at such at all. But I still get your point. It's sorta how we do processes of elimination when we're playing Wordle.

In fact, I actually write later, on page 173,

> I can imagine an entire litany of phonemes that either exist or don't exist in L2s that could be expressed here. How interesting would that be! However, to what extent would we suspect that the outcome would follow hunches of contrastive analysis???

Ultimately I got to page 23 with Leuf's comment:

> Low-density neighborhoods (i.e., words that have few neighbors) experience less competition and thus faster target word recognition rates.

I found myself wishing for a rundown in Ch 7 of these doozie comments. (I'm afraid we don't get those.) What are the maxims of word learning that the combo of the literature review and Luef-produced lesson leave us with to understand, digest, and hopefully use? Furthermore, I finally saw graphics with some examples, and the story is far clearer.

For some of the bold statements, I found the concept, at least as a language teacher (I doubt a phonologist would have trouble here) with this kind of language:

> According to NAM and the cohort model, activated candidate words do not interact at the lexical level but these models propose decision rules that determine which lexical entry received the most activation relative to the other activated candidate words. These models only make predictions about immediate phonological neighbors and how they influence and compete with one another.

I found myself writing the following:

> So, I'm led back to the super old book on paired associated learning by Kausler (1974). I mean, we're going way back now! Still, here's what I thought: If we were to do a set of flash cards, which cards would we most likely predict are getting learned faster and which ones are less likely?

I appreciated the term *cauldron of lexical soup*. Not sure this has anything to do with anything, but I thought it was fun!

On page 37, Luef wrote about *giant component, islands,* and *singleton nodes.* To that end, if wrote:

> You refer to these again in 5.1, seemingly as your doozie points of departure. Am I right? If so, these may necessitate brighter highlighting than seemingly incidental info in 2.2.1.3. In fact, they are so important in Chapter 5, these necessitate very clear examples.

On page 52, she wraps up the chapter. I'm not always the biggest on chapter summaries. But in this case, I could have totally used a quick bulletpointed rundown of the best lessons of this chapter. There was an abundance of good lessons in there that I found myself craving a moment where they were all quickly registered within one final box.

Chapter 3 was helpful since it brought phonology to the British National Corpus, the CEFR levels and the notions of phonology all together. I did have one question though: What's the definition of a word, with respect to this corpus and the counts you levy? Are these lemmas, word families, or other considerations?

On page 67, Luef wrote:

> While phonological clustering is most pronounced in the A1 network, already at the A2 level, the giant component of the learner networks is starting to shrink, while the islands grow at a continuous pace to the C2 level.

This was so interesting to me, and one of the critical findings: that as one progresses along one's vocabulary learning acquisition trajectory, considerations and strategies for levying new vocabulary to be

learned should change because the environments that promote easy and efficient learning also change. This would be doubly confirmed on page 79:

> Tight interconnectedness of neighbors leads to higher rates of co-activation in a neighborhood and eventually results in discrimination problems of the target word, slowing down and making less accurate the lexical access and retrieval process

Indeed, as Luef gave the rundown for which processes were effective and which slowed folks down, I made marked in green/blue (easier/efficient) and purple (more difficult) in order to keep the concepts in mind. To this end, I found myself craving at the end of this chapter a T-chart with effective and ineffective practices as the headings so that I could understand the varying conclusions you've been able to establish.

On page 90, Luef established Tables 10 to 16 and figures 29 to 32 where she presents large, medium, and small communities teased by the 75th and 25th percentiles. Since she is going to be doing measurements later, which seem to indicate the necessity for equitability among groups, I was wondering why she didn't choose something along the lines of a 67th and 33rd percentiles? I accept there may be a good reason for this (I wouldn't mind an explanation) or that my question may just be daft.

Just as with Chapter 2, with Chapter 3, and with all chapters really, I found myself thinking this:

> If L2 learning is an objective in the study, I think I could use a "so what" section regarding what was found. In other words, if Jo Teacher asks you what this all means, a layperson's accounting of the data you've laid out is merited.
>
> In other words, as a synopsis of what has been studied thus far, what do teachers (and effectively materials writers) need to know when they're constructing lessons?

On page 96, Luef wrote:

> Early network models followed the assumption of random network design, where node size is fixed and the relationship between two nodes is seen as a random event that is independent of other links in the network (Janson, Luczak, & Rucinski, 2000; 2001).

I responded:

> Certainly for L1 learners, this would be the case. I suppose one could look into videotaped data to see which words children have access to in order to see which networks are being developed when. That would be highly intricate work, but I can register than conceptually.

On page 99, I noted, in light of the nice examples posed in Figure 34,

> This is a little more helpful since it offers examples. It does include the presumption that we as readers will implicitly understand the phonetics.

In other words, it seems to be an assumption of Luef's writing – or at least my own prediction – that readers have a strong sense of the intrinsic phonetics of any English words posed within this text. I think should probably be established at the outset or in an early explanation of assumptions, either in a preface or in Chapter 1.

On page 104, Luef wrote:

> lexical cognition functions best when phonological neighborhoods consist of a moderate number of neighbors

To which I wrote:

> Would you say this is one of your most important statements thus far?
>
> At some point, I wouldn't mind a recapitulation of the most important lessons your set of maxims leads to.
>
> As it seems you're working toward how we teach in ESL in an efficient manner, the key rules you want us to understand (and you can refer to them with respect to the sections) will be important. I'll look forward to that (hopefully) at the end of the lit review and at the end of the book.

On page 105, Luef names preferential attachment as a huge deal. I could use a deep dive into the concept, including vivid examples. In fact, on page 107, she writes

> It is well-known that word length and lexical frequency are major contributors to better retention and faster and more accurate word learning, in addition to low phonotactic probability

Question: To what degree?

On page 108, Luef establishes one of her key findings:

> fit-gets-richer to a winner-takes-all growth mechanism

Examples of such seem so important to me here. However, on page 110, I responded thusly:

> I feel compelled to ask if articulating examples leads you toward opening cans of worms that you do not wish to open. The problem then is that the running commentary remains exclusively theoretical prose and conceptually elusive.
>
> I can't help but want examples. In addition, the more the prose adds to previous prose, the more I desire a flow chart with if/then statements.

On page 116, you write:

> When an evolving network represents an earlier stage of a known, fully-grown network, conclusions can be drawn as to the developmental trajectory from the earlier to the final network.

I responded:

> I'm finding, at least from a novice's point of view, that this would ideally come earlier. If I can imagine the trajectory of word learning via these phenomena, I would prefer to see if first in early L1 stages and then see how a lexicon grows.
>
> Now, while you seem to have a sequential logic here that still makes sense, I wouldn't mind a quick flow chart that shows what you mean with respect to the named phenomena.

> Indeed, I could even perceive of an imaginary subject, let's say Jean, whose lexical development could be tracked. What would Jean's lexical development story be?
>
> How do you imagine these conclusions would then translate into say a unit of text in a textbook?

On page 117, I found myself drawn to Luef's comments regarding Siew & Vitevitch,

> well-connected words (=high-degree nodes) in the adult lexicon led to better word learning in children exposed to a language.

To which I responded

> Wow! This is great news. So, if I understand correctly, then the language that adults choose for children may have positive pay off.
>
> And instead of getting bogged down in what academic vocabulary is and what it isn't, we see that the language of adults as input would then have (supposedly, if I'm understanding correctly here — and I'm not sure I am) kids bulking up better with their lexical development.

Again, in Ch 5, I'm still craving the T-charts, since there's so much that works and so much that doesn't work, that it's hard to keep it all sorted.

On page 117, Luef wrote:

> These results of the regression model closely correspond to the main factors contributing to word learning efficiency as derived from the literature: high lexical frequency, low phonotactic probability, high neighborhood density, and highly clustered neighborhoods of words are good indicators of their learning probability.

I responded by saying

> I will be looking for the practical narratives that teachers and materials writers can use to make decisions on curriculum development and lesson planning.
>
> For me, personally, since I'm super interested in the high lexical frequency tag, I would be interested in how to strategize this for ongoing language learning. Right now, we're fixated on contextualized learning, which almost asserts that low frequency words get learned. If I understand your findings, then not only are low frequency words entering the language learning sphere, they are gumming up the works by adding on words that will assert that the necessary words are harder to learn later. Am I understanding this correctly?
>
> If so, hopefully at the very end of the book, we'll see how the practical of your intricacies lay out for the applied linguists in the world.

Page 133 may have been the most important read for me in the dissertation. Luef wrote:

> Composite z-scored principal components of the four variables were computed, and the first principal component was defined as the "fitness" variable. Results showed that the first principal component was correlated with degree at 0.64, while lexical frequency rate and clustering coefficient showed correlations of 0.42 and 0.62, respectively

To which I responded:

> Ouch! If the game suggests that we make lexical coverage a key objective, then we see how our word choices could impede our assisting students in their quest to achieve efficient lexical coverage.
>
> Just remember, though, that this is the world of language education right now. It's been context, context, context for a good three decades or more now. It's only in the last decade or so where non-contextualized word learning, as established through corpora like the one you're working with, are slowly gaining some ground back. I mean, it was word by word many moons ago. And your work contributes to the "let's not throw the baby out" narratives a lot more deeply.

And then on page 134, I wrote:

> Such important info. If we set up language learning situations where learning new vocabulary is harder the deeper you go, then we can help advanced students feel like they're not crazy if their proficiency levels don't show increase. That inverted triangle gets broader and broader. We see why it's tough! We should a) be able to explain this to students and b) figure ways in curricula to mitigate this.

The table on page 139 seems super important. Luef wrote:

> The strongest overall correlations with growth rates were calculated for preferential attachment (highly correlated with hybrid UA/PA: r=0.9), degree, and weighted degree (r>0.5), and this indicates that rich nodes may get richer in phonological neighborhood growth.

Thus, it will be equally necessary to assert that readers understand what PA/ hybrid UA/PA* means.

On page 140, Luef has a fun figure. I was craving a means to seeing it develop, layer by layer, through a power point animation. Further, on page 147, Luef gives what seems to be one of her most important conclusions:

> the results of the present study clearly demonstrate the superiority of preferential attachment models for phonological network growth.

I said

> This is fine. Seems totally important. What you don't address here is that if I have to learn a language quickly, then I have to achieve lexical coverage quickly. Your info here has far-reaching implications regarding which words I teach first. While my goal is

> outside the purview of your study, I will look forward, perhaps in your conclusions, with respect to how those next questions should be answered down the road.

On page 168, Luef writes (within a figure) that

> *LA*PATT scores are higher in learned words in the lower proficiency levels.*

Again, this is a key finding that merits context so that teachers understand how to plan for it.

On page 170, Luef wrote:

> Anchoring new words to known words can represent an efficient method for maximizing similarity-guided learning benefits in language learners' mental lexica, all the while reducing cognitive effort committed to linguistic processing and storage.

So now, I just need to – or someone needs to – figure out a workshop so we can help teachers teach teachers how to do this.

On page 172, Luef wrote:

> Growth of the ESL learner networks suggests that the current lexical knowledge of learners at a given time is more influential, as opposed to the L1 environment of the target language.

to which I responded:

> you would support highly strategic ways of getting students started off on the right foot since there would be payoff down the road. In fact, you'd probably say the opposite is also true: that starting off on the wrong foot would entail cost down the road.

Luef offered the following final words:

> The most promising possibility is that network science will be best understood as a natural extension of the neighborhood analysis methodology to study the inner workings and developmental functions of the mental lexicon.

And these were my final thoughts in completing the dissertation read:

> And certainly in developing a road map for L2 learners as they travel from one proficiency level to the next? They won't find that they can keep doing the same old thing. It's kinda like going to the gym. You have to switch things up as you get better or you won't get better. And indeed, we can imagine these results also feeding into old-timer conversations and explanations for so-called *plateauing*.

I'll leave this review with just a couple of thoughts, particularly if the dissertation itself ultimately goes up for publication (and I hope it does).

First, who is the audience for this book? Right now, the book seems geared almost exclusively for fellow phonologists. There seems to be a sense of comfort that phonologists will be able to tease apart the realities that already exist from the new items Dr Luef mentions. For me, I appreciated all the information, but I had trouble discerning which was old and which was new. At times, literature review

items immediately portended Luef-drawn conclusions, which had me doing a bit of intellectual ping pong: which is the stuff we already know and which stuff is the new stuff? I guess, as a referee, I'm interested in seeing discretely the precursory material, being clear about it, and then understandly starkly the material that Dr Luef contributes. If this is the tone intended for a publication, I would expect a section, perhaps in the preface, that indicates the readership.

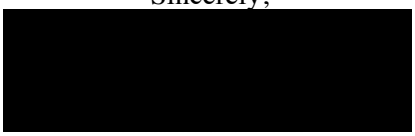
In the meantime, though, since this piece was offered up for English language, my sense was that this might have to do with learning or teaching. If that's the case, then I would look for prose that helps make sense to those outside the phonology rhetoric esteemed in this work. To that end, many more examples, flow charts, and explanations for what could potentially happen to any students, textbooks, or lesson plans, would help a more layperson reader understand the ramifications of these findings.

Finally, just a personal preference. Please feel welcome to toss this as you see fit:
Some of the murkiness, at least for me, was in the use of passive voice and the term *the present study*. I accept that these are common conventions, but the passive voice misdirects me to thinking that the present material was accomplished earlier and not within this study. My solution is to go ahead and just keep previous studies in their own sections. One can then place the brand new stuff into a new section and call it "I did this" or "my study." Indeed, I'm suggesting use of the first person to make this clear. Nevertheless, I do acknowledge that such rhetoric is not always looked upon favorably. Well, I've been at this for 24 years, and it's much easier to read when you just say, "I did this!"

In the final analysis, though, I say the following: It's an unbelievably impressive body of work you have undertaken!!! I learned *so* much, including a good deal of new considerations with respect to vocab learning that I will endeavor to keep in mind. So thank you for allowing me to venture into this project!

I recommend the habilitation dissertation for further procedure.

Sincerely,



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