Engaging in textbook writing as deliberate practice: How two expert ELT textbook writers use metacognitive strategies while working to sustain periods of deliberate practice

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Abstract: Expertise research spanning a variety of domains has established the central role that deliberate practice plays in developing expertise. This type of practice demands time, internal motivation, effort, feedback, and determination to surpass existing levels of performance. To leverage the rigors of deliberate practice, the two expert textbook writers who participated in this study deployed the writing processes of reviewing, writing it down, and incubating while developing textbooks for English language teaching (ELT). Data collected mainly via concurrent verbalization—whereby the participants expressed their thoughts aloud while engaged in textbook writing—and pre- and post-concurrent verbalization interviews revealed that the participants called upon these processes in purposeful ways as metacognitive strategies used to maximize writing effectiveness, with metacognition operationalized here as the participants' knowledge and recognition of how they thought and worked. This study provides insight into how textbooks are written in practice and thus has implications for the research field of materials development; the findings also point to practical strategies that might be utilized by those who write language learning materials.

Keywords: deliberate practice, metacognitive strategies, expertise, ELT textbook writing, concurrent verbalization

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1. Metacognitive strategies and deliberate practice in research investigating ELT textbook-writing expertise

Expertise research aims to uncover the underlying factors that distinguish individuals who are highly skilled in a particular area from other people (Ericsson & Smith, 1991, p. 2). Society recognizes *experts*, then, as individuals who demonstrate surpassing performance in a particular domain (Johnson, 2005, p. 21). Although a multitude of domains have been studied through the expertise lens (see, e.g., Ericsson, Hoffman, Kozbelt, & Williams, 2018), and expertise research has been popularized in such books as *Talent is Overrated: What Really Separates World-Class Performers from Everybody Else* (Colvin, 2008) and *Outliers: The Story of Success* (Gladwell, 2008), expertise study of certain professional writing fields has only recently begun. One of these fields is ELT (English language teaching) textbook writing.

Atkinson (2013) presented case studies of two expert materials writers, both to uncover the processes and practices the participants displayed and described as they developed textbooks (also referred to as coursebooks) for English language teaching and to reveal what characterized expertise in ELT textbook writing: *processes* were described as the steps the writers took while creating their books, whereas *practices* were the characteristics or behaviors they demonstrated while working (p. 96). In summary, the research found that the participants

- developed textbook content in repeated sequences of steps while simultaneously attending to both large- and small-scale design issues.
- remained open to revision throughout the entire span of coursebook production by complexifying design issues and readily discarding textbook content even after spending considerable time on its creation.
- maintained awareness of all aspects of the textbook- development cycle and used strategies to boost the effectiveness of their writing.
- reconciled opposites in order to reach compromise during textbook development.
- used creativity, intuition, and repertoire during design episodes while accessing and expanding existing knowledge and skills to demonstrate adaptive expertise.

This article draws upon the expansive data set collected during the development of Atkinson (2013) to explore the relationship between the participants' metacognition during textbook writing—operationalized here as their knowledge and recognition of how they think and work, represented outwardly as metacognitive strategies—and their capacity to sustain periods of deliberate practice, which is recognized as a key building block of expertise (see Ericsson et al., 2018). This article, in short, expands upon the work done in Atkinson (2013) to establish links between how the participants function in their area of expertise and how they are consequently able to maintain deliberate practice in order to reap its benefits.

Deliberate practice, according to expertise researchers Ericsson, Krampe, and Tesch-Römer (1993), is characterized by arduous activity that is directed toward improving performance, intrinsic motivation to participate in the activity, extensive repetition on practice tasks that are challenging but achievable, formative feedback on the tasks, and steady refinement of performance. This type of practice is requisite to building the highly developed knowledge base that experts deploy in focused ways while working in their areas of expertise. The tenets of deliberate practice are realized in expert ELT textbook development in the considerable time expert textbook writers work to hone their skills; the motivation to write, even when royalties are not a primary inducement; the repetition involved in returning to the same materials again and again in order to improve them; the feedback authors generate about their own work and receive from editors, teachers, students, ministries of education, and other stakeholders; and the determination writers display for improving their craft.

Data collected during the development of Atkinson (2013) reveal that the two expert ELT textbook writers who participated in the study use metacognitive strategies to maximize writing effectiveness during periods of deliberate practice. Specifically, the participants intentionally deploy the writing processes of reviewing, writing it down, and incubating to maintain the intense concentration and effort that deliberate practice requires. Since the strategies correlate with success in the participants' expertise domain of ELT textbook writing, they have important implications for both the research field of materials development and for those who write pedagogical materials. The research also points to the effectiveness of using concurrent verbalization—a data-gathering technique that asks participants to say their thoughts aloud—and pre- and post-concurrent verbalization interviews to uncover *how* the participants use the processes *during* writing episodes.

2. Real-time studies of ELT materials development

ELT materials development is both a thriving area of research-based inquiry and a practical undertaking that encompasses all aspects of materials design and implementation, including materials evaluation, adaptation, production, publication, and use (Tomlinson & Masuhara, 2018, p. 1). The number of books dedicated to ELT materials development in recent years—which is reflective of the influential role that materials have in the ELT classroom—provides evidence of sustained interest in the area. These publications include Harwood (2010); Harwood (2014b); McDonough, Shaw, and Masuhara (2013); McGrath (2016); Mishan and Timmis (2015); Tomlinson (2011); Tomlinson (2013); Tomlinson and Masuhara (2010); and Tomlinson and Masuhara (2018). This list is by no means exhaustive, and when journal articles, book chapters, unpublished theses and dissertations, and conference proceedings are added to the mix, the literature of ELT materials development is quite extensive.

Despite the considerable body of literature that focuses on ELT materials development, investigations of the real-time procedures that materials writers use are

rare. The research instead primarily draws upon accounts of finished materials-writing projects to formulate conclusions about the practice of materials development. Although accounts of past projects, such as those shared in Bell and Gower (2011), Jolly and Bolitho (2011), Mares (2003), Prowse (2011), Stoller and Robinson (2014), and Timmis (2014), provide valuable insights about materials writing, they nevertheless do not offer a *live* look at how materials are developed in practice. This is an important point since materials developers may not actually operate as they think they do during projects (Samuda, 2005, p. 235), nor are they always cognizant of what they do during writing episodes when reflecting upon them post hoc. Expertise studies focusing on materials development are a noteworthy exception to retrospective accounts in the literature since expertise researchers may use investigative methods, such as concurrent verbalization, to collect real-time data during materials-writing episodes. During a concurrent verbalization session, a participant vocalizes thoughts while carrying out an activity relevant to the research aim (Ericsson & Simon, 1993). The resultant data—the *verbal* or *think-aloud protocol*—is valued for its capacity to shed light on what is happening inside the minds of participants, even though a verbal protocol can only ever provide a partial glimpse of the array of thoughts in a participant's mind (Johnson et al., 2008, p. 158).

Johnson (2003) used concurrent verbalization to discover what constitutes expertise in pedagogic task design for English language teaching, and thus forged a direction for materials development research that is not reliant on recollections of past materials-writing projects. Other studies that have since used a similar research approach to investigate materials development include Samuda (2005), which drew upon the same data set as Johnson (2003) to investigate ELT task design expertise; Johnson et al. (2008) and Kim (2010), which focused on expertise in ELT textbook evaluation; and Salisbury (2005), which focused on expertise in EFL (English as a Foreign Language) exam-item writing. Johnson's (2003) seminal work compared how eight ELT teachers and eight specialist task designers—ELT materials writers who had been developing tasks (pedagogic activities) for publication for five years or more—produced tasks for English language teaching after being supplied with a design scenario. This type of comparative approach to the study of expertise derives conclusions based on how novices, experts, and sometimes intermediates perform on the same tasks; the other approach to expertise research focuses strictly on experts to discover how they function in their area of expertise (Chi, 2006, pp. 21-23).

Johnson's (2003) study highlighted a number of differences in how novice and expert participants developed pedagogic tasks for ELT, which the researcher framed as hypotheses about how good task designers operate. Of particular relevance to the current study is that good task designers deploy metacognitive strategies to oversee and regulate their actions (p. 133). Metacognition is likewise associated with expertise in a variety of fields (Ericsson, 2014; Feltovich, Prietula, & Ericsson, 2006, p. 56; Glaser & Chi, 1988, p. xx; Patel, Glaser, & Arocha, 2000, p. 258), including various domains of

professional writing expertise (Kellogg, 2018). Johnson (2003) also hypothesized that good task designers write in a cyclic way by gradually progressing into detail and by continuously reviewing what they have already written while remaining attentive to matters that can affect the development of their tasks at any stage (p. 134). In their retrospective account charting the production of a chemistry textbook for English language learners and other university students, Stoller and Robinson (2014) revealed that the steps they took during coursebook development proceeded in iterative sequences as they revised and expanded existing content (p. 280). Hadfield's (2014) account of producing research-informed resource materials for ELT teachers, which was based on reflective diary data, noted that such a recursive design approach required considerable flexibility when responding to the demands of materials development activities (p. 347). Samuda (2005), too, took up the topic of cyclic development in her pedagogic task design research, explaining that it required expert ELT task writers to remain ever aware of the numerous factors that could impact a task at any level of development, including how the task would play out in the classroom, plus the ability to discard the task, either wholly or in part, even after its completion (pp. 243-244). Although the studies discussed in this paragraph establish the role that metacognition, continuous reviewing, and cyclic design play in materials development, there is room to expand this vein of inquiry to discover how expert ELT textbook writers purposefully deploy these processes during periods of deliberate practice *as* they develop their coursebooks.

3. Deliberate practice in the literature of writing expertise

Deliberate practice—domain-relevant, effortful practice (Ericsson et al., 1993, p. 373)—is recognized as fundamental to building expertise. This type of practice requires full concentration on performance activities for prolonged periods of time; therefore, it is cognitively and emotionally taxing. To meet the demands of deliberate practice, professional writers may develop habitual and sometimes idiosyncratic ways of working, such as those revealed in the reflective accounts of ELT materials writing provided in Prowse (2011) and in the literature of professional writing expertise.

In his synopsis of research on writing expertise, Kellogg (2018) explained that many professional writers—writers who exhibit recognized skill in a domain coupled with an ability to earn part of all of their living by deploying that skill—develop routines that are necessary conditions for engaging in their craft (p. 421). Although these writers may elect to work at whatever time of the day or night they feel most productive, many write at the same time every day. They also tend to write for roughly the same length of time each day, but avoid setting unrealistic deadlines and writing in manic, binge episodes to avert writer's block, defined as the inability to express thoughts in written form for an extended period of time (Kellogg, 2018, p. 420). These observations align with other expertise studies across a wide variety of domains that find deliberate practice can only be sustained for a certain amount of time each day due to the

concentration and mental effort it demands and that periods of recuperation following deliberate practice are necessary to maintaining optimal performance (Ericsson, 2006, p. 699). In a study of the literary precocity of a 5-year-old boy, Edmunds and Noel (2003) likewise found these conditions at work. The authors revealed that the participant, who was a prolific writer, reader, and illustrator, viewed creative writing as his occupation, and he thus devoted up to three hours a day on it (p. 187). Although the participant was not a professional writer when the study was conducted, the dedication and self-regulation he exhibited while honing his craft were commensurate with the rigors of deliberate practice that are integral to expertise development. To draw this discussion to a close, writers who engage in deliberate practice learn how to manage its rigors by setting realistic writing schedules and by self-regulating their writing routines so they may persevere to both develop and extend their skill sets.

4. Research design

To investigate the relationship between metacognition, deliberate practice, and expertise in ELT textbook development, this study draws upon 620 pages of data transcribed during the development of Atkinson (2013). The data were gathered from two expert participants—TW1, or Textbook Writer One, and TW2, or Textbook Writer Two—primarily via means of concurrent verbalization and interviews, although a limited amount of stimulated recall and diary data were collected as well.

4.1 Criteria used to identify expert participants

TW1 and TW2 were identified using a two-gate selection procedure adapted from Palmer, Stough, Burdenski, and Gonzales (2005) for the identification of expert teachers. Firstly, the individuals recruited for participation had been involved in producing textbooks on a professional basis for at least five years. Other expertise researchers have similarly used a five-year criterion to identify experts: for example, Berliner et al. (1988); Clarridge (1990); Housner and Griffey (1985); Johnson (2003); Palmer et al. (2005); and Sabers, Cushing, and Berliner (1991). This length-of-service requirement indicates that the participants had been engaged in deliberate practice within the domain of ELT textbook writing for an extended period of time; indeed, they had both worked on multiple textbook-writing projects during the five years preceding data collection. In addition to the experience criterion, I also recruited expert participants based on academic credentials and performance indicators, as recommended by Palmer et al. (2005). Table 1 summarizes the expertise indicators used to vet research participants.

As Table 1 indicates, TW1 and TW2 had accumulated considerable ELT teaching and teacher-training experience at the start of data collection. Although this experience did not equate with textbook-writing expertise (since textbook writing, teaching, and teacher training all constitute separate expertise domains), teaching and teacher training were included in the list of expertise indicators because those activities supported the

participants' textbook-writing expertise. Indeed, TW1 and TW2 designed materials for use in their own classrooms and trained other teachers to do so; therefore, they were intimately familiar with materials development.

Table 1. Criteria used to identify expert participants

Expertise Indicators	TW1	TW2
Length of ELT textbook-writing experience	5+ years at the start of data collection	8 years at the start of data collection
Length of ELT teaching and teacher-training experience	21 years at the start of data collection	32 years at the start of data collection
Academic qualifications	Graduate degree in applied linguistics	Graduate degree in applied linguistics
Colleague recommendations	Provided by a distinguished ELT practitioner and materials development researcher	Provided by a distinguished ELT practitioner and materials development researcher
Publication records	Recruited to work on a number of international textbook-writing projects	Commissioned to write textbooks for a major international publishing company

In addition to the criteria listed in Table 1, the participants' publically attested textbook-writing records provided evidence of their expertise. For instance, the textbook (and accompanying ancillary materials) that TW1 produced during data collection received an award post publication. For TW2, coursebook writing comprised a considerable portion of her professional responsibilities, and she relied on her textbook-writing ability to earn a living. The participants' renewed textbook writing commissions also served as inherent (and research-independent) indicators of their expertise because the commissions would have presumably ceased if TW1 and TW2 were perceived to be anything less than experts.

4.2 The participants and their textbook-writing projects

To investigate textbook-development expertise, I collected longitudinal data *while* TW1 and TW2 engaged in textbook writing. So, in addition to meeting the expertise criteria discussed in 4.1, both participants had to be involved in textbook-writing projects to take part in the study. During data collection, TW1, a native speaker of English from Great Britain, was co-writing an ELT textbook and auxiliary materials for adult European students with learning disabilities and literacy and mobility issues. He wrote and revised much of the material included in the 10-unit textbook and accompanying teacher's notes over roughly one year while I was physically present to gather data. TW2, also a native speaker of English from Great Britain, was writing an ELT

coursebook and accompanying teacher's manual for secondary school students in Africa during data collection. She too composed much of the material included in her 20-unit textbook over approximately seven months while I was physically present to gather data. Both participants also answered additional email queries about their textbook-writing projects after face-to-face data-collection sessions had concluded. The decision to recruit participants who were working on diverse textbook-writing projects was an intentional strategy built into my research design to deduce points of similarity and difference in how TW1 and TW2 undertook textbook development.

4.3 Data collection

Concurrent verbalization was the primary method used to collect data for the research. This is because concurrent verbalization has the capacity to reveal, in real-time, how participants operate *while* they are engaged in tasks. I surmised that the method would therefore provide valuable data to supplement other accounts of coursebook writing, which are primarily based on reflections of past textbook-writing projects. In addition, concurrent verbalization was used to gather detailed records of textbook-writing episodes simultaneous with on-going textbook development.

Despite the utility of concurrent verbalization, issues have been raised about the reliability, veridicality, and reactivity of this research method. Wilson and Dunn (2004), for instance, questioned the reliability of verbal protocols by pointing out that some thoughts may not be immediately available for access, meaning that participants cannot express all of their thoughts aloud during concurrent verbalization sessions (p. 499). Regardless, I concur with Ericsson and Simon (1980, p. 243) that this potential drawback should not devalue the information that participants *are* able to share, particularly since concurrent verbalization can be used in tandem with other research methods to achieve methodological triangulation, resulting in a rich data set. When considering veridicality, the issue is whether concurrent verbalization can accurately capture a participant's thought processes; however, Bowles and Leow (2005) found that veridicality is more of an issue with retrospective methods, when participants are asked to recall their thoughts about a task after performing it, since memory can affect the exactitude of recall (p. 417). Again, methodological triangulation can mitigate the effects of veridicality since concurrent and retrospective methods can be used together, as in the current study, to offset the potential limitations of any one method. The issue of reactivity is also a concern with concurrent verbalization: that is, whether engaging in concurrent verbalization changes a participant's thought processes and consequently affects his or her vocalizations about thoughts (Sanz, Lin, Lado, Bowden, & Stafford, 2009, p. 34). Meta-analyses of concurrent verbalization studies, however, found that the research method was non-reactive except in cases when investigators asked participants to vocalize their reasons for thoughts expressed during data collection (Ericsson & Simon, 1993; Fox, Ericsson, & Best, 2011; Smagorinsky, 1989). To avoid

this issue in my own study, I did not ask TW1 or TW2 to reason about their thoughts during concurrent verbalization sessions.

Although Ericsson and Smith (1991) recommend that researchers collect concurrent verbalization data in laboratory settings to control for unanticipated variables, such as external interruptions that can affect a participant's ability to sustain concentration during think-aloud sessions, data collection in my study occurred primarily in the participants' self-chosen work spaces, with me audio- and video-recording the sessions. This was another intentional strategy in my research design to encourage productive output from the participants. This strategy also helped to distinguish my study from Johnson's (2003) research, which investigated expertise in pedagogic task development for English language teaching, since Johnson collected verbal protocols while participants wrote tasks in a laboratory environment. Given the longitudinal nature of my project, it would have unreasonably imposed on the participants if I had asked them to write for months in a laboratory setting; an imposition so great could have affected their typical writing processes, undermining the efficacy of data collection and the validity of any data gathered. TW1 chose to write textbook content at his workplace, while TW2 opted to write in her home office where she ordinarily worked on textbook projects. The participants engaged in concurrent verbalization each time I was present to gather data while they wrote their books.

I also asked the participants to audio record themselves thinking aloud when I could not be available during textbook-writing sessions. While investigating summary writing, Yang and Shi (2003) similarly asked graduate students to think aloud in the researchers' absence; Berkenkotter (1983) too collected participant-recorded concurrent verbalization data while studying the writing processes of a publishing author. TW1 wrote the majority of his textbook while I was present to collect data and, thus, did not produce any self-recorded think-aloud protocols. In comparison, TW2 produced four self-recorded protocols, providing evidence that self-recorded concurrent verbalization can be used to document textbook-writing episodes when a researcher is not present.

To triangulate data collected via concurrent verbalization—in order to glimpse expert ELT textbook writing from multiple vantage points and obtain a fuller picture of how the participants proceeded with textbook writing than what may have been possible through concurrent verbalization alone—I also used interviews, and to a lesser degree stimulated recall and diary records, to collect data for the study. In concurrence with Saldaña (2011, p. 76), I considered that triangulation would help to counterbalance any potential limitations of one particular data-collection method, thereby building trust in the study. Specifically, I asked TW1 and TW2 semi-structured interview questions both before and after researcher-recorded verbal reporting sessions to find out about their educational backgrounds; their teaching, teacher-training, and textbook-writing experiences; their views on their work; their approaches to their projects; and their writing strategies. I also emailed the participants any questions that

arose outside of in-person data-collection sessions. In addition, TW1 participated in one stimulated recall session, during which I asked him to comment upon a think-aloud protocol. During a stimulated recall session, a participant discusses the thoughts he or she had while engaged in a task (Paltridge & Phakiti, 2010, p. 357). A researcher may record the participant working on the task and use the recording as an instrument to cue memory during stimulated recall: the investigator may pause the recording periodically and ask the participant questions to encourage recall of thoughts or the participant may self-pause the recording to discuss his or her thoughts. In my study, the stimulated recall session concluded at TW1's request when the participant indicated that he had nothing further to add to what he had already shared during the interview and concurrent verbalization sessions immediately preceding the stimulated recall. As a result of TW1's assessment that the interview and concurrent verbalization sessions provided him ample opportunity to share his thoughts on textbook development, no further stimulated recall sessions were conducted with either TW1 or TW2. I had also planned to use research diaries to give TW1 and TW2 the opportunity to share their thoughts on textbook writing outside of other data-collection sessions, and I asked the participants to type their diary entries and send them to me via email. Although TW2 completed one diary entry at the start of data collection in which she provided background on her textbook project and plans for how to approach it, she later expressed that concurrent verbalization and interview sessions provided sufficient opportunity to share her thoughts on textbook development and, thus, she did not complete any additional entries. TW1 produced no entries. The participants' independent assessments that concurrent verbalization and interviews were enough to reveal the work involved in textbook writing—and the limited amount of stimulated recall and diary data that were collected as a result of these assessments—reflect the evolving nature of qualitative research design, which demands that an investigator respond and adapt to the circumstances of a qualitative research project as it unfolds.

4.4 Data transcription and analysis

The data collected during the project were transcribed in a broad level of detail such as that found in court transcripts and play scripts (Edwards, 1995, p. 20). Hence, I noted spoken language, laughter, and interrupting sounds, such as the ringing of a telephone, on the transcripts, but did not produce fine-grained description of utterances since the research focused on the content of what the participants said rather than on how they articulated words and sounds.

After transcription, I coded the data using qualitative content analysis. That is, codes were derived from themes revealed in the data rather than predetermined prior to analysis. Given that variable-sized sections of qualitative data can reveal themes, I segmented the data by units of meaning while assigning codes, rather than assuming prior to analysis that codes should be applied to words, phrases, sentences, or short paragraphs. Kim (2010) described a similar approach when investigating expertise in

ELT textbook evaluation (p. 123). Coding proceeded in cycles, with successive rounds of coding exposing, in increasing levels of detail, connections in the data. Coding revealed a number of salient themes in the data, as the following discussion indicates.

5. Results and discussion

Since writing is characterized as an ill-structured activity without a definitive solution path (Kellogg, 2018, p. 413), a skilled coursebook author must navigate a range of considerations using diverse approaches to arrive at a well-written document, rather than follow one particular solution pathway. This characterization makes textbook writing a rather exciting area for expertise study since skilled writers may reveal any number of potentially unanticipated approaches they use *while* engaged in their craft, pointing to the creativity they bring to their work—with creativity defined as novelty generated with aims in mind (Weisberg, 1993, as cited in Weisberg, 2006, p. 761). However, the same characterization points to the complexities inherent in textbook writing, which must be managed during writing episodes to arrive at a quality product. For example, publishing authors call upon the cognitive functions of memory, thought, and language during writing episodes while endeavouring to produce texts that are cohesive, coherent, and engaging for readers (Kellogg, 2018, p. 413). In addition, skilled textbook writers must simultaneously juggle other considerations to help ensure their products resonate with target audiences, offer opportunities for skill development, and find acceptance in the marketplace: curriculum, examination, publishing, and marketing considerations, for example, as ELT textbook authors Bell and Gower (2011) attest to. The expert textbook writers in my study attended to these myriad considerations by using the processes, or steps, of reviewing, writing it down, and incubating during writing episodes. Further, they displayed metacognition when using these processes—an awareness that enabled them to manage the rigorous deliberate practice that accompanied writing episodes and to capitalize on periods of deliberate practice in order to craft their coursebooks and hone their textbook-writing skills. The process descriptors of reviewing, writing it down, and incubating represent codes that emerged from the data set during analysis, as Table 2 elucidates.

The processes of reviewing, writing it down, and incubating found salience in TW1 and TW2's data, as subsequent paragraphs explain. Considering that the participants composed considerably different types of textbooks during data collection, the prominence of these processes signal their importance to ELT textbook-writing expertise.

5.1 TW1's use of reviewing, writing it down, and incubating during writing episodes

As indicated previously, textbook writers must attend to a range of considerations when developing their products, and holding these considerations in mind during writing episodes can place considerable strain on available mental resources. To mitigate this

Table 2. List of Codes

Code Name	Explanation of Code	Instantiation of Code
Reviewing	Reading segments of the textbook or ancillary materials, such as teacher's notes (indicated by the use of double quotation marks in the transcript)	"put the students in groups. Give them each sentence of the dialogue on a separate card with the translation written underneath." (TW1, C4, 463-464)
Writing it down	Reference made to putting something down on paper	I quite like that idea…even if it's just an optional extra so I'll put that down. (TW1, C4, 814)
Incubating	Setting aside a difficulty encountered during textbook development with the effect of facilitating a solution through unconscious effort	I need to tidy up those instructions at some point. There are a lot of options….The realia idea is a good one but my guess [is] I'm overloaded with vocabulary. I'll have to think about that. (TW1, C5, 581-584)

Note. The transcript identification conventions used in the instantiations of codes are participant identifier, transcript identifier (a letter indicates the transcript type and a number indicates a data-collection session), and transcript line number(s). Words in brackets are added for purposes of explanation.

strain and maximize writing effectiveness, TW1 used a cyclic approach during textbook development. Thus, rather than designing units in linear steps, he deployed textbook development-processes in recursive sequences, steadily progressing into further depth while also attending to the development of the book as a whole. And the textbook-development process of reviewing, during which TW1 read textbook content he had produced, played a key role in his cyclic approach to design.

For TW1, reviewing operated as a two-way process, enabling him to both focus in on the details of textbook units and scale up his attention to oversee the global construction of those units. When deploying the first function of reviewing, TW1 refined textbook content in increasing levels of detail to account for the needs of learners and teachers. For example, during a concurrent verbalization session in which TW1 produced content for a textbook unit to do with traveling and vacations, the participant indicated that he intended to use reviewing to refine an initial version of the unit:

> I've got…quite a lot of instructions down there with not much system to it so I'm gonna…go back and see if I can get my subheadings and a little bit of useful numbering and see if it looks coherent so far.

This transcript excerpt reveals that TW1 approached unit design first at an abstract level, in order to record ideas for textbook content in what he conceived to be a less-

than-organized form, and then intended to use reviewing during a more detailed pass through the unit, invoking the need for textual clarity and cohesion to meet the needs of target users. TW1 also used reviewing to re-focus attention from concentrating on connected parts in the textbook to looking at the overall relationship amongst the parts. He demonstrated this focus during concurrent verbalization while refining content for a unit on eating out:

> Two more activities which needs teacher's notes which are dialogues so I'm gonna do those and then I'm gonna look back over the whole unit because I still can't quite feel the shape of it.

In instances such as this, TW1 purposefully used reviewing to broaden his focus to survey the logical structure of a whole unit. Similar, then, to the good language teaching task designers who participated in Johnson's (2003, p. 134) research, TW1 coupled continual reviewing with cyclic design episodes to maintain a watchful eye over the progression of the textbook at both macro- and micro-levels of development.

While TW1 used reviewing to flesh out the organization of units in various levels of detail, the process also inspired the invention of new textbook content. That is, by continually revisiting and rereading what he had already produced while also considering possibilities for the text, TW1 used the reviewing process as a springboard to creation of further content. Thus, reviewing served a mental notepad function, helping him to both manage the myriad array of matters that arose during textbook-writing sessions and keep the design process moving forward, as he articulated during concurrent verbalization while focusing on the unit to do with vacations and traveling:

> "To make it easier you could put France and Switzerland on the board…and ask them to choose the right one"….Yah I'm going to have to look at…how to format these teacher's notes again to see what I did last time but just for now I'm gonna get the content right….OK I can put…in another option…"For more advanced students you could ask them to listen for the language….which is mentioned."

While TW1 reviewed teacher's notes—indicated by the use of double quotation marks in the transcript extract—the reviewing process also initiated the development of additional content ("another option"). And because TW1 acknowledged the function of reviewing during textbook development ("I'm going to have a look at…how to format these teacher's notes again to see what I did last time but just for now I'm gonna get the content right"), the process can be counted as a metacognitive strategy he used to manage cognitive load and maximize writing effectiveness.

TW1's tendency to deploy the textbook-development process of writing it down—in other words, outlining in skeletal form textbook content as it was conceived—represented another strategy he used to manage the mental demands of textbook writing. Similar to a number of eminent natural scientists who participated in Rymer's (1988) study of the composing procedures used in journal article writing, TW1

intentionally implemented this strategy to spur the creation and refinement of textbook content, as he articulated during a post-concurrent verbalization interview:

> there's something [in textbook writing] about being systematic and a little bit creative…I see it as a bit like…sculpting really in that…you start by just throwing all the material down and then chiselling it into shape.

The writing-it-down process thus served a transition function during composition episodes, helping TW1 progress steadily into content conceptualization, even when he articulated during another post-concurrent verbalization interview that textbook writing was not progressing in a straightforward way:

> I started quite slowly and I wasn't quite sure how to proceed but…the end I think it was flowing much better…I really…felt this morning…that I wanted to get a very rough idea of the whole thing…and not try to get it right or get the detail right…and then have a kind of gestation period…and…come back to it I was quite conscious this morning that I just wanted to get something…on paper and…then come back…and refine it.

In this data excerpt, TW1 acknowledges that writing it down enabled him both to outline content and identify where additional work on the textbook was necessary. And although he may have not been happy with his pace when he began composing on that particular day, he made it clear that writing it down enabled him to proceed with the project by gradually narrowing in on its details and that he sometimes worked out these details during time away from writing.

TW1's reference to a "gestation period" provides evidence that he deliberately employed the textbook development process of incubating, another metacognitive strategy, to manage his writing output and effectiveness. Whilst incubating, a writer sets aside a problem encountered during textbook development with the effect of facilitating a solution through unconscious effort. A problem, in the case of expertise research, signifies the existence of a goal without a known means for achievement (Bereiter & Scardamalia, 1993, p. 83), and incubation can facilitate problem solving, according to Sternberg and Sternberg (2012), because it enables individuals to unconsciously address difficulties while engaged in unrelated activities (p. 465). Incubation therefore benefited textbook writing since TW1 could put a problem aside until he had room available in his mind to tackle it, which might happen outside of cognitively taxing writing episodes.

TW1 was also aware of the role incubation could play during different stages of textbook development. For example, he acknowledged during a pre-concurrent verbalization interview that incubating helped him plan content:

> for the…test unit…or the revision unit…I'm starting with a blank page…but…I had a couple of ideas on my bike that's where I get often my best ideas.

He likewise said in a response to an interview question posed via email that incubating could clear obstacles encountered during composition:

> If I come to a block I sometimes break off and play the drums or just leave it until the next day. Cycling to work sometimes unblocks the process.

For this expert textbook writer whose textbook-development processes proceeded in iterative cycles as he worked through design steps in a recursive fashion, planning, composing, and refining textbook content involved successive rounds of problem solving, which he tackled via use of incubation. In Sio and Ormerod's (2009) meta-analysis of studies that focused on the relationship between incubation and problem solving, the investigators similarly found that incubation helped to facilitate the development of new ideas when individuals solved creative problems. These were problems without conclusive answers, such as those encountered during textbook writing, that called for the production of multiple, novel ideas in response to task specifications (p. 96).

The conscious decision to use incubation to encourage textbook progression was a recurrent theme that ran through TW1's data. And, as the examples in the previous paragraph indicate, TW1 realized the positive effects of incubation when he engaged in physical activity unrelated to the act of textbook writing. Kellogg (2018), while citing Kellogg (1986), Oates (2003), and Piirto (2002), said that other professional writers similarly report using physical activity, drugs, and alcohol to manage the mental demands of composing (p. 422). Even a brief period away from his developing textbook coupled with physical activity could help TW1 proceed with writing, as he indicated during a post-concurrent verbalization interview (*R* stands for researcher):

> R: when you came in…after your meeting you said you had an idea on the way up the stairs…I know you've talked to me a little bit about this before about playing your drums and…that kind of thing…is that the sort of thing that happens often when you take a break…or when you're doing something else and…something will come to you or?
>
> TW1: Yah. I think so. I mean…I'll walk up…to Costas coffee and come back and sometimes when you're away…from it…the ideas come a bit better.

This is but another example from TW1's data set to demonstrate that the author exploited purposeful strategies to maximize writing effectiveness. In short, he used incubating to leverage deliberate practice, to sustain the effort and attention that deliberate practice demanded in order to reap its rewards.

Because of the conscious effort needed to direct attention to a task during a deliberate practice session, this type of practice can consequently be exhausting. Experts working in a variety of domains thus use techniques to mitigate the fatigue that accompanies deliberate practice, according to Ericsson (2006), including moderating the time spent on deliberate practice each day and taking recuperating naps following practice sessions (p. 699). TW1 likewise acknowledged the effort that deliberate practice required during concurrent verbalization, and he indicated that he intentionally used means to moderate the tiring effects of such practice upon his forward momentum:

> I really want to get this finished or finished in its basic shape today and I can add pictures and proofread it later but I want to get it sorted…and I thought in the…coffee queue this morning that I was going to start with the end activity rather than start at the beginning and run out of steam before I get to the end activity.

Thus, TW1 was not only conscious of the self-regulatory strategies he used to manage writing effectiveness, but he could deploy the strategies in flexible ways during textbook development. This was certainly true of TW1's planning process, when he conceptualized content:

> sometimes I just…start writing it and then start to shape it and sometimes start with quite a clear idea of what I'm going to do…and then flesh it out…it definitely works both ways…And I think…that's true of other kinds of writing that I do as well that generally speaking I think…I'm quite systematic and normally start with a…systematic framework of what I'm going to do but sometimes I don't sometimes I just think get writing…and then refine it afterwards.

Here, during a post-concurrent verbalization interview, while TW1 acknowledged the need to be systematic to adhere to task specifications, he was also conscious of the need to strike a pragmatic balance between systematicity and the work required to complete a writing project. Since materials writing comprised part of his job responsibilities, striking this pragmatic balance was key to ensuring that he could complete writing projects on time and to specification. Similarly, Salisbury (2005) found that expert test-item writers who produced listening questions for international EFL examinations carefully and deliberately balanced effort and output to sustain freelance employment (p. 290). So, although the deliberate practice required during writing episodes could tax TW1's internal resources, he used self-regulatory strategies in flexible and strategic ways to suit particular occasions and encourage momentum during composition.

5.2 TW2's use of reviewing, writing it down, and incubating during writing episodes

Like TW1, TW2 used the reviewing process to revisit existing content and jump start the creation of new content. For TW2, reviewing could also signal a complexification stage in textbook development during which she problematized existing content and acknowledged that it needed further refinement:

> So I think I'm going to revisit this unit and look it…in the original terms. I'd forgotten completely that I'd had that plan to do it so I shall go back and just have a look at my notes oh yes the note here…to talk about certain animals and talk about their homes…Yes I think next time…I have a look at this…I shall really have…a good think about whether I keep it as I've got it down here or whether I make some changes….So I think what's

> happening here is…I'm persuading myself already I think I've probably decided that this needs a complete change which I will attempt to do next time.

During this concurrent verbalization session, reviewing signalled the initiation of an iterative development sequence to come, during which TW2 would fully rework a unit she had written, thus complexifying the unit content she had produced so far. TW2 discussed the recursive nature of her approach to design during a post think-aloud interview:

> I've kind of likened textbook writing to…making a big jigsaw…another way of looking at it is just kind of putting on layers and layers and layers so for each activity the first effort is only very much a…draft effort and usually…by the time I've finished writing I might of changed an activity three or four times…and that…goes on all the time.

This iterative approach to design was indicative of the knowledge crafting that characterized TW2's approach to textbook writing. In other words, rather than developing the textbook in a linear, straightforward manner, TW2 problematized existing content as she reviewed while thinking about the different matters that impacted the textbook's design, and she refined the book's content at macro- and micro-levels in small, cyclic segments to ensure that she had taken all considerations into account. Complexification activates the continuous cycle of expertise development, according to Bereiter and Scardamalia (1993), as experts reinvest their mental resources to address problems at ever-increasing levels of difficulty, with the result that they expand their knowledge bases.

As indicated, reviewing helped TW2 manage the many considerations pertinent to the textbook's development. At the macro-level, for example, TW2 reviewed to establish a balance between the introduction of new grammar points and revision of previously covered grammar points and between serious and light-hearted topics in textbook units:

> thirteen is new and new. Sixteen is new and new. Eighteen is new and new and nineteen is new and revised…OK so that gives me language points. In the first one two three four five six units there's only one new language point. All the rest is revised which is good. And in the rest of the book there are only one two three…revised points which isn't bad at all…I've managed to divide it more or less into revised and new. And I think that's…a nicer way of ordering the book….Me brain's full of changes….Now where was I. So let me just check I've done all these things….I've reshuffled it according to lightness and seriousness and I've reshuffled it according to revision and new items of grammar.

The utterance "Me brain's full of changes" in this concurrent verbalization excerpt points to the stress on cognitive capacity that resulted from trying to attend to the myriad considerations that affected the textbook's development. Nevertheless, reviewing enabled TW2 to acknowledge these concerns without focusing exclusively on one variable at a time, which might have disrupted the balance she worked so hard

to achieve. Johnson (2003) similarly found that the good language teaching task designers in his study coupled reviewing with cyclic design to proceed steadily into detail, which helped them to avoid focusing on one single variable or consideration at the expense of others (p. 134). That TW2 used reviewing and cyclic design during successive rounds of textbook development revealed that these were purposeful strategies she employed to optimize textbook content.

TW2 also used the writing-it-down process during textbook development to track the variables that affected her book's development, and, like TW1, to manage the mental demands of textbook writing. However, unlike TW1 who outlined coursebook content in skeletal form as it was conceived during writing episodes, TW2 charted textbook plans in detail prior to beginning work and reviewed and revised her plans while the book unfolded, as she explained during a post-concurrent verbalization interview:

> R: when you were writing…I could see you obviously referring to the scope and sequence physically…but were you also thinking about it.
>
> TW2: I was trying to…stick reasonably well to what I'd got there…because if I don't do that…there's a danger that I don't cover all the syllabus elements…so the syllabus really does weigh quite heavily on you…when you're doing this…and in the scope and sequence I've also to a large extent worked out variety of activities…but that's something…I can change as I go along I mean…I write the scope and sequence down to start off with…and it always ends up with something very different usually…but if I try and follow it to start off with I can change it when I've got the whole…thing together and I go back and check for…things like variety of activity and…things like that.

TW2's publisher required a scope and sequence for the textbook, which detailed what she intended to cover in the book and in what order, but TW2 also indicated in her diary entry that the scope and sequence was crucial to her progression:

> Am working on a full scope and sequence plan of the book, including the unit topics and all the sections of the units (speaking, grammar, reading, writing, listening etc.) before continuing with the writing of the book. Until a clear plan is ready, I don't feel happy to continue.

Furthermore, TW2 articulated during an interview that devising a scope and sequence facilitated the development of textbook content—and efficiency was an important concern for a writer who earned the majority of her living from textbook royalties:

> R: do you always do plans like these?
>
> TW2: Yes. We have to do them for the publisher….but I…need to do that for my own…thinking….I need to know in each unit what I'm…intending to put in…and then it makes it much easier to write…once you've got the ideas there.

TW2's use of a scope and sequence to encourage progression of her textbook signified a metacognitive strategy that she deliberately employed to maximize writing effectiveness. In short, she used the scope and sequence to map out the book, to reserve cognitive resources for content generation, rather than planning, during writing episodes. She was thus able to sustain intense periods of deliberate practice during writing episodes without simultaneously juggling planning.

In addition to using a scope and sequence to outline her whole book, TW2 also formulated plans for each unit in explicit detail, as she pointed out during an interview session:

> this is the kind of thing I do when I'm writing as well…Kind of having done the scope and sequence I'll probably map out each unit even in further detail later.

Her use of explicit planning strategies at both the whole-book and unit levels while employing the writing-it-down process provided evidence of TW2's cyclic approach to design: textbook development proceeded at various levels of detail through multiple iterations.

While TW2 used the writing-it-down process to plan the textbook, it also served a transition function in her data set, helping her sustain momentum whilst writing. The process enabled her to quickly record ideas for a textbook section as they occurred so that she might return to develop and refine them during a future iterative round of writing, as she revealed in this concurrent verbalization excerpt:

> quite simply I shall say "make sure your. Composition" I think they call it generally…."has a clear introduction main body. And conclusion. In" I'll just remind them about the main body…."present. Individual points clearly in their own paragraphs in the main body"….Not very nice but I'll work on the wording later. I'm just trying to get the ideas down at the moment really.

Hence, like TW1, TW2 used the writing-it-down process to both lay a foundation for textbook content and establish where additional efforts were needed:

> what I'm doing at the moment is just getting down the ideas as they come…and then I'll…go over and…probably change units…round…in a different order or something whatever…before I submit.

This excerpt from a post-concurrent verbalization interview indicates that regardless of the detailed blueprints she had constructed for her book, TW2 also engaged in opportunistic design to sustain momentum during writing sessions. Therefore, she might temporarily suspend focus on her predetermined plans for the book to attend to design matters as they surfaced while writing. According to Chi (2006), such opportunistic use of resources is associated with expertise (p. 24). Writing it down coupled with opportunistic design contributed to efficient textbook development because TW2 did not wait until ideas were fully formed in her mind before beginning a writing session; instead, she used writing it down to manage the multiple

considerations that placed demands on her cognitive facilities as planning, composing, and revising happened simultaneously or near simultaneously during writing episodes.

Along with writing it down, TW2, like TW1, used incubating to manage the myriad demands of textbook writing and encourage effective problem solving. Indeed, she revealed during an interview that incubating enabled her to engage in the unconscious effort of problem solving outside of textbook-writing episodes:

> very often I'll go to bed one night with this awful problem I'll wake up the next morning with the answer….And…how that happens…I have no idea….But sometimes I have to get up immediately because…it's there….I have to get it down…because I know what I'm doing now…and I write it down somewhere or I'll get on with it and do it…and it's weird. But then there are times where it goes on for three or four days and…I really can't see the way…even weeks sometimes…and then I'll say yep…that's what I'll do.

TW2 thus called upon incubation to carry on with textbook development instead of becoming mired in difficulties that accompanied the creation of the book's sections. And, as TW2 indicated, periods of incubation might span various expanses of time as she worked during cyclic sequences on textbook development. She again made this point during a concurrent verbalization session:

> I think I'm going to leave that for the moment and revisit it later to…look at it again and see if I can simplify these instructions at all…and certainly condense them a little bit and then to see if I think it works…I don't think there's any point making any decisions at the moment….I always find that these things are much better after you've left them for quite a long time and you come back and you say whatever was I thinking about to put that in so I think I shall leave it at the moment and then when I've finished the first draft of everything I shall come back and decide whether to actually use that at all.

Like TW1 who said that riding his bike and playing drums helped to facilitate problem solving during periods of incubation, TW2 realized the benefits of incubation with physical activity, as she discussed during a post-concurrent verbalization interview:

> this is the kind of thing that I often when I'm out walking that's when I'm thinking about…this kind of thing and it often helps me…I often come back from a good idea in from a long walk so…I think the botanical gardens might help me…to solve this problem.

In their study of poetry-writing expertise, Beatty and Ball (2011) similarly found that physical activity during incubation helped to stimulate the creation of ideas for texts. And as the transcript excerpts in this paragraph reveal, TW2 consciously employed incubating during textbook creation to enhance her effectiveness. So, rather than expending energy and cognitive resources that might drain her ability to sustain periods of deliberate practice during which she could proceed with other tasks necessary to textbook development, TW2 used awareness of the value of incubating to call upon the strategy when appropriate.

Periods of incubation could also coincide with planning sessions sparked by a collection of resources that helped TW2 design her book. And she indicated during a self-recorded think-aloud that the latter might happen at unforeseen times during incubation:

> I was intending today to go on to unit four and look at the passages but…I can't get rid of this origami from my head everywhere I go it's following me….The other day…I bought a newspaper and at the top of the newspaper was free origami kit inside and I thought…this is pursuing me….it doesn't want to be dropped….So…I'm going to continue to do my origami….this is what happens…when you're writing. You get something in your head…that you think is quite a good idea and it doesn't leave you it just goes round with you wherever you are you keep thinking of it.

The expert EFL listening exam-item writers in Salisbury's (2005) study similarly welcomed the collection of resources at unexpected times to advance materials development. As TW2 explained, even amidst periods of incubation, during which her attention turned to matters apart from textbook writing, she was nevertheless still working out how to proceed with her book's development, taking inspiration from outside resources when they opportunistically appeared.

TW2 also followed a particular writing regimen, another self-management strategy, to maximize her writing effectiveness and was cognizant that she did so. Specifically, she preferred to write in the mornings to encourage productivity, as she indicated during an interview:

> I usually work in the mornings…that's my best time…the ideas come in the morning….It writes itself in the morning. In the afternoon it's hard work.

During another interview, she said she balanced intensive morning writing sessions with less demanding afternoon work on her book:

> what I normally do is get up at like six o'clock and…start writing around seven…I usually work mornings…very hard…and then do other little bits in the afternoon….But the morning is the intensive part.

Like expert writers operating in other domains who dedicate a few hours a day to deliberate practice during intensive writing sessions and avoid lengthy, manic composing stints that can precipitate burn out and writer's block (Kellogg, 2018, p. 422), TW2 also recognized the value of rest in helping to maintain a productive writing schedule:

> All I have to pray for is that I don't mess it up cutting and pasting. That's the horrible thing….I shall leave that till tomorrow morning when I'm fresh.

As this think-aloud segment and the other transcript excerpts in the paragraph make clear, TW2 recognized the benefits of intense deliberate practice followed by rest to the maintenance of a productive and efficient writing schedule. In other words, the

participant had developed a personally ideal regimen that enabled her to balance the daily demands of textbook writing with the need to complete her book on schedule for publication.

5.3 The participants' interest in learning more about the ways they wrote textbooks

Reflective of their metacognition and the role it played in their effective work routines, both participants in my study expressed interest in learning more about how they wrote as an impetus for their involvement in the research. During interviews at the start of data collection, TW1 indicated that he wanted to better understand his writing process, while TW2 expressed curiosity about her problem-solving approaches:

> I'm looking forward to doing this…because I…always find it interesting the problems I have…and how they get solved….it really is fascinating what goes on…it's weird as well because I hate doing jigsaws….I absolutely hate doing jigsaws…I can't be bothered I'm too impatient. But with a book…it drives me mad at times…but I always find a way to do it…and so all the little bits of the syllabus are in there…and they look as though they're meant to be in the right in that position you know…it's really quite difficult getting them there.

Like experts operating in other domains, the participants were curious about how they worked. Donald Murray, the prolific writer who took part in Berkenkotter's (1983) study of planning strategies, similarly consented to participation in order to learn more about how he wrote (Murray, 1983, p. 169). The eminent natural scientists who participated in Rymer's (1988) investigation of composing procedures also wished to discover the techniques they and their colleagues used during journal article writing to enhance their writing effectiveness. TW1 and TW2's interest in better understanding the ways they accomplished textbook writing was indicative of the intrinsic motivation they found in their work, with intrinsic motivation being a key characteristic that drove and sustained deliberate practice.

6. Conclusions to be drawn from the investigation

This study reports on how expert ELT textbook writers use the processes of reviewing, writing it down, and incubating to facilitate the production of textbook content and to manage the demands of deliberate practice that lead to advances in skill development. Specifically, the participants use the processes to leverage the intense concentration and effort that deliberate practice requires. The processes are not coping strategies, however; instead, reviewing, writing it down, and incubating are metacognitive strategies—outward representations of metacognition—that TW1 and TW2 purposefully deploy to maximize writing effectiveness. These processes reflect the participants' experience working in their area of expertise: years of deliberate practice in a domain, during which successful outcomes of the efforts used to improve performance trace

their effects on the participants' approach to textbook writing, encourage the repeated use and refinement of the processes, reflecting a continuous improvement cycle. Considering that both participants used the processes during the development of considerably different textbooks points to their importance to ELT textbook-writing expertise.

Several of this study's findings align with Johnson's (2003) research, which investigated expertise in pedagogic task design for English language teaching: specifically, expert participants in both studies called upon metacognitive strategies to manage their actions when writing and used a cyclic approach coupled with continuous reviewing, with the effect that they were able to remain alert to macro- and micro-level matters that could impact the development of their texts at any point. The current study, however, extends Johnson's research by pinpointing how participants use the processes of reviewing, writing it down, and incubating to sustain and benefit from periods of deliberate practice over the lifespan of textbook creation. And in contrast to Johnson's research, which asked participants to compose tasks in a laboratory setting in response to a design scenario, the current study derives findings from data collected while participants worked on their own projects in their chosen work environments. When comparing the two approaches, Johnson speaks to the face validity of my research design by acknowledging that readers are likely to perceive that data collected in naturalistic situations accurately reflect the writing processes investigated (pp. 35-36).

Drawing heavily on data collected via concurrent verbalization, this study of textbook writing is intended to supplement the existing ELT materials development literature, which is based largely on retrospective accounts of past textbook-writing projects. Although reflective accounts, such as those shared in Bell and Gower (2011), Jolly and Bolitho (2011), Mares (2003), Prowse (2011), Stoller and Robinson (2014), and Timmis (2014), certainly point to the complexities involved in textbook development, they cannot reveal how expert textbook writers manage the challenges of the writing process simultaneous with ongoing textbook production. Knowing how TW1 and TW2 leverage the rigors of deliberate practice during live textbook-writing episodes contributes understanding to the research field of materials development.

Although the current study focuses on ELT textbook-writing expertise, the findings may be of interest to investigators working outside of English language teaching since the research highlights intricacies associated with developing different types of texts for distinct target audiences and exposes how expert participants function in light of these intricacies. Other studies, such as Ziebarth et al. (2009), point out that textbook writers who operate in fields outside of ELT likewise encounter various complexities during textbook development, complexities that must be negotiated to arrive at quality products. Studies of ELT textbook writing and of textbook writing more generally have much to contribute to the research field of materials development; thus, I concur with Harwood (2014a) and Harwood (2017) that such studies can potentially inform one

another. The results of the current study also inform approaches that can be used by materials writers.

While it is true that TW1 and TW2 learned to strategically deploy the processes of reviewing, writing it down, and incubating as a result of prolonged deliberate practice in their domain of expertise, there is no reason that these processes cannot also be utilized by other individuals who develop pedagogic materials. However, this study also reveals that metacognition is crucial to the focused deployment of the processes; hence, other textbook writers inspired to use reviewing, writing it down, and incubating may also wish to carefully consider the functions of their application during writing episodes.

7. Limitations and future research

As indicated, stimulated recall and diary methods met with limited success in this study. Although TW1 and TW2 expressed that concurrent verbalization and interview sessions gave them sufficient opportunity to provide data during textbook development, stimulated recall and diary procedures might also have been modified to potentially be more successful. For instance, I could have asked the participants to focus on a delimited segment of verbal protocol data during stimulated recall, thereby decreasing the time necessary for the procedure. Considering that data collection proceeded simultaneously with the participants' textbook-development projects during which they engaged in intensive deliberate practice sessions, this revised data-gathering approach may have avoided further taxing the participants. I could have also implemented a diary-writing schedule to collect additional diary data instead of leaving it up to the participants to complete entries when they felt inclined. The schedule might have coincided with the completion of each textbook unit to encourage the participants to comment on how the units unfolded; spacing the diary entries out in this way may have given the participants impetus to complete them while considering how the completed development of one unit would affect their plans for upcoming units.

This study also focused on just two participants, an element of the research design that could be construed as a limitation since the findings are grounded in the participants' work and do not necessarily generalize to other textbook writers. The longitudinal nature of data collection and the research methods used encouraged a focus on just two participants, with the aim of collecting a large, detailed corpus of data concurrent with textbook development. Despite these rationales for choices made during the design of the study, I could have also included a cross-sectional element in my research to investigate the writing approaches employed by multiple participants at specific moments in time. Johnson (2003), for example, used such an approach when comparing how novice and experienced participants wrote pedagogic tasks for English language teaching. These considerations notwithstanding, the small number of participants in my study enabled an exclusive focus on salient features of ELT textbook-writing expertise in contrast to expert-novice studies that may define expertise by

means of participant comparison (Chi, 2006, p. 22). Furthermore, since generalizability may be operationalized as transferability (Duff, 2008, p. 51), readers can decide how the findings of this study correspond with their own understandings of or experiences with textbook writing. This study indeed encourages readers to consider the transferability of findings since it focuses on how TW1 and TW2 accomplish distinctly different projects. Considering that both participants purposefully used reviewing, writing it down, and incubating as metacognitive strategies to boost writing effectiveness helps to establish that the strategies correlate with ELT textbook-writing expertise.

Regardless of the limitations noted, the research project discussed herein collected a substantial amount of data, demonstrating the efficacy of using concurrent verbalization and pre- and post-concurrent verbalization interviews to explore textbook writing as it happened. Other researchers might also employ these methods to both expand understanding of how materials are developed in practice and supplement the existing literature of ELT materials development, which is primarily built on reflective accounts of past materials-writing projects. Exposing the real-time procedures that textbook writers use has great promise for those who aspire to hone their own materials development skills.

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