Norbert Francis* and Thi-Nham Le*

Chinese literacy learning by immigrant learners

https://doi.org/10.1515/caslar-2022-2002

Abstract: For both second and foreign language students, mastery of the Chinese writing system typically presents itself as a special learning challenge. This report begins with a summary of relevant aspects of an exploratory study of East Asian immigrant language learners. It serves to set the stage for a discussion of theoretical problems that hopefully will lead to new directions in research focused on second language (L2) learners of Chinese in general. In particular, the discussion will highlight the circumstances of that population of learners who come to the task of L2 Chinese literacy as already literate in their first language. In this regard, what is the role of language awareness in learning to read and write, in particular regarding the link between characters and their pronunciation? The participants in the study were young adult immigrants from Vietnam who today look back on their experience of language learning in the host country over the course of the last 20 years.

Keywords: East Asian languages; immigration; language awareness; phonological transcription; second language literacy

摘要: 對第二語言及外語學生而言， 精通中文書寫系統常是一個特別的學習挑戰。此研究以東亞移民語言學習者的探索性研究相關內容的概要作為開頭，為理論問題的討論奠定基礎，希望為針對一般以中文為第二語言學習者的研究提供新的方向。本研究討論將特別著重於已精通第一語言且以中文為第二語言學習者的情況, 並探討語言意識在學習閱讀和寫作時, 著重字元與發音的連結所扮演的角色。本研究的研究對象是來自越南的青年移民，回顧過去二十年於移民國語言學習的經驗。

關鍵字: 東亞語言; 標音符號; 移民; 第二語言素養; 語言意識

***Corresponding authors: Norbert Francis**, Northern Arizona University, Flagstaff, USA, E-mail: norbert.francis@nau.edu; and **Thi-Nham Le**, National Chengchi University, Taipei, Republic of China, E-mail: annie.le@nccu.edu.tw

1 Introduction – learner perceptions of progress

Recent trends of East Asian migration have brought to the attention of educators and policy makers the experience of second language (L2) learners of Chinese from different first language (L1) backgrounds. The L1 backgrounds in this population of learners involve languages also of East Asia, an interesting circumstance because of the historical relationships of each language with Chinese, differing from one relationship to another. The focus of the present discussion and proposal for research is on reading and writing in the second language of immigrants as they learn Chinese as part of their integration into the receiving culture.

A comprehensive literature search revealed no studies specifically on the learning processes and levels of mastery of Chinese literacy by immigrants. In addition, previous investigations on aspects of L2 Chinese learning in general by immigrant adults are scarce. A study that included a language assessment measure by Huang and Liao (2012) is an exception. The present proposal for research summarizes the outlines of the learning context and related factors that affect second language development and specifically literacy learning among adult learners.

The motivation for our proposal follows from the need to continue the examination of findings of a recent exploratory study of L2 Chinese learners – immigrants to Taiwan from Vietnam during the late 1990s – and a sample of first-generation Taiwanese children born to Vietnamese mothers arriving approximately during this same period (Le and Francis, in preparation). From the total sample of 34, in this report we will highlight the literacy learning progress of the adult mothers ($n = 17$) and the child L2 learners of Chinese (6 out of the total of 17) as they recalled their experiences in a series of in-depth interviews granted in 2021. Then, a review of the research literature on Chinese literacy learning will complement the self-report observations of interviewees for the purpose of forming a conceptual framework for the previously mentioned proposal for further work in this realm of second language literacy learning.

2 Language and writing

2.1 Learning L2 Chinese and learning the characters

From the interviews, a consistent pattern of learning outcomes emerged from the personal recollections and self-assessments: for the adult learners 1) a marked discrepancy, or imbalance (so to speak), between a sustained, often rapid development of L2 Chinese ability in listening (comprehension) and speaking; and 2) mastery of the Chinese character writing system. According to the self-report of informants, reading ability attained at least satisfactory levels for basic word

identification and comprehension of messages and short texts. For the one participant from among the immigrant mothers who came to pursue higher education (university), reading ability was described as at least average or acceptable for study purposes. On the other hand, skill in writing the characters, generally, for the 17 adult participants as a whole, appears to lag significantly behind:

(A) Ten of the interviewees judged their ability at the beginning level, writing only their own name – or their child's name – and address with the help of a mobile phone.
(B) Intermediate/approaching advanced learners (three) reported more advanced skill but demonstrated difficulty writing by hand or had an ability to only write short messages, again relying on their computer or mobile phone.
(C) The most advanced literacy learners (four) estimated their skill in writing characters at 40, 40, 50 and 80% of the level held by their young adult children.

The default proposal in a follow-up study would make the prediction that immigrants arriving to Mainland China would pass through the same stages of L2 Chinese learning, and if they settle into an urban area, on the same time course as their counterparts in Taiwan.

The interesting factor (both theoretically and for practical application) in the case of the immigrant literacy learners is that as adult learners, they are almost always fully literate in their L1, having typically completed at least elementary school or its equivalent prior to emigration. The median grade completed in Vietnam for the mothers' group is grade 7 (lowest: grade 4). But it is important to point out that one of the grade 4 completers, according to her self-assessment, attained the highest level of literacy skill in Chinese, "80% of daughter's level." MG201, as a L1 speaker of Cantonese, attended Chinese language-medium elementary school in Vietnam, and upon arrival to Taiwan studied for a number of years in an evening-school program.

On the question of language awareness, we were able to record a number of interesting observations from adult learners (among mothers and separately from the children of immigrants – today university students). While not systematic nor expressed by a majority, the comments suggest lines of future investigation on the role of language awareness in literacy learning. Informants reflected on the structures of language related to bilingualism, for example regarding parallels and contrasts in the patterns of grammar in their L1 and L2. As expected, the observations of students enrolled in a language class were more specific (also because of the different set of questions that they received), for example: the comparison of tone in Vietnamese, Cantonese and Mandarin; the difference between the northern and southern dialects of Vietnamese and how these align with the writing system;

and on the relationship between Sino-Vietnamese and Vietnamese native vocabulary. Another kind of language awareness, specifically for the L2 learners of Chinese (both mothers and the four students who began to study Chinese as older children or teenagers), is an important topic of research in recent years: the awareness of the role that *pinyin* and *zhuyin fuhao* might play in literacy learning. As these phonetic scripts represent the sound patterns of the target language, they offer, according to a number of the participants, a support for learning the characters and the language itself. However, since the data was self-report testimony, we cannot accept it at face value. Specifically, the use of the phonetic transcription systems could represent, as learners perceived them, a productive support for subsequent or parallel learning of the characters. In contrast, it may turn out to be a kind of permanent "work-around" that does not contribute to eventual mastery.[1]

2.2 The challenge of literacy learning for adult L2 learners of Chinese

To reiterate, the interviews revealed successful acquisition of spoken Chinese. That is, none of the participants, having undergone an early stagnation in their spoken Chinese abilities at a rudimentary level, reported a failure to make further progress. In this regard, observers may judge the above self-assessment of literacy ability in particular as not especially noteworthy. Anecdotal accounts commonly shared even among highly educated long-term foreign residents with full-time employment (who were not speakers of Chinese upon arrival) note that progress in L2 Chinese is often satisfactory or acceptable for day-to-day communication, in contrast to only rudimentary mastery of the writing system. Of course, a follow-up study on this question requires taking a broader representative sample of both groups of immigrants mentioned here to then confirm or disconfirm self-reports and anecdotal "common knowledge" impression with an objectively scored standard assessment of literacy. Similarly, for the other observations of the preliminary phase of the study reported here, the qualitative and descriptive results from the small group of informants need to be verified in the same manner. For now, the current pilot study should help us sort through the possible working hypotheses and design a new methodological approach for testing them.

1 We of course are not dismissing the solution of using the phonetic transcription systems as a permanent "work-around" for second language learners (for example in typing and the various advanced mobile phone applications). Rather, this important topic needs to be postponed for a separate discussion, based on empirical data from a large and representative sample.

In any case, the general phenomenon of second language literacy learning in Chinese has been a topic of frequent commentary by both teachers and students across all learner populations. The informal judgement is that, except for students with expert knowledge of the morphosyllabic system from completed schooling in their first language, writing presents an exceptional challenge (Ésik 2020; Yang 2018). Previous studies relevant to our topic fall into two broad categories that can hopefully inform a new research program that we will consider in Sections 3 and 4:

- L2 and foreign language (FL) Chinese reading and writing mastery by learners who are literate in their first language, and
- L1 Chinese speakers' learning to read and write (children who begin literacy learning in kindergarten and elementary school).

An important characteristic of the second category is, in addition to native-speaking competence in the language, the reported extensive practice in pre-writing and writing by children starting in many cases even before kindergarten. In the first category, students are learning both their second language and the morphosyllabic writing system of its culture at the same time. We include a brief discussion of literacy learning among child L2 learners of Chinese given that six of the study participants belong to this important category.

3 Writing for second language learners

3.1 Cross-language and cross-cultural interaction

Within and beyond the region, the field of L2 and FL Chinese learning has expanded rapidly in recent years (Gong et al. 2020; Wen 2020). Informal observation and reflection by language teachers have suggested interesting comparisons among speakers of the languages of East Asia related to the historical relationship of thousands of years involving linguistic contact with Chinese (Zhou 2003), as mentioned in Section 1. For example, the shared lexicon and parallel grammatical patterns, including aspects of the phonological system (in particular; lexical tone) with Vietnamese, provide for one kind of advantage for learners. On the other hand, the incorporation of *kanji* (*hanzi*) into Japanese writing accounts for a different (and contrasting) learning advantage for L2 beginners who have already learned the morphosyllabic system. In the case of the former, an advantage appears in the domain of the subsystems of the linguistic system revealed in listening and speaking Chinese, and in the latter, in the domain of literacy learning. Korean-speaking learners of Chinese, depending on the content of their L1 instructional program, will depend on varying degrees of knowledge of how morphosyllabic writing works (on average more with older learners in South Korea and less with younger learners).

For examples of what we could categorize under such "transfer" effects, specific in large degree to the L1 language and writing system of the learner, see Sugishita and Omura (2001), Yu (2003), Phan (2013), Taylor and Taylor (2014). The cited cross-language interaction effects here fall under the category of "positive transfer" or access to shared knowledge structures common to the L1 and L2 systems that facilitate one or another learning objective. Which "shared knowledge structures" obtained in the case of Chinese that learners can actually call upon for so-called "positive transfer" will depend on learners' L1 experience. Ultimately, a systematic and controlled study of L2 learners of Chinese from different L1 backgrounds is needed to confirm or disconfirm the validity of these examples.

3.2 Learner testimony: adult group C

The following notes from interviews begin with the four advanced L2 Chinese literacy learners among immigrant mothers, and one first generation child who grew up in Vietnam and began learning Chinese as a young adult. They give us a glimpse into some of the details of learning strategy and opportunity from the most successful learners. They serve, we believe, as suggestions for large-scale follow up studies focused on one or another of the specific observations offered. In addition, we will consider the self-reports from the six first generation children who were true Chinese L2 learners during elementary or middle school. The literacy learning experience of the remaining 10 first generation children, from their testimony, appeared to be no different from that of their native-speaker Taiwanese classmates. This group of 10 acquired Chinese as an early childhood L1, and readers can consult our first report for the results from their interviews.

Among the most advanced L2 Chinese literacy learners is YP204 – her recollection is indicative of this progress. It appears as representative of the four evident exceptions among the immigrant mothers in the category of reading and writing:

- completion of grade 10 in Vietnam
- among the 17 immigrant informants, the longest stay (more than one year) at the language center in Ho Chi Minh City prior to emigration
- tutoring in the evening by her fiancé and
- 9 years of vocational education in Taiwan.

(See work samples from the early years at the learning center in Figure 2).

From the group of the four most advanced learners, YP204 estimated current speaking and listening at 80% and writing ability at 40% of the level held by her son. She began learning Chinese as a factory worker at a Taiwanese company located in Ho Chi Minh City from colleagues over three years before meeting her husband, and attained approximately 5% conversational ability. Recalling lessons

at the language center, focused attention on the 214 semantic radicals framed the initial learning objectives:

> The teacher taught the meaning behind [each one] relating to stories of mountains, rivers and cultures of Chinese people. After six months I was able to speak with my boyfriend in more complex sentences such as 我今天想回家鄉 or 我在做越南飯. I continued to study Chinese by using the books that I purchased in Vietnam….I watched TV and looked at subtitles. I understood about 30% of what shown on the TV. From junior and senior high school [evening vocational education] it was 5 times a week.…my husband took care of my children. In junior high school I got 17 of 20 in Chinese literature writing, my classmates, elderly Taiwanese persons, obtained 18 of 20. Now my reading level is about 80% of my son's Chinese level. I can read official documents, regulations and government announcements. I can type by phone without problems and can write about 40% compared to my son (19 years old)…. At the American factory where I work now, I understand 100% of what Taiwanese people talk about.

All 17 immigrant interviewees commented on their Chinese language classes at the language center or marriage-broker center in Vietnam. The majority indicated that the textbooks, for example as in Figure 1, often kept among their belongings and taken to Taiwan, turned out to be a learning material of great value for subsequent self-teaching in their new Chinese-speaking community, for example, when enlisting the assistance of native speakers and more advanced L2 learners.

Cantonese speaker MG201 also worked as translator for a Taiwanese transnational company. On a business trip to Taiwan, she met her husband. MG201's rapid progress in literacy can be explained in part by the early exposure to Mandarin Chinese, which in her case was the medium of instruction at her elementary school in Vietnam, thus becoming for her an early childhood L2 together with early L2 Vietnamese.

One of the mothers, TT203, completed high school in Vietnam and today attends university in Taiwan after studying Chinese in vocational education. Representative of the informants who mention it, *zhuyin fuhao* appears as especially useful for linking characters to their pronunciation, and for learning grammar and new vocabulary. TT203 estimated her writing ability today at 50% of that held by her adult children.

VT210 completed grade 11 in Vietnam. After completing 9 years of vocational education in Taiwan, she estimates her reading level at 80% and writing at 40% of her son's level.[2]

---

2 To re-emphasize, percentages for level attained in listening/speaking and reading, and separately in writing, represent participants' self-assessment, typically in comparison to that of their adult son or daughter. The project did not directly evaluate participants' language and literacy abilities.

Figure 1: 800 Chinese-Vietnamese Conversation Sentences Self-Studying Mandarin (Cassette Package).

The interesting account here of using *Vietnamese pinyin* as a learning strategy during the first classes at the marriage-broker center deserves further study, as there are no reports of it that we know of in the research literature.

> Each of us had our own way to recognize the words and sentences. I asked my teacher how to say in Mandarin, for example:
>
> – "đi chợ mua đồ ăn" [go to the local market to buy the food].
> He read out loud: "去市場買食物."
>
> Then I used my *Vietnamese pinyin* to note it down as: "chuy sì chảng mãi sử u."
>
> – "đi lên lầu nghỉ ngơi" [go upstairs to rest].
> Then he read out loud: "去樓上休息."
>
> Then I used my *Vietnamese pinyin* to note it down as: "chuy lẩu sang xiu xỉ."

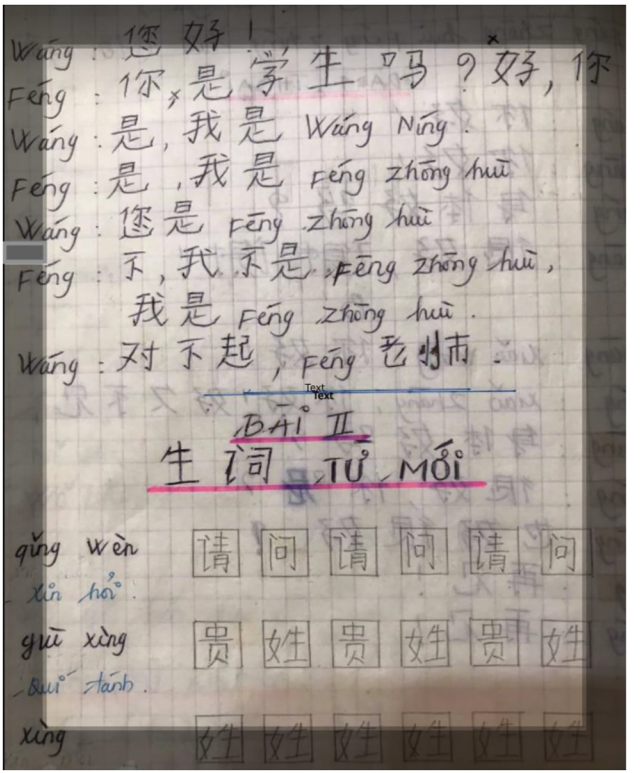

Figure 2: Workbook exercise (YP204).

Readers will take note that each of the two *Vietnamese pinyin* annotations serve to provide the learner only with an approximate pronunciation of the respective Chinese texts since, as written, they would of course not be grammatically correct in Vietnamese. A number of our informants called attention to it as a valuable tool for learning both the characters and the language, for example, at the beginning stages when they had not yet mastered *zhuyin fuhao*.

Summing up, again we take note from participants' self-reflection of a potentially measurable gap, consistent across learners of different levels of mastery, between:

- listening/speaking ability, and
- writing ability.

The gap appears even among our four most advanced L2 literacy learners (who are also, not surprisingly, among the most advanced L2 learners of Chinese overall).

Regarding the use of phonological transcription of characters, first generation daughter PG104 (late L2 learner of Chinese, beginning at age 18) reported that for immigrant university students *zhuyin fuhao* provides second language learners with a vital resource, as professors today often make the relevant accommodations when accepting written work and even responses on some exam papers. The logic of this educational provision, presumably, is that it is transitional, and that it will actually assist L2 learners in mastering the characters by keeping students immersed, in effect, in a kind of academic content-based language instruction. In fact, we were surprised to learn about this L2 accommodation for immigrant students that might be, subject to subsequent inquiry, consistent with university system-wide policy.

The previous three accounts of learners' experience happen to coincide with studies (they *do not confirm* the studies) of L2 literacy by adult university students of Chinese that examined factors related to phonological awareness (PA). The students, from alphabetic literacy backgrounds, appeared to make productive use of phonological information in characters in a similar way in which L1 Chinese literacy learners have been shown to do (Kim et al. 2016). Zhang and Roberts (2019) found that a generic measure of PA predicted the learning of characters, although a specific assessment of phonetic radical awareness did not. Suffice to say, that while suggestive, the results from this line of investigation are still preliminary.

3.3 Learner testimony: adult groups A and B

Among the 13 mothers who described their character writing ability as "level 1 beginner" (N = 10) or intermediate/approaching advanced (N = 3), the majority called attention to the learning resource of *zhuyin fuhao*, with three having opted for *Hanyu pinyin* instead. With accounts similar to the examples from the previous section, four learners also singled out *Vietnamese pinyin*. Interestingly, and not surprisingly, intermediate/approaching advanced VN213 commented specifically on foregoing the phonological scripts altogether given that she had received early Chinese reading instruction as a child, via the "direct method," in her Vietnamese/Cantonese bilingual elementary school.

Almost universally, among all three groups, the mothers mentioned learning either new vocabulary, or the characters themselves, by paying attention to the subtitles that appear on television programs. More research on this recollection/observation, which at first glance might seem extraordinary for beginners, is needed. One possibility is that the effect has been cumulative over the period of

retrospection (on average 20 years), interacting with other productive input factors. Level 1 beginner CD205 reported that paying attention to TV subtitles "helped [her] to get familiar with road signs and labels." From another informant:

> I used *Vietnamese pinyin* by myself to memorize them…paid attention to the subtitles and used my fingers to draw them in the air (TT212 – intermediate/approaching advanced).

A beginner level learner remarked:

> I watched TV movies the whole day,…observed the actions and motions of the actors and actresses; at the same time I tried to recognize the Chinese characters. For example, I observed the motion of the actress when she was angry. I listened and looked at the subtitle, 我生氣, and slowly my Chinese has improved (DM209).

Using the same method, NT207 and LT208 report that they are now able to read the most common subtitles.

3.4 Learner testimony: first generation sons and daughters

The six child L2 learners mentioned above can be divided into early and late childhood learners. The three early L2 learners remain today as Vietnamese-Chinese bilinguals, in addition to reporting a rapid "catch-up" in elementary school in learning the characters. In all three cases, "falling behind" did not extend beyond two years during the early grades, whereby subsequent literacy learning was reported as uneventful or "the same as" that of their peers.

The late childhood learners (age of onset for L2 Chinese: 13, 13 and 10), predictably experienced a more prolonged "catch-up" period, with ultimate attainment (10 years later at the time of the interview) in L2 Chinese virtually equivalent to that of native speaker classmates or colleagues. Cantonese/Vietnamese bilingual TP111 recalled the experience of special placement in middle school together with other "overseas Chinese" students, without remarking whether or not this practice was effective (by grade 12, "I understood 99% of Taiwanese students' level"). With no Chinese background, TN115 was fortunate to receive intensive remedial instruction upon arrival to Taiwan, recalling how a first grade teacher was assigned to her for learning *zhuyin fuhao*. Similar to the majority of interviewees, this opportunity was reported as indispensable for learning the characters. L2 learning accommodations included multiple choice instead of more difficult open-ended questions and the teacher reading aloud written questions. For current university studies, TN115 reports Chinese literacy as adequate for all subjects with the exception of literature class. Younger arrival (age 10) KH116 reported a similar adaptation, including *zhuyin fuhao* exam questions, with the

added self-initiated use of *Vietnamese pinyin* combined with a Vietnamese/Chinese dictionary. High school progress was reported as rapid, culminating in a university scholarship awarded in grade 12. Part of the possible explanation for successful L2 learning in the case of the late childhood L2 learners might point to the opportunity of uninterrupted schooling which included adequate elementary-level literacy instruction in Vietnam, now a general feature in recent years of the national educational system.[3]

4 Literacy learning by child L1 speakers

4.1 The writing-reading link hypothesis

An important discussion among researchers is the factor of handwriting practice in learning to read Chinese. Tan et al. (2005), in their study, place strong emphasis on the coupling that is forged from extensive practice – pen in hand – during the production of the component stroke patterns of characters, resulting in the crystallized knowledge of orthographic structure. In other terms: for each lexical entry of the semantic, morphosyntactic and phonological *constituents of natural language competence* an *orthographic constituent* is securely fixed. The link between natural language competence and orthography is forged via the years of literacy learning and practice. Successful literacy learning results in a high quality representation.

It is important to point out here the contrast to the corresponding mastery of alphabetic writing: the mapping between characters and syllables is far from reliable. Thus, researchers propose the hypothesis that "orthographic awareness rather than phonological awareness is the most predictive variable for Chinese reading achievement" (Cao et al. 2013: 1671). Handwriting practice in particular, according to the proposal, establishes a strong visual-spatial memory trace, facilitating efficient character recognition for reading.

In a commentary on the Tan et al. (2005) study, Bi et al. (2009) present evidence for a dissociation between writing and reading ability, suggesting that reading does not depend on skilled character writing in all respects. However, as the authors point out, the findings from an adult patient demonstrating fully proficient reading independent of a severely disabled writing ability may not contradict the handwriting-reading link claim. That for beginning learners "in the course of development" (p. 1199), there may in fact be a causal relationship

3 *Vietnam News*. December 6, 2019: https://vietnamnews.vn/society/569454/vn-gets-high-scores-but-not-named-in-pisa-2018-ranking.html#:~:text=H%C3%80%20N%E1%BB%98I%20%E2%80%94%20Vi%E1%BB%87t%20Nam%20has,(ranking%204th)%20in%20science.

between early and extensive handwriting practice and reading. Thus, the important contribution of writing to reading ability appears as a plausible proposal that deserves more investigation.[4]

4.2 What is the contribution of phonology?

We now turn our attention to accessing phonological information within characters in teaching and learning. Concurrent with the early intensive copying activities, children in Mainland China, Singapore and Taiwan learn a phonetic script for the purpose of serving as a support for learning the first set of characters of the elementary school literacy curriculum.

What exactly is the role of *pinyin* and *zhuyin fuhao* in beginning literacy learning and how does it contribute to mastery of the characters? The question needs to be investigated and answered separately for:

- literacy learners who are child L1 speakers entering primary school, and
- for older learners (both children and adults) who are learning Chinese as a L2, and who, along with the new language, are learning to read and write the characters.

Returning for now to the question of L1 literacy development, child native speakers – who often explore forming their first characters during preschool – begin literacy instruction in first grade at the same time as learning the parallel phonetic script. That, historically, Hong Kong has been an exception to the early teaching of a *pinyin* or *zhuyin fuhao* type system is an interesting topic of future discussion, perhaps related speculatively to the question of:

- a "closer alignment," in Mainland China, Singapore, and Taiwan, between the spoken language of schooling (Mandarin) with Modern Standard Written Chinese (MSWC), compared to

4 Research in alphabetic literacy also points to the possibly important contribution of writing to reading ability. Spelling, as in decoding, requires attention to grapheme-phoneme relationships. By hypothesis, extensive and focused written production might lead to superior word *recognition* because of the greater processing demands involved in spelling (Shahar-Yames and Share 2008). In writing, phonological processing skills plausibly need to be called upon in a more deliberate way. In subsequent occurrences of once novel words in reading, they undergo less exhaustive processing. But in spelling words, each occurrence calls upon the writer to process the orthographic form more completely than in reading (p. 24). Li et al. (2020) present evidence from a study of Chinese reading that this "self-teaching" process may be favored, jointly, by phonological recoding, identification of semantic information and writing practice.

– a "more distant alignment" in the case of spoken Cantonese with MSWC. See Koda (2002: 241–243), Wang and Yang (2008) and Snow (2010) for discussion of the relationship between MSWC and spoken language.

4.3 Awareness of phonology and awareness of morphology

Related to the writing practice question, what is the contribution of language awareness (or metalinguistic awareness) to learning the different aspects of language<–>grapheme correspondence? More specifically, what is the contribution of language awareness to learning the correspondences of morpheme<–>character and syllable<–>character? For example, if the proposal from research is correct that, in the processing of characters, phonology cannot be bypassed (Perfetti et al. 2013), might this *processing* condition (in regard to phonology) be extended to or be directly relevant to literacy *learning*? Is phonological awareness important for, or does it play an integral role in, the development of reading and writing at the beginning levels? Thus, in regard to meaning and pronunciation:

(1) do both morphological awareness *and* phonological awareness at the syllable level (Shu et al. 2008) play an important role in learning? or alternatively,
(2) only the former, assuming that morphological awareness is self-evidently necessary. The "morphological-awareness-only" alternative would propose that PA is strictly peripheral, consistent, for example, with the hypothesis of a direct access route to semantic representation from visual input (Han and Bi 2009). And finally,
(3) that to some important degree phonological awareness intervenes in literacy learning at the level of the syllable, even as morphological awareness is more clearly demonstrated in performance. This third alternative proposes that morphological awareness is more straightforwardly evidenced in assessment because it is in fact the predominant factor (Packard et al. 2006).

In other words, (3) would be a version of hypothesis (1). See the discussion on this ongoing research question in Hu (2013), McBride (2016) and Wei et al. (2014).[5] Before moving on, we should take into consideration a methodological problem for work going forward. The problem of method involves the need to clearly

5 The morphological and phonological awareness aspects of character learning do not exhaust all components of literacy-related knowledge. One example that we address, and unfortunately not in sufficient detail in this paper, is the developing knowledge and skill of visuo-spatial graphic patterning related to orthographic processing (for reading) and visual-motor processing (for writing) discussed by Tan et al. (2005) and Cao et al. (2013) as referenced in Section 4.

distinguish experimentally between awareness of morphology and awareness of phonology, especially in the case of learning the morphosyllabic characters. The problem could be related to the question of access to semantics and access to phonology when reading characters.

As another example from the three proposals on learning mentioned above, the discussion by Tan et al. (2005) of their results could be considered as possibly favoring a version of (2). Their interpretation of the results is noteworthy even though they most likely do not favor the "direct access to semantics" hypothesis:

> In this study we report evidence contrary to the accepted theory ['the centrality of phonological sensitivity']. We argue that the role of phonological awareness in Chinese reading development is minor, and we investigate other skills that account for successful reading acquisition. (p. 8781)

We will stand corrected if our characterization of this conclusion comes to be an overstatement based on more recent findings, discussion and clarification. In addition, the authors' argument for a minor role of PA in learning should be considered as separate from their claim regarding the importance of extensive handwriting practice for proficiency in reading. For the purposes of the present discussion, the latter claim we do not question. In addition, we do not reject the possibility that future research might show that the role of PA is minor in learning to read in Chinese.

4.4 Do children also use phonological information in literacy learning in Chinese?

This research problem, in its different parts, has guided investigators now for many years. In their study, Yin and McBride (2015) asked if kindergarten children (age 4) are sensitive to orthographic and phonological regularities, comparing results from similar studies in alphabetic pre-literacy. Recall that regarding this comparison we take into consideration the relative unreliability of phonetic information in characters (predictive accuracy of 40% if tone information is excluded, 25% if included). The authors noted that previous research has suggested that nevertheless, in Chinese, young children do make use of structural and phonetic regularities in learning to read and write. Their study showed that there was a higher proportion of correct responses when phonetic cues were available in pseudocharacters and noncharacters. This result was taken as consistent with previous studies cited. Participants did not have the benefit of formal reading instruction, and the evidence of this sensitivity predicted superior reading proficiency one year later. Similarly, in a study of beginning *pinyin* production (so called "invented

spelling") by young children, early sensitivity to phonological pattern, revealed in a dictation task, predicted superior performance in character reading 12 months later (Lin et al. 2010). Evidence from assessment during the period of initial implementation of *pinyin* teaching, comparing experimental and previous character-only instruction, confirmed the hypothesis that early *pinyin* learning would result in significantly more efficient character learning. Reported results showed a more rapid mastery, reducing elementary school target grade expectations (number of characters learned) by as many as two years (Liu 2005).

Zhang et al. (2020) examined the claim of a positive association between early *pinyin* learning, PA and character reading. The evidence consisted of knowledge of a correspondence by child beginner learners between units of writing and units of speech. In alphabetical reading development there is strong evidence for a reciprocal relationship of mutual influence: early experience with (e.g. "invented") spelling favors the development of PA, and vice versa. In turn, PA facilitates the subsequent more systematic mastery of the grapheme-phoneme correspondences. Would early *pinyin* knowledge play an analogous role in the case of syllables (as no character component corresponds to phonemes)? Overall, results of the study found a concurrent relationship between preschool *pinyin* learning, PA and character writing (child's name and word test items); that knowledge of *pinyin* facilitates early literacy development. The authors speculate that phonological representation helps children "memorize and retrieve characters by pronunciation" (p. 1287), an interpretation supported by previous studies that the authors cite (Wang et al. 2014).

Chen et al. (2003) proposed that even considering overall inconsistency, learners are sensitive to the phonetic component of characters and make use of partial information, what the authors call a "regularity effect." It is revealed in the patterns of accurate character identification and in the kinds of overgeneralization errors that characterize development. Children encode and remember the pronunciation of characters in their developing awareness of the function of regular and semi-regular characters. Both visual-graphic skills and incipient phonological awareness are important in early development; and it appears that learners who advance more rapidly make use earlier of a kind of "analogy strategy" by attending to and forming networks of "phonetic families " (Chen et al. 2014).

While "alphabetic readers" and "logographic readers" process the constituents and the language-grapheme links of their respective writing systems differently, the proposal of this line of research is that, for both, "intraword awareness" emerges with literacy learning. In the case of characters for L1 Chinese and Japanese learners, ability to use component radical information (semantic and phonological) develops as children begin to turn attention increasingly and systematically to the components (Koda 2002).

4.5 A second look at pinyin and character learning

In a possible contrast, a report by Tan et al. (2013) appears to pointedly contradict the apparent consensus conclusion on early *pinyin* learning during the elementary grades. Even though the focus of the study was on the effect of the use of *pinyin* as an input method in word-processing, the literacy assessment in this study tested character *reading*, not character *writing*. That is, an easier hypothesis to confirm, so to speak, might have been the negative effect of on-line use of the *pinyin* input method on *handwriting* of characters as opposed to word recognition.

The surprising assessment results show a (negative) correlation between:

- greater computer word processing/mobile phone texting, and
- performance on character recognition.

Overall, in a sample from Beijing, Guangzhou and Jining, 28.1% of the third, fourth and fifth grade participants scored within a range that would be considered two grade levels behind the expected reading level. While the average for third graders reflected grade-level expectation, the scores of fourth and fifth graders indicated that 24.5 and 57.5%, respectively, could be categorized as experiencing "severe difficulty" in reading (p. 1121). The authors are the first to point out a limitation of the study in the lack of a national standardized measure. But the sample size was large and seemingly representative, and results appear as reliable and robust. Discussion of the findings points to a problem of interference:

> "with the learning of the graphical representation of Chinese characters" (p. 1123) from the use of an input method in which "visuo-spatial properties of characters indispensable to Chinese reading are never involved during the typing process." Typing the *pinyin* spelling and selecting the intended character conflicts "with typical reading developmental processes that start with visual-graphic analysis of written characters and that are enhanced by handwriting." (p. 1119)

5 Questions for future research regarding the representation of phonology

Here we should consider two ways of understanding the term "representation":

- how characters are "represented" (or how words are transcribed) in an alternative phonological script, and

– mentally, how the structures for the sound patterns of the language come to be acquired and "represented" in memory, and then used in language processing and in learning (e.g. learning how to read).

From this point of view, what precisely are the broader implications of the Tan et al. (2013) study that addresses the problems of L1 literacy for native speakers? We can assume, for argument's sake, that the interpretation of its findings is valid or at least address one of the dilemmas of the *pinyin* input method for typing characters.

– Might the learning problem associated with the *pinyin* input system for word-processing apply only to the elementary grades (i.e. with time, learners recover expected ability), and, in the end, reading is not negatively affected, only the handwriting of characters?
– Then, might the learning problem (the negative effect) not apply to early *pinyin* (or *zhuyin fuhao*) instruction, *per se*, as a support for character reading and writing, leaving the word-processing question aside?

Finally, specifically for the object of study in this discussion, would the learning problem apply in the same way to L2 Chinese literacy learners whose L1 writing system is alphabetic, in the case of our participants, the *chữ quốc ngữ*? We can also ask the same two questions above, now for older L2 learners:

– Ultimately, do *pinyin* (or *zhuyin fuhao*) input methods negatively affect in the long term (ultimate attainment) both reading and writing, or only handwriting?
– Then, does phonological transcription as a guide for beginning reading and writing facilitate learning the characters (leaving the word-processing question aside)? Does the negative affect of using phonological transcription arise only when it is used as an input method? Recall that, typically, L2 learners of Chinese are already skilled users of an alphabetic script and will naturally attempt to utilize it ("*Vietnamese pinyin*" or *Hanyu pinyin*) as a support for learning the pronunciation of characters.

On another level, two avenues of investigation, formulated as questions, present themselves:

– If *pinyin*, *per se*, aside from its use as an input method for word-processing, can be shown to not contribute to literacy learning, what would this imply for teaching practice and for research on reading and writing in Chinese in general?
– If, on the contrary, previous studies suggesting that skill in using *pinyin* counts as a facilitating learning factor in learning the characters can be confirmed, what might this result imply about the role of PA in literacy learning in

Chinese? If it turns out that using *pinyin* helps L1 speakers and L2 learners learn the morphosyllabic writing system, is this acquired knowledge of the link between morphemes and syllables the reason why it is helpful for literacy learning?

6 Conclusion

All of the above contributes, we believe, to a discussion of how progress in literacy for immigrant L2 Chinese learners can be optimized and made as effective and efficient as possible, together with a consideration of the question of how to expand learning opportunities. Interviewees indirectly referred to resources and accommodations for learners who come from L1 literacy backgrounds based on an alphabetic writing system. Do these observations by learners correspond to verifiable learning procedures that are in fact productive? As the present study was limited to descriptive data from a small group of informants, only future studies that draw on data from a wide cross section of the L2 learner population and more powerful research methods will be able to propose an answer to this question. Recall that this practical question is related to the more general research problem of the role of phonological awareness in literacy learning in L2 Chinese, tied as it is to the transitional use of *pinyin* or *zhuyin fuhao* in the early stages. Again, only a large-scale study with a representative sample of L2 learners that applies direct assessment of literacy performance can make further decisive progress along these lines.

A related research question for future study is the experience of immigrants who, on average, do not acquire basic proficiency in (speaking and understanding) Chinese as rapidly as Vietnamese immigrants do (according to anecdotal account). Plausibly, in the case of the former, L2 Chinese literacy would present an even greater challenge (if the anecdotal accounts can be shown to be accurate). This prediction would need to be confirmed or disconfirmed by the results of actual assessment of performance on tasks of reading and writing as mentioned earlier for other outstanding questions. And, of course, completely different considerations apply to the cohort of bilingual immigrants who acquired Cantonese or Minnanyu, for example, as a native language during childhood, and may have attended a Chinese-medium-of-instruction elementary school in their country of origin. Teachers are also often speakers of Mandarin in addition to the Chinese language of the local community.

The interesting question of the role of word-processing technology – especially for mobile phone applications – in learning the characters is a research problem that needs to take certain contextual factors into account. An authoritative study

would need to separate the learning circumstances of child L1 native speakers who are learning to read and write in school from the circumstances of adult L2 learners (literate in their L1). For the latter, a different set of motivational and learning opportunity factors apply and need to be factored in. We need to keep this distinction in mind as although the two learning contexts (L1 and L2) are important to compare, they are not unrelated.

The different points of view that we have summarized in the discussion of the role of *pinyin*, *zhuyin fuhao* and phonological awareness in literacy learning are part of the broader theoretical background of the issues that second language learners face. It is a theoretical discussion with practical implications for both L1 and L2 learners. It may appear that we have tended to favor one point of view over others, presenting favorably the evidence for the participation of phonological awareness in literacy learning. But it is fair to say that the differences among researchers on the relevant questions are often nuanced, sometimes turning on a matter of emphasis, and more open to interpretation than what might seem at first glance. Often the actual differences are not easy to pin down; and this is for good reason. The empirical questions, especially on the finer points, are still not settled, leaving room for much more discussion on how we should understand even the existing research findings available so far.

Acknowledgements: We wish to thank the Faculty in Southeast Asian Languages and Cultures and the Research Ethics Committee at National Chengchi University (NCCU) for its kind assistance and approvals during the initial stages of planning for the project. In addition to the anonymous reviewers of CASLAR, we acknowledge the valuable consultation with the following researchers and teachers: Her One-Soon (何萬順) of Tunghai University, Wu Di (吴迪) of Northern Arizona University, Xue Jin (薛锦) of the University of Science and Technology, Trang Phan of the National University of Vietnam and Yu Chin Chia (游謹嘉) of NCCU.

References

Bi, Yanchao, Zaizhu Han & Yumei Zhang. 2009. Reading does not depend on writing, even in Chinese. *Neuropsychologia* 47. 1193–1199.

Cao, Fan, Marianne Vu, Derek Ho Lung Chan, Jason Lawrence, Lindsay Harris, Qun Guan, Yi Xu & Charles A. Perfetti. 2013. Writing affects the brain network of reading in Chinese: A functional magnetic resonance imaging study. *Human Brain Mapping* 34. 1670–1684.

Chen, Xi, Hua Shu, Ningning Wu & Richard Anderson. 2003. Stages in learning to pronounce Chinese characters. *Psychology in the Schools* 40. 115–124.

Chen, Xi, Richard Anderson, Hong Li & Hua Shu. 2014. Visual, phonological and orthographic strategies in learning to read Chinese. In Xi Chen, Qiuying Wang & Yang Cathy Luo (eds.),

Reading development and difficulties in monolingual and bilingual Chinese children, 23–47. Dordrecht: Springer.
Ésik, Szandra. 2020. Teaching Chinese characters to second language learners. *Researching and Teaching Chinese As a Foreign Language* 3. 1–22.
Gong, Yang, Xuesong Gao & Boning Lyu. 2020. Teaching Chinese as a second or foreign language to non-Chinese learners in mainland China. *Language Teaching* 53. 44–62.
Han, Zai Zhu & Yan Chao Bi. 2009. Reading comprehension without phonological mediation: Further evidence from a Chinese aphasic individual. *Science in China Series: China Life Sciences* 52. 492–499.
Hu, Chieh-Fang. 2013. Predictors of reading in children with Chinese as a first language: A developmental and cross-linguistic perspective. *Reading and Writing* 26. 163–187.
Huang, Hsiao-wen & Hengli Liao. 2012. Empirical research on the Chinese ability of new Vietnamese female immigrants in Southern Taiwan. *Journal of Language Teaching and Research* 3. 58–65.
Kim, Sun-A., Jerome Packard, Kiel Christianson, Richard Anderson & Jeong-Ah Shin. 2016. Orthographic consistency and individual learner differences in second language literacy acquisition. *Reading and Writing* 29. 1409–1434.
Koda, Keiko. 2002. Writing systems and learning to read in a second language. In Wenling Li, Janet S. Gaffney & Jerome L. Packard (eds.), *Chinese children's reading acquisition: Theoretical and pedagogical issues*, 225–248. Boston: Kluwer.
Le, Thi-Nham and Norbert Francis. In preparation. Learning Chinese and learning Vietnamese by immigrant mothers and first generation children (under review).
Li, Yixun, Hong Li & Min Wang. 2020. The roles of phonological recoding, semantic radicals and writing practice in orthographic learning in Chinese. *Scientific Studies of Reading* 24. 252–263.
Lin, Dan, Catherine McBride-Chang, Hua Shu, Yuping Zhang, Hong Li, Juan Zhang, Dorit Aram & Iris Levin. 2010. Small wins big: Analytic pinyin skills promote Chinese writing word reading. *Psychological Science* 21. 1117–1122.
Liu, Yongbing. 2005. A pedagogy for digraphia: An analysis of the impact of pinyin on literacy teaching in China and its implications for curricular and pedagogical innovations in a wider community. *Language and Education* 19. 400–414.
McBride, Catherine. 2016. Is Chinese special? Four aspects of Chinese literacy acquisition that might distinguish learning Chinese from learning alphabetic orthographies. *Educational Psychology Review* 28. 523–549.
Packard, Jerome, Xi Chen, Wenling Li, Xinchun Wu, Janet Gaffney, Hong Li & Richard Anderson. 2006. Explicit instruction in orthographic structure and word morphology helps Chinese children learn to write characters. *Reading and Writing* 19. 457–487.
Perfetti, Charles, Fan Cao & James Booth. 2013. Specialization and universals in the development of reading skill: How Chinese research informs a universal science of reading. *Scientific Studies of Reading* 17. 5–21.
Phan, Trang. 2013. *Syntax of Vietnamese aspect*. UK: University of Sheffield dissertation.
Shahar-Yames, Daphna & David Share. 2008. Spelling as a self-teaching mechanism in orthographic learning. *Journal of Research in Reading* 31. 22–39.
Shu, Hua, Hong Peng & Catherine McBride-Chang. 2008. Phonological awareness in young Chinese children. *Developmental Science* 11. 171–181.
Snow, Don. 2010. Hong Kong and modern diglossia. *International Journal of the Sociology of Language* 206. 155–179.

Sugishita, Morihiro & Kazufumi Omura. 2001. Learning Chinese characters may improve visual recall. *Perceptual and Motor Skills* 93. 579–594.
Tan, Li Hai, John Spinks, Guinevere Eden, Charles Perfetti & Wai Ting Siok. 2005. Reading depends on writing, in Chinese. *PNAS* 102. 8781–8785.
Tan, Li Hai, Min Xu, Chun Qi Chang & Wai Ting Siok. 2013. China's language input system in the digital age affects children's reading development. *PNAS* 110. 1119–1123.
Taylor, Insup & Maurice Taylor. 2014. *Writing and literacy in Chinese, Korean and Japanese*. Amsterdam: John Benjamins.
Wang, Min & Chin-Lung Yang. 2008. Learning to read Chinese: Cognitive consequences of cross-language and writing system differences. In Keiko Koda & Annette M. Zehler (eds.), *Learning to read across languages: Cross-linguistic relationships in first- and second language literacy development*, 125–154. New York: Routledge.
Wang, Ying, Catherine McBride-Chang & Shing Fong Chan. 2014. Correlates of Chinese kindergarteners' word reading and writing: The unique role of copying skills? *Reading and Writing* 27. 1281–1302.
Wei, Tong-Qi, Hong-Yan Bi, Bao-Guo Chen, Ying Liu, Xu-Chu Weng & Taeko Wydell. 2014. Developmental changes in the role of different metalinguistic awareness skills in Chinese reading acquisition from preschool to third grade. *PloS One* 9. 1–10.
Wen, Xiaohong. 2020. The acquisition of Chinese as a first and second language. *Languages* 5. 1–11.
Yang, Juan. 2018. What makes learning Chinese characters difficult? The voice of students from English secondary schools. *Journal of Chinese Writing Systems* 2. 35–41.
Yin, Li & Catherine McBride. 2015. Chinese kindergartners learn to read characters analytically. *Psychological Science* 26. 424–432.
Yu, Ming-Chung. 2003. Chinese morphology: An exploratory study of second language learners' acquisition of compounds. *Concentric: Studies in English Literature and Linguistics* 29. 1–35.
Zhang, Chenyi, Gary Bingham, Xiao Zhang, Sara Schmitt, David Purpura & Fuyi Yang. 2020. Untangling Chinese preschoolers' early writing development: Associations among early reading, executive functioning, and early writing skills. *Reading and Writing* 33. 1263–1294.
Zhang, Haiwei & Leah Roberts. 2019. The role of phonological awareness and phonetic radical awareness in acquiring Chinese character literacy skills in learners of Chinese as a second language. *System* 81. 163–178.
Zhou, Youguang. 2003. *The historical evolution of Chinese languages and scripts*. Columbus: National East Asian Languages Resource Center, The Ohio State University.

Bionotes

Norbert Francis
Northern Arizona UniversityFlagstaff, USA
norbert.francis@nau.edu

Norbert Francis, Facultad de Filosofía y Letras, Universidad Nacional Autónoma de México (1994), is currently Professor Emeritus at Northern Arizona University. He works on problems of language and literacy learning in bilingual and multicultural contexts in Latin America and East Asia.

Thi-Nham Le
National Chengchi University, Taipei, Republic of China
annie.le@nccu.edu.tw

Thi-Nham Le (黎氏仁), National Kaohsiung University of Science and Technology (2017), is Assistant Professor in the BA Program in Southeast Asian Languages and Cultures, National Chengchi University, in Taiwan. Currently, her research interests focus on the cross-cultural and cross-language contact of Vietnamese immigrants and on the economies of Southeast Asia.