

Differentiated Treatment of Cultural Items in Lexicographical Products: A Necessary Adaptation to the Digital Environment

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Abstract: The paper focuses on the lexicographical treatment of cultural objects. It argues that second-language learning requires second-culture learning and that digital technologies call for new solutions to both old and new challenges. As an example, it takes traditional Chinese musical instruments and starts with a critical analysis of their treatment in five Chinese–English dictionaries for both foreign learners and native speakers. It continues with some reflections on media convergence and its consequences for lexicography and reaches the conclusion that the one-size-fits-all dictionary must be replaced with a variety of lexicographical products on different platforms. Lexicographers' focus must therefore move from the dictionary to the database that supports these products. This leads to a discussion of equivalent and explanation types and the need to prepare four different database fields for equivalents and two for explanations. To exemplify this, the paper presents a lexicographical database with equivalents, explanations, and other types of culturally relevant items. It then uses a few examples to show how these lexicographical items stored in the database can be selectively employed on different platforms and adapted to specific user needs. The paper links directly to sound files and video clips with some of the discussed instruments. Finally, the paper provides some conclusions and perspectives for further improving the cultural dimension of learners' lexicography.

Keywords: MEDIA CONVERGENCE, CHINESE–ENGLISH DICTIONARIES, LEARNERS' DICTIONARIES, E-READERS, DIGITAL DEVICES, LEXICOGRAPHICAL DATABASES, EQUIVALENT TYPES, EXPLANATION TYPES, CULTURAL ITEMS

Opsomming: Die gedifferensieerde hantering van kulturele items in leksikografiese produkte: 'n Noodsaaklike aanpassing by die digitale omgewing. In hierdie artikel word daar op die leksikografiese hantering van kultuurobjekte gefokus. Daar

word aangevoer dat die aanleer van 'n tweede taal die aanleer van 'n tweede kultuur vereis en dat digitale tegnologie nuwe oplossings vir beide ou en en nuwe uitdagings vra. As voorbeeld word tradisionele musiekinstrumente gebruik en daar word eerstens 'n kritiese analise van hul hantering in vyf Chinees–Engelse woordeboeke vir beide vreemdetaalleerders en moedertaalsprekers gedoen. Daarna word verslag gedoen oor mediakonvergensie en die gevolge daarvan vir die leksikografie, en die gevolgtrekking word gemaak dat die universeel-geskikte woordeboek met 'n verskeidenheid leksikografiese produkte op verskillende platforms vervang moet word. Daarom moet die fokus van die leksikograaf verskuif van die woordeboek na die databasis wat hierdie produkte ondersteun. Dit lei tot 'n bespreking van ekwivalente en verklarende tipes en die behoefte daaraan om vier verskillende databasisvelde vir ekwivalente en twee vir verklarings te skep. Ter illustrasie word 'n leksikografiese databasis met ekwivalente, verklarings, en ander tipe kultuurrelevante items aangebied. Daarna word 'n paar voorbeelde gebruik om aan te toon hoe hierdie leksikografiese items wat in die databasis gestoor word, selektief op verskillende platforms gebruik kan word en vir spesifieke gebruikersbehoefte aangepas kan word. Hierdie artikel is direk gekoppel aan klankleërs en videogrepe van die bespreekte instrumente. Laastens verskaf die artikel 'n paar gevolgtrekkings en perspektiewe om die kulturele dimensie van aanleerdersleksikografie te verbeter.

Sleutelwoorde: MEDIAKONVERGENSIE, CHINEES–ENGELSE WOORDEBOEKE, AANLEERDERSWOORDEBOEKE, E-LESERS, DIGITALE TOESTELLE, LEKSIKOGRAFIESE DATA-BASISSE, EKWIVALENTE TIPES, VERKLARENDE TIPES, KULTURELE ITEMS

There is an interactive relation between language and culture and familiarity with many aspects of this relation can be regarded as necessary for the best possible comprehension of language and the appropriate use of language in typical situations of use.

(Gouws 2020: 3)

1. Introduction

Lexicography is at a crossroads. The continuous introduction and application of new digital technologies imply that many practical and theoretical aspects of the millennial discipline need to be reconsidered. New solutions are required to both old and new challenges. One of these challenges is the treatment of culture in lexicographical products. Today, there is a big and growing body of literature dealing with this topic as reflected in the contributions by Zgusta (1989), Stark (1999), Sánchez (2010), Bergenholtz and Nielsen (2013), Kwary and Miller (2013), Hallsteinsdottir (2015), Klosa (2015), Miller et al. (2017), and Nomdedeu Rull (2020), among many others.

This paper focuses on Chinese lexicography, where a similar tendency characterizes the academic production, especially the one concerned with dictionaries for foreign learners of Chinese. Examples of this are articles by Tseng (2003), Xue (2017), Ma (2018), Xue and Tarp (2018), Huang (2020), Kang (2020), Li and Xia (2020), and Zhang and Mi (2020).

The lexicographical interest in culture is well-founded. Language and culture are interwoven. The former cannot be fully understood and correctly used without knowledge of the latter. The implications for second-language learning are evident. Each society expresses itself in a distinct culture with its particular customs and habits, beliefs and morals, arts and laws, social organization and administrative practices, production methods and artefacts, knowledge and skills, etc. All these phenomena develop over time and project themselves into the respective languages and their vocabularies. To be successful, second-language learning therefore presupposes a certain amount of second-culture learning. The more, the better. This holds particularly true for language learning when the distance between the learners' home culture and the foreign culture is as big as the one that exists between Chinese and Western cultures. Zhang and Mi (2020: 64-65) shrewdly observe:

Chinese culture-bound vocabulary is a key element in cultivating second language learners' language proficiency. Most learners of Chinese as a second language (CSL) are adults. Before learning Chinese, they already possess a relatively mature knowledge system and are less impressionable. In learning the second language, their primary challenging obstacle is overcoming the strong interference from their established knowledge of their mother tongue. This interference can only be eliminated, gradually, by activating the cultural mechanism contained in the Chinese vocabulary.

Lexicography can largely contribute to filling the cultural gap. This requires that its practical products target the intended users' real information needs when consulting these products. Mistaken approaches such as an irrelevant distinction between linguistic and encyclopedic data are not helpful. Nomdedeu Rull (2020: 41), for instance, reports that Spanish lexicographers have regarded the monolingual dictionary as "a reference tool with linguistic data only", and that this misconception "has caused cultural data to be excluded from this type of dictionary because they are considered encyclopedic". Users in need of cultural information have been referred to other reference works such as encyclopedias. Another Spanish scholar (Fuertes-Olivera 2013: 1069) describes this practice as "ill-conceived, irrelevant and potentially confusing". Similar problems can be found in other lexicographical traditions. They are particularly harmful when the lack of pertinent data prevents learners from "activating the cultural mechanism contained in the [...] vocabulary", to which Zhang and Mi (2020) referred above.

More than three decades ago, Zgusta (1989: 3) discussed the cultural information, which learners may need during second-language learning and summarized that:

a good part of this information is of encyclopedic character; be this as it may, it belongs to what the learner has to learn.

From a user-oriented perspective, the important thing is that the lexicographi-

cal data meet the learner's real needs. No relevant data should be excluded, whatever category they belong to. The printed dictionary format certainly has some limitations in this respect. Digital technologies, by contrast, open up new and better ways of meeting user needs. If fully exploited, they will have a disruptive impact on the lexicographical product as they allow a more focussed, flexible, and personalized service that also includes new data categories presented in items like videos and soundtracks. Current Chinese lexicographers often refer to the inclusion of such items as *media convergence*; see Zhang (2019).

In the following, we will take this idea as the basis and elaborate on some of its possible consequences for the lexicographical treatment of cultural objects. As we saw above, culture is a very broad notion that contains a variety of different challenges, each of which requires a special approach. We will, therefore, focus on the assistance, which dictionaries and other lexicographical products offer to foreign learners of Chinese who need information about a specific class of cultural objects. To exemplify this, we have chosen traditional Chinese musical instruments, which are not only interesting as "culture-related objects" unique to Chinese culture (Li and Xia 2020: 125), but also in terms of how and when they are used and what customs are related to their usage.

Section 2 will analyze and discuss the treatment of these musical instruments in various Chinese–English dictionaries. Section 3 will summarize the findings whereas Section 4 will discuss some of the challenges posed by the media convergence age. Section 5 will follow up with some principles for the lexicographical treatment of cultural items and will then exemplify these principles in a concrete proposal. Finally, Section 6 will provide some conclusions and perspectives for future lexicographical projects.

2. Treatment in Chinese–English dictionaries

With a music history of over 7,000 years, Chinese culture is proud of its wide range of ancient, traditional musical instruments. When foreign learners of Chinese meet the term for a musical instrument in their contact with Chinese culture, dictionaries seem to be the first helper they resort to. Whether dictionaries can offer them appropriate and sufficient information should be the primary concern of lexicographers. To find out if this is the case, we will analyze the treatment of ten musical instruments, all of them ancient and typical of Chinese culture. Some of these instruments are still played in daily life, whereas others are displayed in museums as antiques. The selected musical instruments are:

- (1) 编钟 (bianzhong)
- (2) 古琴 (guqin)
- (3) 箜篌 (konghou)
- (4) 笛子 (dizi)
- (5) 埙 (xun)

- (6) 箏 (zheng)
- (7) 排箫 (paixiao)
- (8) 二胡 (erhu)
- (9) 琵琶 (pipa)
- (10) 梆子 (bangzi)

This Section aims at analyzing how the above musical instruments are treated lexicographically, and whether this treatment is beneficial for foreign learners who have comprehension problems when reading Chinese texts. To this end, we have selected the following major Chinese–English dictionaries:

- *A Chinese–English Dictionary* (ACED)
- *A New Century Chinese–English Dictionary* (NCCED)
- *The Chinese–English Dictionary* (TCED)
- *New Age Chinese–English Dictionary* (NA)
- *ABC Chinese–English Comprehensive Dictionary* (ABC)

These five dictionaries can be described as synchronic, general, and monoscopical. They are among the most commonly used Chinese–English dictionaries in China. Prior to the study, we also consulted two Chinese–English learners' dictionaries (*A Chinese–English Dictionary for Chinese Language Learning* and *A Chinese–English Dictionary for Foreign Learners*), which focus specifically on foreign learners of Chinese. However, these learners' dictionaries are relatively small-sized and do not treat most of the selected Chinese musical instruments. This study, therefore, focuses on the mentioned general Chinese–English dictionaries, which are intended for both Chinese native speakers and non-native learners of Chinese. In some cases where these dictionaries refer to specific Western musical instruments, we also quote from two monolingual English dictionaries (*Merriam-Webster Dictionary* and *Collins English Dictionary*). In the following, we will look at the treatment of the ten selected terms, one by one.

2.1 Treatment of 编钟 (bianzhong)

The five dictionaries offer the following definitions of *bianzhong* (see Figure 1, click [here](#) to download its sound and [here](#) to download a video clip):

- a set of bells, chimes (ACED)
- set of bells/chimes; serial/chime bells (NCCED)
- chime (TCED)
- chime bells; serial bells; carillon *see illustration* (NA)
- ancient musical instrument with 16 bells (ABC)

All five selected dictionaries treat the musical instrument *bianzhong* as a sublemma under the lemma 编 (*bian*). ACED provides a brief explanation followed by a translational equivalent (*chimes* in plural), whereas TCED only offers *chime* (in singular). ABC does not furnish any equivalent but only a brief explanation with the additional information that the musical instrument consists of 16 bells. NCCED gives two groups of equivalents with different modifiers (*set of*, *serial*, and *chime*).

NA differs from the other four dictionaries in that it shows three translational equivalents. The two first (*chime bells* and *serial bells*) are similar to the translational equivalent *chimes*, whereas the third one (*carillon*) refers to a Western musical instrument. Collins defines *carillon* as *a set of bells usually hung in a tower and played either by keys and pedals or mechanically*, and Merriam-Webster as *a set of fixed chromatically tuned bells sounded by hammers controlled from a keyboard*. The Chinese *bianzhong* and the Western *carillon* have common features in terms of manufacturing techniques and playing modes. It is, nonetheless, questionable whether the adoption of the translational equivalent *carillon* is appropriate and helpful to the users.

In addition, NA uses the indicator *see illustration* to refer its users to an illustration that shows the shape of the musical instrument. The reason for this is probably that *bianzhong*, as an ancient musical instrument with big serial bells, is no longer played in current daily life. It is usually exhibited in museums or just played by a few professional traditional music orchestras for a few cases. The illustration allows learners to be quickly informed about its unique shape and features.



Figure 1: Bianzhong

2.2 Treatment of 古琴 (guqin)

Four of the five dictionaries define *guqin* (see Figure 2, click [here](#) to download its sound and [here](#) to download a video clip):

- *guqin*, a seven-stringed plucked instrument in some ways similar to the zither (ACED)
- *guqin*; heptachord (a seven-stringed plucked instrument similar to the zither) (NCCED)
- *guqin*, a seven-stringed plucked instrument in some ways similar to the zither (TCED)
- zither-like seven-stringed instrument (ABC)

While NA does not list 古琴 (*guqin*) as a lemma, NCCED offers the equivalent *heptachord* to define *guqin*. *Heptachord*, defined as *an instrument with seven strings* in Collins, is marked as an obsolete word in this dictionary. It is a question whether the adoption of an obsolete word in the definition will meet users' need. Three dictionaries give almost the same treatment to this musical instrument. They provide the Chinese pinyin *guqin* as the transliterated equivalent followed by a brief explanation to show the instruments' form (*seven-stringed*) and playing mode (*plucked*). The fourth one, ABC, only offers a brief explanation. All explanations describe the instrument as *similar to the zither* or *zither-like*. This allows us to compare the treatment of *guqin* in the Chinese–English dictionaries to the treatment of *zither* in Merriam-Webster and Collins:

a stringed instrument having usually 30 to 40 strings over a shallow horizontal soundboard and played with pick and fingers. (Merriam Webster)

a zither is a musical instrument which consists of two sets of strings stretched over a flat box. You play the zither by pulling the strings with both hands. (Collins)

The definitions in the monolingual English dictionaries provide relatively more details about *zither*, including its shape (*over a shallow horizontal soundboard* or *stretched over a flat box*), its form (*30–40 strings*), and its playing way in details (*played with pick and fingers* or *pulling the strings with both hands*). This information may benefit dictionary users who want to get a clear idea of the instrument.

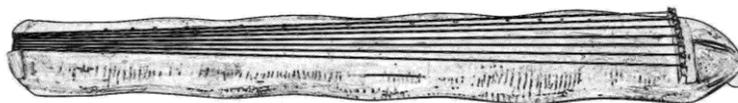


Figure 2: Guqin

2.3 Treatment of 箜篌 (konghou)

All dictionaries define *konghou* (see Figure 3, click [here](#) to download its sound):

- an ancient plucked stringed instrument (ACED)
- *konghou* [an ancient Chinese stringed instrument played by plucking] (NCCED)
- *konghou*, an ancient plucked stringed instrument (TCED)
- ancient plucked stringed instrument (with five to twenty-five strings) (NA)
- ancient harp (ABC)

Two dictionaries (NCCED and TCED) adopt the transliteration approach and offer the Chinese pinyin *konghou* of the lemma 箜篌 as the transliterated equivalent. Furthermore, three dictionaries (ACED, TCED, and NA) present almost the same explanation (*an ancient plucked stringed instrument*) that does not identify any distinctive features of *konghou*. Users may find it difficult to distinguish between *guzhen* and *konghou* when they only read the explanation of these two instruments as *plucked stringed instrument*. The explanations offered by the three dictionaries do not help dictionary users understand what exactly *konghou* is.

ABC provides the explanatory equivalent *ancient harp* to define *konghou*. *Konghou* and *harp* are similar in their shape and fundamental playing mode. *Harp* is defined as follows in the two monolingual dictionaries:

a plucked stringed instrument consisting of a resonator, an arched or angled neck that may be supported by a post, and strings of graded length that are perpendicular to the soundboard. (Merriam Webster)

A harp is a large musical instrument consisting of a row of strings stretched from the top to the bottom of a frame. You play the harp by plucking the strings with your fingers. (Collins)

Webster gives a technical description of its components, while Collins explains both the playing mode and the basic structure of the instrument. Both dictionaries present a picture of *harp* as well.



Figure 3: Konghou

2.4 Treatment of 笛子 (dizi)

Dizi (see Figure 4, click [here](#) to download its sound and [here](#) to download a video clip) is defined as follows:

- *dizi*; bamboo flute (ACED)
- bamboo flute (NCCED)
- flute; bamboo flute (TCED)
- Chinese (eight-holed) bamboo flute (NA)
- bamboo flute (ABC)

All selected dictionaries have chosen *bamboo flute* as the translational equivalent for this musical instrument. The TCED adds *flute* and NCCED pinyin *dizi* as the first equivalent, whereas NA contains more details (*Chinese, eight-holed*). Flutes also exist in other countries. The Chinese bamboo flute differs from the Western flute in that the former has a bamboo membrane on the second hole from the left end to form a resonator. The membrane helps create a wave in the flute, and its vibration makes the sound clearer and brighter. The mere provision of equivalents does not allow users to distinguish between the Chinese bamboo flute and the Western flute.

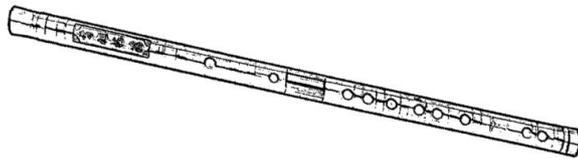


Figure 4: Dizi

2.5 Treatment of 埙 (xun)

The five dictionaries define *xun* (see Figure 5, click [here](#) to download its sound) as follows:

- an ancient egg-shaped, holed wind instrument (ACED)
- oval earthen wind instrument with six holes (NCCED)
- an ancient egg-shaped holed wind instrument (TCED)
- ancient Chinese wind instrument, made of clay with one to six holes and shaped like an egg (NA)
- ancient wind instrument (ABC)

ACED and the TCED include the same definitions of *xun* in terms of its shape

(egg-shaped, holed) and its playing mode (*wind instrument*). NCCED and NA furthermore inform about the material (*earthen, clay*) and formal details (*with one to six holes*). ABC only offers a short definition with no details about shape and playing mode. These data allow users to get an overall picture of *xun*, but they do not explain how this wind instrument is played.



Figure 5: Xun

2.6 Treatment of 箏 (zheng)

Zheng (see Figure 6, click [here](#) to download its sound and [here](#) to download a video clip) is defined as follows in the five dictionaries:

- *zheng*, a 21- or 25-stringed plucked instrument in some ways similar to the zither (ACED)
- *zheng*, [a 21- or 25-stringed plucked instrument somewhat similar to the zither] (NCCED)
- *zheng*, a 21- or 25-stringed plucked instrument in some ways similar to the zither (TCED)
- Chinese zither with 21 or 25 strings *see illustration* (NA)
- 21–25 stringed plucked instrument similar to the zither (ABC)

Guqin and *zheng* are both ancient Chinese musical instruments and look very similar (see Figures 2 and 6). The selected dictionaries also treat them in the same way by depicting their form and playing mode. According to the dictionaries, the only difference between the two instruments is the number of strings, 7 strings for *guqin* and 21–25 strings for *zheng*. There are, however, other differences. People still play *zheng* in daily life, whereas *guqin* generally is exhibited in museums and rarely played in common life. Besides, they are played with different fingers due to their different string numbers, and their sounds are easily distinguishable. The information which the user can retrieve from the selected dictionaries does not fully reveal these differences.

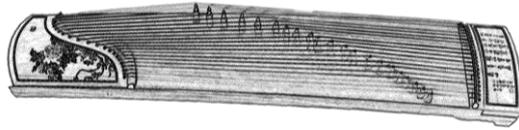


Figure 6: Zheng

2.7 Treatment of 排箫 (paixiao)

Four of the dictionaries define *paixiao* (see Figure 7, click [here](#) to download its sound):

- panpipes; Pan's pipes (ACED)
- pan pipe (NCCED)
- panpipe (TCED)
- panpipes (ABC)

Only four of the five dictionaries include *paixiao* as a lemma, and they all explain it with the translational equivalent *panpipe* (in singular or plural, in one or two words). ACED furnishes both *panpipes* and *Pan's pipes* as equivalents. Collins labels *panpipe* as American English. Merriam-Webster, which represents American English, treats *Pan's pipes* under the lemma *Pan*, the ancient Greek god of woods and shepherds. The definition of *Pan's pipes* is the same as that of *panpipe*:

a wind instrument consisting of a series of short vertical pipes of graduated length bound together with the mouthpieces in an even row — often used in plural

Webster depicts relevant details that cover the form and structure of this musical instrument. It also offers an illustration that shows how to play it. The selected Chinese–English dictionaries should have provided similar items concerning *paixiao* to present a more revealing picture to foreign learners.

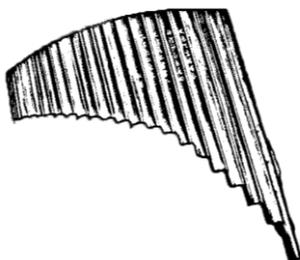


Figure 7: Paixiao

2.8 Treatment of 二胡 (erhu)

Erhu (see Figure 8, click to download [pronunciation](#), [sound](#), or [video](#)) is defined in the five dictionaries as follows:

- *erhu*, a two-stringed bowed instrument with a lower register than *jinghu* (ACED)
- *erhu*, a two-stringed bowed instrument with a lower register than *jinghu* (NCCED)
- *erhu*, a two-stringed bowed instrument with a lower register than *jinghu*; *urh(h)een*; *urhien*; *erhu fiddle* (TCED)
- *erhu*, a two-stringed Chinese fiddle, see also "胡琴" *huqin* (NA)
- *fiddle* (ABC)

ACED and NCCED define it with the pinyin equivalent *erhu* followed by a brief explanation that describes its form (*two-stringed*), basic playing mode (*bowed*), and sound features (*with a lower register than jinghu*).

TCED is distinctive from others in that in addition to the above brief explanation and the pinyin equivalent *erhu*, it furnishes another three equivalents, i.e. *urh(h)een*, *urhien*, and *erhu fiddle*. *Urh(h)een* is included in Webster as a lemma and defined as follows, and *urhien* is marked as the variant form of *urheen* in Webster:

a Chinese fiddle consisting of two strings usually of silk tuned a fifth apart, stretched across a small mallet-shaped hollow block, and fastened at the other end to tuning pegs set in a long stick

In Webster, it is also noted in the entry that *urheen* is the modification of Chinese (Pekingese) *êr-hsien* which literally means "two strings". Despite certain similarities, *Urh(h)een* and *erhu* are two different Chinese musical instruments in terms of its historical origins, features of shapes, playing techniques and sound features (Wang 2008). To adopt *urh(h)een/urhien* as the equivalents of *erhu* without any further discrimination between the two instruments would result in confusion among dictionary users.

ABC offers *fiddle* as an equivalent, whereas NA depicts *erhu* as *Chinese fiddle* and TCED as *erhu fiddle*. It is necessary to explore whether a fiddle can be used as the prototype instrument for foreign learners of Chinese to figure out what *erhu* is. When treated as a musical instrument, Merriam-Webster defines *fiddle* as a violin. Collins explains that *some people call violins fiddles, especially when they are used to play folk music*, and adds a picture of a fiddle. The shapes, forms, and playing modes of *erhu* and *fiddle* are clearly distinct. It does not seem reasonable to define *erhu* as *Chinese fiddle* without providing further data to support the term *Chinese fiddle*. In addition, it is worthwhile to question whether the term *erhu fiddle* is coined appropriately to define *erhu* in the TCED.

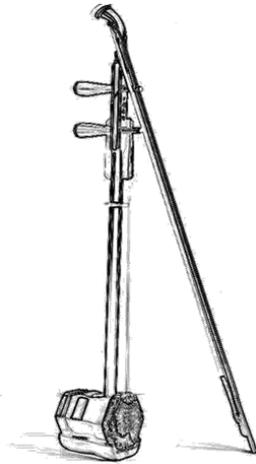


Figure 8: Erhu

2.9 Treatment of 琵琶 (pipa)

Pipa (see Figure 9, click [here](#) to download its sound and [here](#) to download a video clip) is defined as follows:

- *pipa*, a plucked string instrument with a fretted fingerboard (ACED)
- *pipa* [Chinese string musical instrument with a fretted fingerboard plucked historically with a plectrum, but now mainly with the fingers] (NCCED)
- *pipa*, a plucked string instrument with a fretted fingerboard; 4-stringed Chinese lute (TCED)
- a plucked string instrument with a fretted fingerboard *see illustration* (NA)
- lute-like stringed instrument with fretted fingerboard (ABC)

ACED contains a brief explanation of *pipa* that includes its playing mode (*plucked*) and form feature (*fretted fingerboard*). TCED adds another item (*4-stringed Chinese lute*). This piece of information may allow foreign learners of Chinese to get a clearer image of *pipa* since *lute* is similar to *pipa* in many respects. NA is the only dictionary that refers the user to an illustration of *pipa*. ABC's definition of *pipa* is similar to the one in NA. Among the five dictionaries, NCCED distinguishes itself because it describes the change of the playing way (*historically with a plectrum, but now mainly with fingers*).



Figure 9: Pipa

2.10 Treatment of 梆子 (bangzi)

Finally, the five selected dictionaries provide the following definitions of *bangzi* (see Figure 10, click [here](#) to download its sound):

- wooden clappers with bars of unequal length (ACED)
- wooden clappers (NCCED)
- wooden clappers (TCED)
- *bangzi*--clappers of unequal length, made of jujube wood (NA)
- wooden clapper of unequal length (ABC)

Four of the selected dictionaries (ACED, NCCED, TCED, ABC) offer almost the same equivalent (*wooden clappers*) to define *bangzi*. ACED provides further details like *bars of unequal length*. NA also informs about its material (*made of jujube wood*). *Bangzi* is mainly played with other instruments together in a clapper opera which is popular in the north of China. The definitions, however, do not clarify how it is played and when and where it is played.

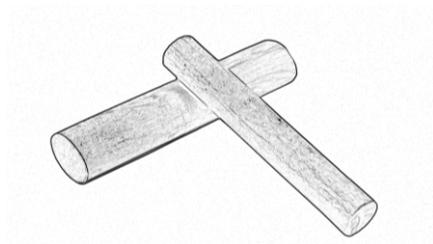


Figure 10: Bangzi

2.11 Summary

The above analysis of the treatment of ten Chinese musical instruments reveals that most of the definitions provided in Chinese–English dictionaries consist of a pinyin or a translational/explanatory equivalent plus a brief explanation. The explanation mainly depicts the instruments' form and general playing mode. Given the unique features of traditional Chinese musical instruments, short definitions are problematic as they do not provide an overall picture. Users interested in the cultural component require additional information, for instance:

- how to play the instruments?
- what are the typical sounds they produce?
- when were they first introduced in Chinese culture?
- how did they change from ancient times to the modern age?
- in which social contexts are they used?
- are there special customs related to their usage?

In brief, as a distinctive group of culture-related objects, Chinese musical instruments should be defined in terms of their form, shapes, and sizes, playing mode and techniques, history, and customs related to their usage. A short explanation of the instruments is far from satisfactory to meet the need of foreign learners interested in Chinese culture and language.

3. Some reflections on cultural items in lexicography

The dictionaries analyzed in the previous Section were all bidirectional, i.e., simultaneously aimed at both native speakers and foreign learners of Chinese. Such a broad target group is problematic, as very different user competencies, needs, and expectations have to be balanced. Chinese native speakers will typically consult Chinese–English dictionaries to solve problems related to text production in English (or translation of Chinese texts into English). Foreign learners of Chinese, by contrast, will typically use this type of dictionary when they look for assistance to either understand an existing Chinese text or formulate a correct one in this language.

Chinese native speakers generally have a broad knowledge of their national culture. If they require additional information on any topic, they will, as a rule, consult monolingual Chinese dictionaries or encyclopedias. On the other hand, when they fall short of English equivalents to refer to cultural objects and phenomena in their homeland, they will get the best assistance in Chinese–English dictionaries. In case no adequate equivalents exist in the English language, they will expect alternative solutions. It could be translational and transliterated equivalents accompanied with small notes informing them

that these words are either imprecise or unfamiliar to most Westerners and, thus, require additional explanation.

The linguistic and cultural competencies and needs of foreign learners of Chinese differ from the ones mentioned above. Most of these learners are adults with a good knowledge of their home culture and relatively little knowledge of Chinese culture that differs considerably from their own. To grasp the cultural component underpinning Chinese texts, they may need specific types of information that native speakers already have. As Zhang and Mi (2020: 74) rightly comment, this calls for much more than "a simple provision of equivalents" and also "involves the translation of cultural elements". Equivalents — like *panpipes* and *wooden clappers* — may be part of the solution, but only if the foreign learners can be expected to know them. This implies that transliterated equivalents — like *guqin*, *konghou*, *dizi*, *zheng*, *erhu*, and *pipa* — should be avoided, as they do not provide any meaningful information to foreign learners with limited knowledge of Chinese culture and musical instruments in general. Data overload of this kind may rather have a disturbing effect on the consultation process, as pointed out by Gouws and Tarp (2017: 397-398).

4. Treatment in the age of media convergence

The concept of a bilingual dictionary is ambiguous. As can be seen, foreign learners and native speakers of Chinese have different, and sometimes also contradictory, expectations for Chinese–English dictionaries. Not even the expectations of foreign learners are always the same. Learners in general never need information in general. Their lexicographical needs are always concrete and invariably related to the challenges and problems, which typically occur in specific contexts during the learning process, notably when engaging in decoding and encoding activities (text reception and text production). In this sense, the relevant types of user needs vary considerably from one activity to another, and so should the response provided by lexicography in the media convergence age.

It seems that all bilingual dictionaries discussed in Section 2 have been designed as one-size-fits-all solutions to different user needs. As such, they represent compromises between more optimal solutions. There is a sort of trade-off here. Some relevant items are included, while others are excluded for the benefit of the overall product. It implies that users consulting these dictionaries in specific types of activity sometimes have to navigate through superfluous data and other times are without enough relevant data. The one-size-fits-all approach is one of the biggest challenges to be overcome for digital lexicography to move forward. There is an urgent need to develop lexicographical products that adjust to the different situations where user needs occur. Lexicography has not only moved from print to digital. It has also developed beyond classic stand-alone dictionaries, whether print or digital, and now inte-

grates products like e-readers, writing assistants, and learning tools; see Fuertes-Olivera et al. (2018).

The growing variety of platforms from which users can access lexicographical data requires a differentiated treatment of these data, among them the cultural ones. The basic principle must be that users are offered the amount of lexicographical data required to meet their needs in each concrete context and that irrelevant data are avoided. This entails, among other things, that some of the data that traditionally characterize the stand-alone dictionary format become redundant in certain contexts. Kwary (2011: 47), for instance, provides an example where users who click on the term *account payable* activate a pop-up window that contains no other lexicographical data than the Indonesian equivalent *utang dagang*. This equivalent is all they need to solve their immediate comprehension problem. Fuertes-Olivera and Tarp (2020: 281) straightforwardly recommend "the elimination of the lemma" in writing assistants because users already know which word(s) they have clicked on to get assistance. Tarp (2022) suggests that e-readers provide differentiated lexicographical support to readers engaged in incidental and intentional learning, respectively. He argues that assistance to the former should be the default solution from which additional data can be accessed to serve the latter. Huang and Tarp (2021: 87) put forward a similar solution when discussing the challenges detected in a learning app for Chinese learners of English:

The main idea is that the pop-up window should only include items that can be justified by the immediate user needs. Thus, it merely consists of a speaker icon, a meaning discriminator followed by two equivalents, and a signifier (>). The central item is the definition (or equivalents) that directly assists understanding of the course text. [...] Finally, it provides a widely used signifier that affords access to the whole article ...

Lexicographers should provide maximum support to the big variety of information tools existing today, including digital dictionaries. This calls for their focus to move from the dictionary as such to the lexicographical database, where the relevant data are stored and from which they can be uploaded to the different tools in carefully metered doses. Surprisingly, most scholars who make concrete proposals for the lexicographical treatment of cultural and other items focus exclusively on their presentation in dictionaries; see, for instance, Tseng (2003), Sánchez (2010), Klosa (2015), Xue (2017), and Huang (2020). This approach will not be able to overcome the problematic one-size-fits-all tradition. We have only found one contribution on culture (Kwary and Miller 2013) that focuses on the underlying database and discusses its design. But even this database only aims at serving a specific dictionary, albeit a more advanced one with hypermedia integrated. It is, however, questionable whether it can provide optimal support to other tools. Fuertes-Olivera and Tarp (2020: 277), for instance, argue that "future lexicographers should consider the inclusion of both short (one-line) and longer definitions into their databases" if they aim at

sustaining writing assistants. This calls for meticulous preparatory work. Lexicographers should have a clear idea of the specific data types required by the different tools. Otherwise, it may have negative retrospective consequences for their database. The following Section will, thus, discuss some of the requirements for the inclusion of cultural items into bilingual lexicographical databases that serve foreign learners of Chinese.

5. Cultural items required in lexicographical databases

A bilingual database serving foreign learners who make look-ups from various platforms will generally have dozens of data fields attached to each lemma. In this regard, it is more diverse than databases sustaining the one-size-fits-all solutions criticized above. We will here concentrate on the main fields reflecting the cultural dimension, that is, the ones concerned with the treatment of equivalents, explanations, and non-textual items.

Before discussing each of these data categories, it is necessary to clarify in which contexts the lexicographical data stored in a Chinese–English database could assist foreign learners. The most typical situation would be when learners do not understand — or have doubts about — words and expressions appearing in Chinese texts, that is, text reception. But also assistance to text production could be relevant when learners already know a Chinese word and just want to confirm its precise meaning before using it. In addition to these two communicative situations, learners may need or wish to specifically explore the cultural dimension related to the learning process, that is, a so-called cognitive situation; see Tarp (2008). Finally, and less important for language learning in the narrow sense of the word, is L2–L1 translation when learners for some reason have to translate Chinese words or texts into their own language.

All this suggests that a well-designed Chinese–English database for foreign learners should have four main functions, each of which requires specific data categories as well as differentiated treatment of these categories, something further modified by the respective platforms from where the database is accessed. In the following sections, we will take this into consideration when discussing equivalents, explanations, and non-textual items.

5.1 Equivalents

Although there is no complete agreement on how to do it, lexicographers usually distinguish between various types of equivalents with different characteristics. Adamska-Salaciak (2011: 4), for instance, lists four types (cognitive, translational, explanatory, and functional), of which the first three are relevant for the current study. Surprisingly, the discussion of equivalence is more often than not influenced by reflections and principles imported from translation

science despite being irrelevant to most functions in bilingual lexicographical products, unless these are designed as one-size-fits-all solutions or exclusively aim at assisting translation. When it is a case of understanding an L2 text or confirming the meaning of an L2 word to be used, it has, for example, no relevance whether the equivalent provided is insertable in an L1 text, as required by many lexicographers. Existing lexicographical literature undoubtedly represents an important source of inspiration. But even the most well-established and deep-rooted principles and solutions cannot uncritically be taken over and applied when designing a database adjusted to the digital media. They have to adapt to the new environment.

From this perspective, the *cognitive equivalent* in a Chinese–English learner's dictionary can be defined as a word or expression that already exists in the English language and faithfully represents the meaning of a Chinese word or expression. This degree of equivalence is, by definition, relatively rare for cultural terms. The five Chinese–English dictionaries analyzed in Section 2, for instance, only provide truly cognitive equivalents (*panpipes* and *wooden clappers*) to two out of ten Chinese musical instruments. Contrary to the other types of equivalents, the cognitive equivalent serves all three communicative functions of a Chinese–English lexicographical database, that is, to explain a Chinese item, to confirm the meaning of a Chinese item, and to translate a Chinese item into English. Because of these properties, the cognitive equivalent should have its own field in the database.

In this essential aspect, the proposed database differs qualitatively from almost all traditional ones where different types of equivalents are assigned to one and the same data field. If the database only included one equivalent field, it would be technically impossible for the tool to distinguish between the equivalents and upload the ones that correspond to the respective user situations and platforms. This would considerably reduce the quality of the database. When no cognitive equivalent is available, the field reserved for this specific data type should, therefore, be left empty and other fields prepared for alternative solutions.

One of these complementary fields should be reserved for an *explanatory equivalent* that can briefly explain the meaning of the L2 item and assist L2-text reception and L2-text production as described above. The explanatory equivalent usually takes the form of a paraphrase like *an ancient egg-shaped, holed wind instrument* (see Section 2.5) and *a 21- or 25-stringed plucked instrument in some ways similar to the zither* (see Section 2.6). These explanatory equivalents represent to an acceptable degree the meaning of two Chinese musical instruments (*xun* and *zheng*), although an additional explanation is required to give the learner the full cultural picture and respond to the six questions listed at the end of Section 2.

However, some explanatory items — like Chinese string musical instrument with a fretted fingerboard plucked historically with a plectrum, but now mainly with the fingers (see Section 2.9) — are too long to comply with Fuertes-

Olivera and Tarp's (2020: 277) request that future databases include "both short (one-line) and longer definitions". The two authors propose that the former also serve as meaning discriminators in writing assistants; for instance, when *Write Assistant* suggests various L2 equivalents or *Grammarly* offers diverse synonyms or quasi-synonyms. In such cases, too long paraphrases (or explanatory items) may result in data overload and hamper the consultation process, as argued by the two authors. A shorter explanatory equivalent — e.g., Chinese string musical instrument with a fretted fingerboard — should, therefore, be prepared and further details — like plucked historically with a plectrum, but now mainly with the fingers — included in a supplementary explanation.

Until now, we have not discussed the *translational equivalent*. Its lack of explanatory power is well-known, although two or more cumulative equivalents of this type may give the user a certain idea of the meaning of an L2 term. It is, nonetheless, questionable whether this solution works for cultural objects. The two cases where the Chinese–English dictionaries have used cumulative equivalents (e.g., *chime bells*; *serial bells*; *carillon* in Section 2.1 and *flute*; *bamboo flute* in Section 2.4) to depict the meaning of Chinese musical instruments are not convincing. In this respect, we agree with Zgusta (1984: 148), who prefers an explanation "in cases where the mere translational equivalent, exact as it may be, might remain only poorly intelligible". There is no reason to use translational equivalents to explain meaning when the database already offers cognitive and/or explanatory equivalents. They should instead be reserved for situations where learners need assistance to translate Chinese words or texts into English and where no cognitive equivalents exist. It requires a separate data field (combined with a usage note field) from which this type of equivalents can be uploaded when — and only when — needed for translation purposes.

In Section 2, we saw how the selected dictionaries provided *transliterated equivalents* to six of the ten musical instruments treated. This equivalent type has the advantage that it presents the exact meaning of the Chinese cultural item and the disadvantage that it is unknown to most foreign learners. In spite of being a quasi-cognitive equivalent, we do not recommend it be presented as default in "normal" Chinese–English learners' dictionaries. But because of its semantic properties, it could be a perfect choice in translations if accompanied by a usage note the first time it appears in a text. It should, therefore, also have its separate field (combined with a usage note field) in the lexicographical database.

Whether a translational or a transliterated equivalent should be used in connection with translation depends on various factors. Each of them has its advantages and disadvantages. And there could also be subjective criteria involved. In any case, this decision could be left to the designers of the specific tools expected to use the lexicographical data. It is then the task of lexicographers and designers of databases to make provisions for the different usages.

5.2 Explanations and other items

Equivalents are necessary but not sufficient to deal with cultural terms in bilingual learner's dictionaries. Foreign learners need more detailed information to get a good understanding of traditional Chinese musical instruments and their usage. The role of explanations is to enhance the cultural information provided by the cognitive and explanatory equivalents. In an article on music dictionaries, Bergenholtz and Bergenholtz (2007: 411) propose the preparation of three types of explanations: a short default one, a longer one "with historical and other kinds of details", and an optional one "with examples from music history". Their proposal includes many relevant things for the topic discussed here. But the two authors have a music dictionary for a particular user group in mind, namely native laypeople and semi-experts especially interested in music. Our proposal focuses on a different user group with different lexicographical needs and, therefore, only envisages two types of explanations, a short one and a longer, supplementary one. In our proposal, the short one should mainly give a brief description of the musical instrument and the way it is played. The long one should then provide further cultural details like its history, the social contexts where it is used, customs related to its usage, etc. When relevant, the definitions should be supported by non-textual items like images (illustrations and photos), video clips, and sound files. Each of these items can show, illustrate, or express particular aspects and phenomena where written text falls short. They should, thus, have their own fields in the database and either be presented as default or activated by clicking on the respective icons.

As can be observed, there is a sort of continuum from the cognitive equivalent over the explanatory equivalent and the short explanation to the long explanation. There are no sharp dividing lines between the four categories. It is, nonetheless, essential to establish such dividing lines in order to prepare the lexicographical database for a variety of purposes. In a "normal" learner's dictionary, the provision of a cognitive or explanatory equivalent together with a short explanation could be the default solution, from where interested users can access the long explanation with a simple click. In a learner's dictionary focussing on the cultural aspect, the long explanation could be part of the default solution. In an e-reader, the cognitive or the explanatory equivalent could be the default solution that stimulates incidental learning, whereas readers interested in intentional learning could get the required information by clicking through to the short and long explanations. And so on. This kind of differentiated presentation of lexicographical data would be impossible without a conceptual distinction between the various equivalent and explanation types and their subsequent storing in separate fields in the database.

Figure 11 shows the relevant database fields filled in with cultural data assigned to the Chinese lemma 二胡 (erhu) (there is no cognitive equivalent in this case). Although other data categories like collocations may also have some cultural relevance (see Huang 2020: 116-120), it only contains the fields reserved for the ones discussed above.

| DATA FIELDS | LEXICOGRAPHICAL CONTENT |
|--------------------------|---|
| LEMMA | |
| CHINESE CHARACTER | 二胡 |
| PINYIN | èrhú |
| PRONUNCIATION | Audio |
| EQUIVALENTS | |
| COGNITIVE | |
| EXPLANATORY | Chinese bowed musical instrument |
| TRANSLATIONAL | Chinese fiddle |
| USAGE NOTE | <i>Chinese fiddle</i> does not represent the full meaning of 二胡. It is recommended that a clarifying note be added the first time it appears in a text. |
| TRANSLITERATED | <i>erhu</i> |
| USAGE NOTE | <i>Erhu</i> faithfully represents the meaning of 二胡 but may be unknown to many native English speakers. It is recommended that a note explaining its meaning be added the first time it appears in a text. |
| EXPLANATIONS | |
| SHORT | traditional Chinese two-stringed bowed instrument with a low but mellow sound which can be played as a solo instrument as well as in orchestras |
| LONG | <p><i>Erhu</i> has evolved from the ancient musical instrument <i>xiqin</i> in Tang Dynasty (618-907). This instrument, which is believed to originate from the <i>Xi</i> people in northeast China, became popular among different areas of ancient China. As a result, a variety of similar bowed instruments called the “<i>Huqin</i> instrument family” saw the light. Today, <i>erhu</i> is the most popular member of this instrument family.</p> <p><i>Erhu</i> consists of a long vertical neck at the top of which there are two big tuning pegs. At the bottom, there is a small sound box covered with python skin on the front end. Two strings stretch from the pegs to the base, and a small loop of string is placed around the neck. <i>Erhu</i> is often described as a Chinese fiddle, but its sound differs somewhat from that of a fiddle. In addition, <i>erhu</i> has only two strings, while the fiddle has four. People usually play <i>erhu</i> sitting down, with the soundbox placed on the top of the left thigh and the instrument neck held vertically.</p> <p><i>Erhu</i> can be used in both traditional and contemporary music activities. It can be played alone or accompanied by other traditional musical instruments. Today, <i>erhu</i> is one of the main instruments in regional music ensembles, Chinese opera ensembles, and large orchestra. It also appears as soundtrack in movies and TV series.</p> |
| NON-TEXTUAL ITEMS | |
| IMAGE | Image |
| VIDEO | Video clip |
| SOUND | Sound file |

Figure 11: Suggested data fields in the lexicographical database

5.3 Differentiated presentation

This section provides five examples of how the items stored in the above database can be selectively employed in different tools and adapt to the foreseen user needs. The first three examples are from a hypothetical Chinese–English dictionary for foreign learners. Figure 12 shows a default article from such a dictionary. The selection and presentation of data correspond to consultations where foreign learners primarily look for assistance to understand a Chinese text or, alternatively, to confirm the meaning of Chinese words they want to use in L2-text production. The article contains the pertinent cultural data without slipping into data overload: an explanatory equivalent, a short explanation, and an illustration. Learners who require additional information can then click on "MORE" to display the supplementary explanation (see Figure 13) or on one of the two icons to either listen to the music or see the video. Finally, users who need to translate 二胡 into English can get proper assistance in a pop-up window by clicking on "OPEN" in the bottom bar (see Figure 14).

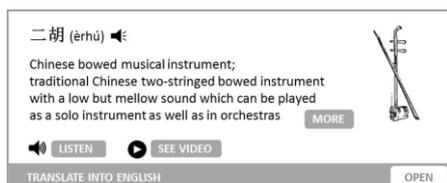


Figure 12: Default article in Chinese–English dictionary for foreign learners



Figure 13: Extended cultural explanation

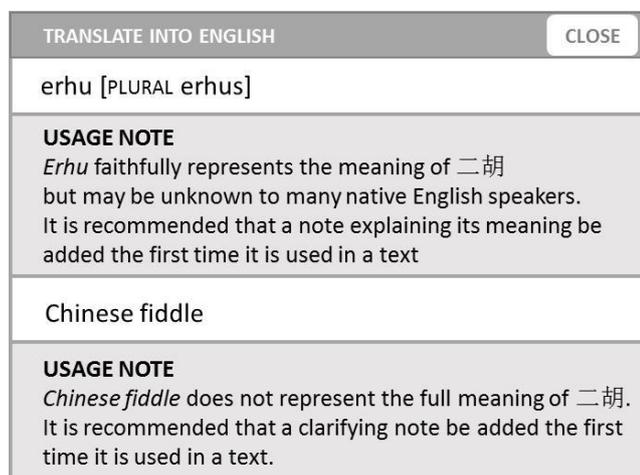


Figure 14: Pop-up window providing assistance to L2-L1 translation

Foreign learners increasingly read Chinese texts on digital devices like e-readers and tablets. If carefully integrated into these devices, the cultural items stored in the Chinese-English database may assist both incidental and intentional learning during the reading process. From a lexicographical perspective, the former presupposes immediate, contextualized, and unobtrusive assistance with a minimum of lexicographical data, whereas the latter requires easy access to additional data; see Tarp (2022). Figure 15 shows a proposed pop-up window that visualizes when readers, who do not understand 二胡, click on these characters. Its limited and instantly displayed content — an explanatory equivalent and a signifier (▼) — facilitates text comprehension without disturbing the reading flow. In this way, it also stimulates incidental learning. If some learners, for one reason or another, decide to interrupt the reading flow to get more detailed cultural information about 二胡, they can easily access additional data by clicking on the signifier. Figure 16 shows the result where motivated users can scroll down to find all relevant details, thus moving on to intentional learning with a clear cultural component.



Figure 15: Default pop-up window in digital device used to read Chinese texts



Figure 16: Supplementary cultural details in digital device used to read

6. Conclusions

In the introduction, we noted that lexicography needs new solutions to both new and old challenges. The critical analysis of five Chinese–English dictionaries and their treatment of ten traditional musical instruments exposed some of these challenges. The one-size-fits-all approach, together with an undifferentiated interpretation of user needs, was targeted as a major culprit. Too much focus on translation is also problematic. Foreign users' needs invariably relate to the situations and platforms where they occur, and the needs occurring in connection with translation are only a minority. Much more relevant for learners is the assistance to decoding and encoding Chinese texts and their immersions in contemporary and traditional Chinese culture. We have argued that this requires a new conceptual approach to equivalents and explanations with consequences for their storing and presentation to the end-users. From this perspective, we have shown that the database, if well-designed, is the natural centre of a whole web of lexicographical products that allows a differentiated and user-adapted treatment of cultural items, among others.

The preparation of lexicographical databases does not only require adequate linguistic knowledge but also specialized knowledge of culture. It is not always a happy marriage. Bergenholtz and Bergenholtz (2007) analyzed the treatment of musical instruments in various dictionaries and found that the definitions are often lacking or directly erroneous. They recommend that this part of the lexicographical work is conducted by, or in collaboration with, subject-field experts. In our case, we have based the explanations of *erhu* on Wikipedia and confirmed them in authoritative sources like Feng (2006) and Wang (2008). Interdisciplinarity, in its different expressions, is vital for contemporary lexicog-

raphy to create quality products that adapt to foreign learners' linguistic and cultural needs. The traditional musical instruments discussed in this paper require a particular treatment that may differ from that of other cultural objects and phenomena. But many of the above reflections can be generalized and relevant to them in one way or another.

Finally, as an expression of media convergence, the paper offers access to video clips and sound files that may enhance the cultural dimension as well as the readers' benefit from the text. But the quality of these items is not always as desired. Copyright and too high costs have, in some cases, led to the choice of lower quality items. This is yet another challenge to be addressed by lexicography in the years to come.

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