

---

# Reaching for the *Gold Standard*: Metaphors and Good University Teachers

---

Lixian JIN

University of Nottingham Ningbo China

Martin CORTAZZI

University of Warwick, UK

## *Abstract*

This article considers “good” teachers in the context of current developments in universities in China to reach a “gold standard” of considerably higher and more challenging levels of teaching and learning. We outline this context and consider concepts of good teachers in classical Chinese traditions and more recent Western thinking as a possible dialogue within and between cultures of learning. Using cognitive and cultural linguistic perspectives, we analyze metaphorical concepts of “gold” in “the gold standard” as related to teachers. We report our applied metaphor research which analyzes Chinese students’ expectations, values and beliefs about good university language teachers; this presents a rich picture beyond developing knowledge, skills and understanding to include strong social and moral characteristics. Other aspects which recognize the complexity of “good” teachers show a student appreciation of teachers’ tireless effort, devotion and selfless sacrifice: these aspects are absent in many discussions of good teachers. The participant-centered picture from elicited metaphor analysis is part of students’ “cultures of learning,” but this should be developed culturally for the gold standard through further teacher development and student engagement. In line with interaction in cultures of learning, we indicate some classroom ways to extend students’ thinking through scaffolding teacher-student interaction based on textbook activities.

***Keywords:*** *university Gold Standard, elicited metaphor analysis, “good” teachers, expected teacher characteristics*

## 1. Introduction: The Context of “Gold Standard”

Recent emphasis in China to improve the quality of undergraduate education has been framed in nation-wide discussion related to “Gold Standard” (*jin ke*) teaching and learning. Foreign language teaching is a part of this currently developing national curriculum, which aims to cultivate talents and develop enhanced skills with challenging tasks and expectations of higher standards in teaching and learning. This emphasis is stimulated by guidance from the Ministry of Education (MoE, 2018), which contrasts lower level “water” teaching of outdated content, unchallenging teaching, and uninspired learning with higher levels of “gold” teaching. This “gold” teaching has cutting-edge content, interactive teaching with challenge and creativity, and is directed towards practical and useful application and interdisciplinarity. Many university education systems internationally encourage excellent teaching. This is often demonstrated through awards, titles, and honors given to a small number of outstanding individual teachers. However, the concept of Gold Standard in China applies nationally to enhance the teaching quality in departments in all universities to include, eventually, huge numbers of teachers. The “water-gold” contrast might be seen as a series of progressive steps rather than as absolute binary categories. Hence it may be helpful to think of such levels as “bronze,” “silver” and “gold.” In principle, these distinctions may apply to universities as a whole, or to departments of English and foreign languages, or to individual professionals, by considering the organization, systems of teaching and learning, evaluation and resources. Hence the Gold Standard may imply changes and developments of “a culture of learning” in which outstanding individual teachers contribute to the academic community of an institution, and vice versa in reciprocal relationships: “good teachers” may be identified individually and influenced by a collective identity to which they contribute, raising the overall quality of teaching and learning.

This accords with some international developments. In the UK since 2017, undergraduate education in universities is judged by independent panels: institutions are awarded Olympic style levels of “*provisional, bronze, silver and gold.*” Universities are evaluated according to the evidence of student surveys of satisfaction with teaching, plus statistics of graduate employment and earnings, course completion rates, together with a university’s written document which submits supporting evidence. The aim is to develop university cultures in which teaching-and-learning is seen on a par with research. In 2018, the Gold level was awarded to 27% of “outstanding” British universities, with 50% assessed as “excellent” for Silver, and 23% “meeting expectations” for Bronze. Current plans seek to extend these awards in 2021 to the teaching of individual disciplines and subjects. However, the teaching is not observed or evaluated in actual classes, lectures, or seminars. The UK Gold awards are currently based mainly on collective outcomes of a whole institution and, as envisaged, on outcomes related to disciplines. This means that less attention is paid to the day-to-day processes of teaching or to identified qualities of good teachers as such. Beyond questionnaire ratings of “satisfaction,” it is unclear how the awards relate to students’ ideas of good teaching.

The Gold Standard in China includes a number of core educational principles designed to result in world-class universities: to cultivate both knowledge and morality so that students

devote themselves to studying well, to becoming socialist constructors and successors, who solve complex problems and achieve higher levels of thinking; they do so through devoted teaching and creative learning, including uses of the most up-to-date technologies. In outline, good teachers of the Gold Standard will be seen to have demonstrated professional skills (*dao shu*), academic skills (*xue shu*), technical skills (*ji shu*), artistic skills (*yi shu*), and humane skills (*ren shu*) (MoE, 2018). Good teachers will take account of student-centered learning and, therefore, they need to know what students' ideas of good teaching are.

In this article, we develop an applied linguistic analysis of key ideas of good teachers of English. Ideas and beliefs of students are one significant strand of Gold Standard English teaching. Therefore, we use the innovative research method of metaphor analysis to investigate Chinese students' conceptions of good teachers. In English teaching, we need to understand students' ideas about good teaching and learning, which we will develop further within a holistic culture of learning. This concept centrally includes key elements of "good teachers" which English teachers may strive to realize in ever-higher standards. A solid and productive culture of learning, which enhances students' and teachers' conceptions and practices of good teaching-and-learning is part of Gold Standard English teaching. The data analyzed here are specifically from students in university English courses; they were asked to think about "good teachers of English" but, interestingly, it is clear that their perceptions and beliefs, while derived through English classes, are not confined exclusively to teachers of English but are often more generally about their views of good teaching *per se*.

Arguably, participant expectations of good teachers – including their attributed characteristics and values - are a crucial research base on which to build activities to develop Gold Standard. This is a bottom-up applied linguistic investigation using learners' own ideas and, in this sense, is a learner-centered approach to teaching. Of course, Gold Standard teaching is not confined to, nor limited by, student-centered ideas, but it will take them seriously. As a context, we briefly trace some key ideas about good teachers in the Chinese tradition; these might be seen as a trans-century cultural dialogue with current student metaphors to illustrate Chinese cultures of learning, developing within a heritage. We also outline influential thinking about universities and teaching in the West in another potential intercultural dialogue. We explore meanings of "Gold Standard" as a metaphor and give details of the characteristics of "good" teachers attributed in metaphors by Chinese participants. Finally, we look at some design principles in relation to cultures of learning and Gold Standard classes, illustrated by classroom procedures related to developing student thinking through uses of criteria.

## 2. Good Teachers in Chinese Traditions

In the Chinese classics, there are influential statements about teaching and learning which have clear contemporary relevance as an inspirational strand towards developing Gold Standard. Salient examples are in the *Li Ji* (礼记), a classic collection of Confucian texts on ritual from the Han dynasty (292 BCE-220 AD), which constituted significant elements in the curriculum

of the Imperial Academy (124 BCE) and remained central texts thereafter in a rarely broken line of cultural transmission. Between 1200-1900 in China, the study, memorization, understanding, and application of key extracts of these books, with commentaries, formed the backbone of China's education within the civil service examination culture.

“Study extensively, inquire carefully, ponder thoroughly, sift clearly, and practice earnestly (博学、审问、慎思、明辨、笃行)” (De Bary, 1989, p. 202); this proposed a sequence of key steps of how to study a text. They were famously posted by the educator and philosopher Zhu Xi (1130-1200) on the gates of the White Deer Hollow Academy (*Bailu Dong Academy*). They are alternatively translated as “Study it extensively, question its meaning precisely, ponder it with full vigilance, scrutinize its distinctions with clarity of vision, and practice it in all earnestness” (Plaks, 2003, p. 42). Guided by this and other Confucian texts within the *Li Ji*, like the *Xue Ji* (学记) (“On Teaching and Learning”), scholar-teachers aimed to develop humane cultivation of themselves and their students and to extend this to the betterment of others in society through moral action (Gardner, 2007, pp. 5-6). Institutional learning was essentially seen in terms of teacher-student relations with cognitive, moral, and social dimensions (De Bary, 1989, p. 196, p. 200). Much attention was paid to explicit discussion of how to learn; these discourses aimed at social transformation through detailed moral self-cultivation by learners, guided by teachers who led and encouraged through reasoning, inspiration, and example (e.g., Bol, 2008; Cortazzi & Jin, 1996, 2019; Cortazzi, Jin, & Wang, 2009; Xu & McEwan, 2016). Morality has a key role: to learn is “to come to know what is moral”; learners “only have moral principles with which to cultivate their minds” (Bol, 2008, p. 128, p. 136); teachers have to practice moral conduct and be models of moral example with personal excellence to develop learners' character and moral excellence (Xu & McEwan, 2016). Teachers intended to open minds and promote thoughtful inquiry. A key example refers to teaching reading, given the centrality of studying texts and commentaries on them. The role of the teacher here was to encourage and exemplify a developed approach to the reading process by emphasizing comprehension, thoughtful reflection, and application through experiencing and internalizing understanding of the text personally (Gardner, 1990). This was not at all the stereotype of traditional rote learning, nor of study simply to pass examinations; the teacher developed students' capacity to learn, with an open mind, not only through teacher questions but also encouraging questions from students. This is very much expected and emphasized in the current development of Chinese education.

In this tradition, Confucius as a model of a teacher was seen as extensively learned, endlessly diligent, tireless in learning and practicing humane virtues; he is shown to be patient, skillful in using questions and giving everyday examples, respectful in learning from everybody and anybody (Chen, 1990). A good teacher discussed in the *Xue Ji* among *Li Ji* chapters is a person in a creative relationship with learners who guides without pulling, urges without suppressing, opens the way without actually taking students to the destination of learning since with determined effort they can get there themselves:

Guiding without pulling makes the process of learning gentle; urging without suppressing makes the process of learning easy, and opening the way without leading the students to the place makes them think for themselves. Now if the process of learning is made gentle and easy and the students are encouraged to think for themselves, we may call the man a good teacher. (Lin, 1938, p. 247)

These statements seem startlingly modern. They represent a strand of current thinking about language teaching, in which

Teaching cannot be defined apart from learning. Teaching is guiding, and facilitating learning, enabling the learner to learn, setting the conditions for learning. (Brown, 2007, p. 8)

Directly addressing language teachers, Brown (idem.) adds, “Your understanding of how the learner learns will determine your philosophy of education, your teaching style, your approach, methods, and classroom techniques”; in a learning-centered perspective we could add “... and of how your learners believe they learn and how they expect you, as a good teacher, to teach.”

The Chinese tradition of good teachers encompassed diversity and debate within clearly long-term cultural trends, which nevertheless allowed innovation (Bol, 2008). A teacher showed humility and specialized knowledge and could think independently. The poet Han Yu (768-824), a teacher at the Imperial University, wrote that in teacher-student relations there was no rich or poor, no being old or young, no inferiority or superiority: what essentially mattered was learning the tradition and “being specialized in scholarship and learning” (Hartman, 1986, p. 164). A good teacher would learn from anyone at any time: Han Yu quoted Confucius’s well-known saying (Analects, 7:21) that if he walked with two others, he was bound to find his teacher there. A good teacher could have independent, innovative ideas: where Confucius had characterized a good teacher as one “who recalls the old and so knows the new” (Analects 2:11). Han Yu noted, “‘the new’ means one’s own ideas, something that can become new teachings” (Hartman, 1986, pp. 182-183). These traditional Chinese educational concepts resonate with currently promoted educational ideals. This seems an iterated thousand-year dialogue to yield quality teaching and learning.

### **3. Western Universities: Some Ideas About Good Teachers**

Some Western traditions have influenced contemporary Chinese practices of researching and teaching. In these traditions, university teaching has more dimensions than is commonly supposed; surprisingly, some echo those of the above Chinese traditions. The English poet John Milton, for example, argued that universities should aim to develop students’ “physical, intellectual, moral, religious and aesthetic” abilities (Milton, 1644), while John Newman (Newman, 1908), the English cardinal canonized as a saint in 2019, influentially proposed that universities were institutions of intellectual culture “to educate the public mind” and teachers should provide students with “freedom, calmness, moderation, wisdom.” To emphasize wisdom in contemporary university teaching is crucial since information-rich and knowledge-

based skills are most emphasized. As the poet T. S. Eliot asked (Eliot, 1969), “Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?” Chinese traditions had long since highlighted wisdom: in his “Discourse on Teachers” in the year of 802, Han Yu wrote of the necessity of teachers for students in antiquity, “It takes a teacher to transmit wisdom, impart knowledge and resolve doubts” (Liu, 1979, p. 35).

The Spanish philosopher Ortega Y Gasset (1944, pp. 70-73) argued that universities should prepare investigators for scientific research and prepare students for the learned professions, but, equally important, to teach and transmit culture and its interpretation; by “culture” he meant “the system of vital ideas which each age possesses ... the hierarchy of the values of things...the totality of what we do and what we are.” Teachers, he proposed, should be selected for their gift for teaching, and “teaching must be based upon the student” (1944, p. 52). The English philosopher Mary Warnock (1989, pp. 21-37) argued seminally that good university teachers are knowledgeable, imaginative, innovative and creative, part of an intellectual community, who emphasize to students the process of acquiring knowledge to understand disciplines, relate them to each other, and apply principles; they lift students out of intellectual and imaginative limitations, develop critical insights to understand the ecological, social and political environment. Good teachers, she said, have to be interested in their students as much as in their subjects and, as intellectual innovators, they give students the experience, directly or indirectly, of taking part in innovation which expands imaginative horizons (1989, p. 22-23).

In another British perspective, there is no single model of “a good teacher”: rather, there are different discourses which predominate at different times (Moore, 2004): first, a good teacher as “a charismatic person,” a “teacher-hero” as seen in cultural images in films, a sensitive and admired communicator who inspires students, nurtures and cares for them to save them from adverse circumstances; second, as “a competent craftsman,” a knowledgeable technician who is skilled in pedagogic strategies and works in a professional culture of planning, managing, assessing and recording learning; and third, as a “reflective practitioner,” a thoughtful agent of professionalism who meets challenges and creates significant change by reflecting knowledgeably on problems experienced and developing solutions flexibly and creatively. Features of each might be combined, since they promote learning in different ways, cognitively, affectively, morally, and socially. This might constitute a theory of good teachers - they exemplify and develop combinations of these qualities in learners. Allen (1988) examined several hundred British university mission statements to summarize a broad view of how, besides students’ cognitive development, university teachers aim at their emotional and moral development, aesthetic sensibility and creativity, developing practical competence and citizenship values. Broadly, such views are hardly confined to “the West”: a review of 117 studies of good teachers (Zhunussova, 2019) included 14 empirical studies with participants in Japan, South Korea, China, Thailand, Iran, Kazakhstan, Cyprus and Turkey, in which such teachers were characterized by good subject knowledge, their pedagogic skills, their personal qualities, and interpersonal skills. There is a danger that some of these statements about good teachers seem bland: intellectual, moral, and personal qualities may seem obvious, but they can be challenging when teachers seek to realize them in classroom practice. A Western theory

of good teachers, as argued by the Canadian philosopher Hare, includes applying virtues of “humility” and “courage,” “open mindedness” and “judgment,” “empathy,” “imagination” and “enthusiasm” (Hare, 1995).

While these sources indicate some agreement about good teachers, evidently there are different emphases across geographies, philosophies, and discourses and cultures of learning. It is expected that some variations internationally will accord with national policies, or with local practices in particular institutions or university departments. Recognizably, good teachers, as professionals and personally, are likely to be affected by institutional factors such as organization and administration of curriculum and exams, priorities of the local context and prevailing ideologies, besides any conditions of physical, mental and emotional health and well-being which may be modified by stress, strain, and fatigue. Most teachers would like to be considered “good” as part of a professional and personal self-image, but there might be differences in approaches when teachers are evaluated by their students (as in feedback in quantitative surveys) or by teaching colleagues (who are likely to appreciate contextual and professional learning environments) or by research accounts using qualitative approaches to obtain inside participant voices. The article reports research into the perceptions of “good” teachers by students themselves, derived from applied metaphor analysis.

#### 4. Metaphors: “A Good Teacher Is Gold”

“Gold” in the aim of reaching “Gold Standard” is a metaphor. Like all metaphors, it works by analogy. Chinese academic traditions in the *Li Ji* recognize the value of analogies: “The scholars of ancient times learned the truth about things from analogies” (Lin, 1938, p. 250). Analogies are fundamental to human thinking as a basic feature of comparison hence metaphors are worth analyzing from a cognitive linguistic viewpoint to ascertain patterns of thinking (Lakoff & Johnson, 1980, 1999). Metaphors also show a creative response by metaphor users to work out likely intended meanings or perhaps to see additional meanings. For example, “a good teacher is gold.” One part (the “target” or “topic”: “a good teacher”) is compared to a second part (the “source” or “vehicle”: “gold”) so that features of the source, which are usually more familiar, immediate or concrete (“gold”), are matched or transferred to the more complex target (“a teacher”) to highlight particular meanings. Thus, in “a good teacher is gold,” we ask which features of “gold” tell us something interesting about a “good teacher”? This process of transferring (or “mapping”) meanings shows the target in a fresh light by comparison or it emphasizes particular aspects; these can vary culturally (Kövecses, 2005, 2010). However, in everyday expressions most metaphors have the possibility of mapping a range of features from the source to the target: this provides some user choice of which combinations of features are relevant to a given context, implying possible contextual variation or particular professional or academic uses. Applied linguists can analyze these features to reveal interesting insights (Cameron & Low, 1999; Cameron & Maslen, 2010; Low, Todd, Deignan, & Cameron, 2010). Perhaps there is some ambiguity about choice: which particular features of a whole range of many possible features are intended to be mapped? Other features might be recognized to

extend the metaphor. This choice is the basis of creativity in metaphors and hence teachers can respond to the “gold” metaphor creatively by recognizing productive extensions. Metaphor meanings are rarely explicitly verbalized in ordinary talk but identifying extended meanings is useful in linguistically-based research: we can examine the implications (or “entailments”) to identify a possible array of meanings.

“Gold” is, literally, a dense, heavy metal, which is relatively soft and malleable and can be melted and shaped. Two additional features are crucial: gold is valuable and scarce. The value is simply a socio-cultural convention; the scarcity is seen from estimations that one gram of gold is found on average in every ton of the earth’s crust. Hence, “a teacher is gold” carries likely entailments that such a teacher is highly valued and rare. Given the physical process of mining and refining gold, additional entailments include search and effort to find a good teacher. Since gold is frequently used in making decorative objects and jewels, there is also an entailment of artistry and admiration. However, there are further ideas of stability, security, and international attainment: an agreed fixed international “gold standard” was used to measure fluctuating currencies. Interestingly, in the heyday of the monetary “gold standard” (1871-1914), it was a symptom of peace and prosperity. Together, then, a “gold standard teacher” may offer special characteristics as being recognized internationally as valuable, rare, refined through effort, admirable and artistic, and may represent stability, protection, peace, and prosperity.

“Gold” represents the achievement of the highest quality standard. This is seen in metaphoric meanings of “gold” in commonplace sayings. Thus “She has a heart of gold” means she is kind, thoughtful, helpful, generous and sincere; “This is a golden opportunity” refers to a good opportunity to succeed in an important or rewarding activity; “A golden wedding” suggests long term success and surviving difficulties in fifty years of marriage; “the golden rule” is a guiding principle or ethics of a reciprocal value of treating others as one wishes to be treated oneself; similarly, “winning the gold medal” refers to supreme athletic achievement. Hence “a Gold Standard teacher” is framed, metaphorically, within a range of clustered ideas of valued characteristics, significant features of moral worth, serious opportunities, and enduring successful attainment. “Gold” also signals civilized achievements of “the golden age” in cultures, both in the past and in the future. The chemical symbol for gold, Au, has Latin roots to mean “the gold of sunrise.” Thus, reaching for “Gold Standard” is aspirational: it may herald a new dawn of educational achievements in a golden age of civilization.

The metaphor analysis illustrated in the example of “a good teacher is gold” with “target,” “source” and “entailments” will be applied here to researching good teachers in China. The aim is to analyze what students themselves expect, value, and believe about good teachers. This is a fundamental element within a student-centered movement to recognize participant needs and values in order to reach a Gold Standard in China.

## **5. Metaphor Research on Good Teachers in China**

In a series of research studies, we have asked university students of English in China and elsewhere to give their own metaphors for a “good teacher,” using an open-ended question



format (Cortazzi & Jin, 1999, 2019; Cortazzi et al., 2009; Jin & Cortazzi, 2008, 2011b). This is a recognized elicitation procedure in applied linguistics (Cortazzi & Jin, 1999, 2020; Jin & Cortazzi, 2019; Wan & Low, 2015) which can be part of wider investigations into Chinese and other cultures of learning (Cortazzi & Jin, 1996, 2001, 2013, 2017; Jin & Cortazzi, 2011a, 2013). The research method is established in cognitive linguistics (See Cortazzi & Jin, 2019) and more innovatively in applied linguistics (Wan & Low, 2015). We use an open-ended format in which participants complete a sentence with their individual responses, “A good teacher is XXX because YYY”: they add their own metaphor (XXX) as their source for the target of “good teacher.” They give their own individual creative metaphor or they may use a commonplace current or traditional metaphor; in both cases, special attention is paid to the second part (YYY) in which they give their reasons (entailments) for their metaphors. Essentially, the analyst does not offer pre-formed meanings or imposed interpretations; the entailments are these participants’ own interpretations which allow access to their expectations, values, and beliefs in their own voices. We analyze the data inductively, that is we use a bottom-up approach without presuppositions, in which common expressions of metaphors and, especially, of the entailments are progressively classified and grouped; in the process, we establish networks of metaphor-entailment relations (see details in Cortazzi & Jin, 2020; Cortazzi et al., 2009; Jin & Cortazzi, 2011b, 2019).

It can be argued that the elicitation procedure is somewhat artificially removed from normal practices of teaching or is separated from actual behavior (a difficulty in much questionnaire and interview research). However, in our studies, the images and metaphors provided have been shown, in salient cases, to reflect traditional metaphors in classical Chinese traditions and commonplace proverbs and current sayings, while some metaphors are confirmed visually in our photos of practices of student learning and classroom teaching (Jin & Cortazzi, 2008). Further, our analyses have been verbally confirmed by groups of students and teachers.

A problem in analysis is that participants generally provide a wide range of metaphors, so researchers using this approach need a large number of metaphors not only to ascertain common patterns of metaphors but also to identify the major entailments. In practice, the number of entailments turns out to be considerably fewer than the sources for the “good teacher” target and is therefore manageable for investigations. In practice, too, while just a few students give non-metaphor responses, many students were interested in the innovation of being asked for their own metaphors: many gave more than the three we asked for and some later had involved discussions of metaphors with their teachers in class. It is possible, of course, that participants will answer according to what they think investigators expect them to answer (which can happen in questionnaire and interview research). However, the unfamiliar feature of the innovative method means the element of surprise is likely to generate valid responses. This is partly confirmed by the range, which shows the reliability and validity of the data: most metaphors show teachers in a positive light, while others are neutral or dramatically negative metaphors; many have striking images that seem creatively individual and which teachers or researchers are unlikely to have anticipated. This creativity itself might be a marker of validity;

it seems to confirm participants' thoughtfulness in giving imaginative metaphors rather than stock responses. We propose metaphor analysis be used alongside other qualitative approaches, for instance, to complement narrative analysis (Cortazzi & Jin, 2019).

We take examples of Chinese students' metaphors of "good teachers" given in English to show one way in which an applied metaphor analysis can be carried out. Drawing on a dataset from 700 students who gave 1,200 metaphors for good teachers, 84 said "a good teacher is the sun," while 166 said "a good teacher is a candle." Here, from the single metaphor target of "a good teacher," there are many sources for analogical comparison. Sources include "the sun" and a "candle" alongside other metaphor sources of light (e.g., "a good teacher is the moon," "a star," "a lantern," "a lighthouse") and numerous completely different sources (e.g., "a good teacher is an old cow," "a falling leaf," "chalk," "a silkworm") which on analysis show clear patterns of meanings. Among the huge range of metaphor sources, there are a rich range of expressions and meanings, yet the entailments show discernible patterns that we illustrate with a brief selection of examples. Interestingly for Gold Standard, a few students do say "a good teacher is a goldmine from which we get attractive gold; the treasure in the mine is the treasure of knowledge," "if you dig in this goldmine with your heart you will get treasure which will benefit you for the rest of your life."

The students' entailments of "the sun" generally include how "it brings us light and knowledge," "it brings to our eyes the desire for knowledge," "it brings warmth and light," "it gives the light of knowledge and guidance," "it has boundless energy," "it helps our growth of knowledge," "it helps us as trees to grow," "it gives life energy to the world and hope for human beings," "it bathes students' hearts with warmth and light," "it gives us love through endless sunshine." The candle metaphor also often includes entailments of how "it gives warmth and light," "it guides us," "it gives out light and energy to make us understand," "it devotes itself to spreading knowledge, guiding us on our roads." These common entailments to separate sources imply networks of meanings which can be ascertained by analyzing the matching relations between several sources and many entailments and also between many other sources and other different entailments. Such networks are shown in our analyses (e.g., Cortazzi & Jin, 2019, 2020; Jin & Cortazzi, 2019).

The key classical Chinese idea that good teachers "cultivate" and "nurture" student learning is highly evident in 181 student metaphors for "good teachers" as "gardeners" and "farmers." Teachers "cultivate the people, producing beautiful flowers for the motherland"; they "cultivate students with kindness and patience"; they "grow our minds, fertilize our learning with knowledge, nourish us flowers with great effort"; they "trim the future flowers to make us grow healthy, making the world beautiful"; they "cultivate our growth with care, transmitting knowledge and principles of good behavior." A good teacher is "a sower of the human soul, tirelessly spreading and planting the seeds of knowledge for the harvest of human civilization." There are parallel entailments in 48 metaphors of "good teachers" as "parents" to show teachers' hard work, care, patience, warmth and strength in nurturing roles, sometimes with strictness and discipline: "in order to cultivate students they work hard, sometimes like parents who are not understood but they continue the effort"; "they are deep in our heart but

we show only respect outside” even if “they are always nagging and repeating the same thing a thousand times.”

In these examples, good teachers bring students “warmth,” “light,” “knowledge,” “guidance,” “care,” “kindness,” “hope” and “beauty”; they share “energy” to help students’ head-and-heart growth. More interestingly, the candle metaphor entailments emphasize the students’ appreciation of teachers’ devotion and selfless sacrifice: “they burn themselves out to give others light,” “they melt to improve us, our well-being and ways of living,” “they burn to build mankind, to build our lives,” “they burn to enlighten the environment, enlighten our development,” “their warmth, devotion, and love give us brightness and heart,” “the candle sacrifices itself for us, they lose their life,” “their life disappears in drops of wax and they give light to others.” Returning to “the sun” entailments, some students say, “a good teacher is the sun: it burns to give energy, warmth, and light, it gives light and energy selflessly, warming our hearts selflessly,” “it sacrifices for us with devotion.” The “old cow,” “falling leaf,” “chalk” and “silkworm” metaphors, among others, also carry such student entailments of sacrifice. The teacher as “an old cow” “is hardworking, silently contributing, only serving society,” “silently suffering to serve society, leaving its spirit forever.” As “a falling leaf,” a teacher “sacrifices itself, enriching the soil,” “it sacrifices itself, leaving its youth to fertilize the soil for new life,” “falling with its youth, it fertilizes the soil with a moment of magnificence.” As “a piece of chalk,” a teacher “constantly gives others knowledge while losing itself gradually” and “gives students knowledge and leaves marks of learning by sacrificing itself.” As “a silkworm,” a teacher “produces silk selflessly until the last minute of life, sacrifices itself to give silk to create the most beautiful clothes for people,” “it produces silk for students selflessly until death.” These diverse student metaphors thus show participant visions of good teachers who enrich learners’ knowledge: they guide and enlighten with great energy; they also show their hardworking devotion and self-sacrifice to create beauty and to serve society. Significantly, these are all students’ own expressions. An implication is that Gold Standard arguably needs to include this learner-centered appreciation of teacher hard work, devotion, and sacrifice, which goes beyond teacher knowledge and pedagogic skills.

From the wider datasets of 2,882 metaphors given by 1,140 Chinese students, we analyze three overall meta-characteristics of “good teachers.” These meta-characteristics are derived inductively from careful analysis of numerous classified groups of metaphor entailments (Cortazzi et al., 2009, p. 125). First, good teachers show knowledge; next, they are deeply concerned with cultivation, and third, they demonstrate morality. These three meta-characteristics relate closely to each other. For instance, students can cultivate knowledge and morality, become aware of moral aspects of knowledge, and develop knowledge of morality and self-cultivation. These can be foundations for discussions about reaching Gold Standard. They resonate well with the classical Chinese conceptions illustrated above, perhaps as an on-going implicit cultural dialogue. In students’ own words, teachers “develop student knowledge,” “nurture student growth,” “they are tirelessly hard-working” and “they cultivate student talent.” Good teachers in this collective student vision are not simply academic: they have a marked social, moral and even aesthetic character, they “care for students, support, protect and

shelter them,” “they develop student’s moral qualities,” “they beautify life,” “they work for the motherland’s future.” In the metaphor analysis, these good teachers have many roles besides “reaching knowledge and giving enlightenment”: they “guide,” “advise,” “help progress,” “mediate,” and “cleanse and purify students from their bad qualities,” “giving friendship and understanding.” Each of these characteristic roles could be elaborated. Regarding guidance, for instance, in further echoes of classical discourses of learning, students commented how good teachers “guide our methods of learning, tirelessly giving us knowledge, teaching skills; as models in our educational life using their own behavior to guide us all; a guide to our thoughts, making students enjoy wisdom and knowledge; as guides, they have high abilities, knowledge, and skills, they also have a high moral standing, leading us to the right paths.”

Since the student metaphor data sometimes cite individual teachers or talk about specific remembered classrooms, it seems these expressions about good teachers are not simply imagined ideals, but rather they are based on learners’ experiences of good English teachers and upon some exemplary models already experienced in students’ lives in English-learning classrooms. These good teachers share with their students “patience and understanding,” “helpfulness, friendship, and closeness”; they demonstrate “leadership and care for progress,” “heart to heart sharing,” “warm-heartedness and love,” “sound morality” and “devotion and sacrifice.”

The students’ expectations through metaphors showing the three key features may also reveal their inner thoughts for desiring to have such teachers. Further, “sharing knowledge,” “cultivation” and “morality” can be traced by Chinese educational texts such as *Li Ji* and many Sung and Ming dynasty teacher-scholars. Arguably, this search for Gold Standard teaching has always been a core in Chinese education. The essence of good teachers seems remarkably similar throughout centuries, complemented now with more knowledge, technical, and communication innovations.

These metaphor research explorations reveal a rich picture of students’ expectations, values, beliefs, and hopes about “good” teachers. These are part of participants’ “cultures of learning” and they can productively inform ways to reach for Gold Standard teaching. However, it will be evident that rich cultures of learning, in China or elsewhere, must go beyond and extend students’ current thinking. Analysis of a culture of learning includes obtaining and understanding student ideas as necessary but not sufficient for developing golden standards. Students need to learn from teachers’ cultures of learning, from other cultures internationally, and develop their thinking at an advancing frontier of “the system of vital ideas which each age possesses” (Ortega Y Gasset, 1944, p. 73), “to lift students out of intellectual and imaginative limitations” (Warnock, 1989, p. 23).

## 6. Cultures of Learning: Teachers and Students

A classical Chinese culture of learning, as in Confucian and neo-Confucian examples quoted above, offers insight, inspiration and is “a resource for thinking about the present” (Bol, 2008, p. 278). Contemporary Chinese students’ metaphors for good teachers, as analyzed and outlined

here, similarly offer insight, inspiration, and resourceful foundations for reaching for Gold Standard. Discussion about Gold Standard (MoE, 2018) suggests the need for a variety of teaching-and-learning activities, specifically mentioning both face-to-face offline and online learning through MOOCs and internet resources, plus mixed or flipped approaches together with developing virtual reality, and applications to social practice. Reaching for Gold Standard involves students in broader learning: acquiring knowledge, understanding and re-interpreting knowledge, developing skills, and applying them in real-life contexts. Clearly, this includes using modern technologies and communication methods and cultivating relevant cultures of learning. However, a higher level of learning is called for: to examine the knowledge and skills learned, to challenge some ideas and practices in order to create improvements or something original. Arguably, this requires some metacognitive learning, learning how to learn better, developing a greater conscious awareness of the teaching-and-learning processes. This includes consideration of “cultures of learning” to find approaches, methods, and techniques which fit students’ own cultures of learning while learning *in, from* and *through* teachers’ cultures of learning, using texts and technologies, in order to develop wider repertoires of ways of learning and in different contexts select styles which are appropriate, efficient and adaptable.

“Cultures of learning” can be thought of as usually taken-for-granted assumptions, habits, practices, and beliefs about learning, which derive from childhood upbringing and experiences of schooling. For teachers, they include elements taken from training and experience. They include ideas about “good teachers.” They have been researched in relation to Chinese teachers and learners (Cortazzi & Jin, 1996, 2001; Jin & Cortazzi, 2006, 2011a, 2012, 2019) and internationally (Cortazzi & Jin, 2013; Jin & Cortazzi, 2013). The concept for good language teachers includes their expectations and values about good learning and good teachers, their roles, relationships, and interaction; about pedagogic approaches, methods, and techniques; about uses of textbooks, technologies, and materials; about out-of-class activities and digital worlds; and about how these and other features relate to concepts of the nature of languages, and why and how to learn them. Crucially, a culture of learning includes teachers’ conceptions of learners’ ideas and assumptions about all of these. Often there are identifiable but unspoken gaps between teachers’ and students’ beliefs, which are enhanced in contexts of diversity. There are greater gaps across cultures internationally, which are crucial when Chinese students study abroad (Cortazzi & Jin, 1996, 2013; Jin & Cortazzi, 2011a, 2013). A culture of learning English in China is, additionally, influenced by international contemporary pedagogies and intercultural communication, and by Western ideas of university teaching and learning languages. All this implies a need for dialogues within and between cultures of learning.

For university language teachers to be recognized as good teachers who reach Gold Standard will likely demand not only observable changes in pedagogy and practice but also mindful professional changes in cultures of learning. Cultures of learning not only function in smaller groups, in classrooms, but also organizationally at institutional and policy levels. For example, Gold Standard discussions (MoE, 2018) have emphasized the need to give students challenging activities, which have more depth and choice and develop their creativity. Significantly, the concept recognizes – and values – diversity, difference, variation, and

dynamic development: cultures of learning can change and develop. Arguably, reaching Gold Standard demands some changes. Where there are differences and gaps, this gives teachers and learners opportunities to develop cultural synergies through noticing, enhancing awareness, and making older or innovative practices explicit with relevant rationales (Cortazzi & Jin, 1996). In cultural synergy, participants learn from each other, including learning about learning; learners consciously advance their ideas and practices by learning about, from, with, and through teachers' cultures of learning – and vice versa for teachers, learning from students. For teachers, this is a point of professional development. Such synergy develops a necessary new discourse on learning.

## 7. Design Principles for Gold Standard

To reach Gold Standard and apply some of the identified characteristics of good teachers, we propose a range of design principles to complement and combine with the Chinese Ministry of Education guidelines (MoE, 2018) for planning, using materials, developing classroom interaction, and out-of-class activities. They are practical ways to vary teaching procedures interactively and creatively, to develop wider and more extensive student participation, and to encourage student thinking and reflection through challenge (Jin, Cortazzi, & Leetch, 2016). These principles seem wholly consonant with Gold Standard teaching and support the realization of such teaching. They include

- *sequencing* from easier to increasingly challenging activities;
- *repetition* to reiterate some elements at higher levels, in a spiral fashion to progressively revise, extend and apply elements;
- *continuity* and *integration* to avoid isolation and disjunction of activities but to combine them into a more holistic progression;
- *variation* and *innovation* of activities to avoid stale routine and maintain a creative momentum;
- *combination* to combine and synthesize previously encountered elements at higher, more challenging levels;
- *varying interaction patterns* of individual, pair and group work, whole class and inter-class work, including internet links;
- uses of *multi-modality* to mix and combine on- and off-line verbal, visual, and virtual elements;
- using *out-of-class opportunities* beyond practice tasks to include thoughtful preparation, perhaps in pairs and groups;
- *reflection* to ensure students *verbalize* and consider deeply what they are learning, why and how, and how it is worthwhile;
- using *assessment criteria* so that students know them and use them consciously when planning and improving assigned work in order to internalize criteria to develop sophisticated self-evaluation;
- *metacognitive scaffolding* aiming to develop student awareness of the purposes and value of what they are learning; key features of planning and conducting activities, evaluating and reflecting upon them, are progressively handed over to learners to develop self-learning and independence.

As a practical example, we illustrate a combination of several of these principles. The example aims to extend students' oral expression in class by specifically encouraging elaborations and thoughtful extensions of classroom answers to questions from the teacher or their sharing of responses to textbook exercises and activities. This strategy relates mainly to expected longer answers, rather than to short or one-word answers. Over time, this example strategy of asking for justifications or exemplifications related to answers develops student thinking through English, their awareness of evaluation criteria, and, ultimately, their metacognition. At its simplest, we encourage students to make a point (P), exemplify it (E), and give an elaboration or evaluation (E), often with their own thinking (the P-E-E is a handy mnemonic to remind participants). Steps to enact this strategy are detailed in the Teacher's Books of the *New Standard College English* textbook series (Jin et al., 2016). These Teacher's Books offer a parallel strategy for teachers with lesson planning by suggesting additional ideas and challenges which are not mentioned in the Students' Books.

Commonly, in classroom discussion or in going over textbook exercises and tasks, teachers give comments and evaluations of student utterances as feedback, often referring to example answers in a Teacher's Book. This becomes more productive if the teacher refers explicitly to criteria, which may be given before students share responses so that the learners are progressively aware of what constitutes "good" answers in given contexts. Good teachers are likely to clarify the way that *how* and *why* answers can be improved in relation to the given criteria. This obviously depends on class level, current learning content, and teaching-and-learning processes. Teachers may systematically refer to combinations of accuracy, fluency, student enactment of previous learning targets in relation to features of English as the teacher develops productive ways of learning. More interestingly for Gold Standard teaching, the teacher may show how a response engages deeper thinking, is imaginative and creative, applies good thinking in a fresh context, raises deeper or wider issues, or develops other Gold Standard characteristics. Such broad criteria are consistently made explicit by good teachers in a model of feedback by direct reference to student responses to tasks and exercises. Students are given appropriate time to prepare these more challenging responses. Extensions of this strategy can be developed in several ways. First, the teacher involves other learners to participate in a given student's response by asking for their comments and evaluations in relation to previously given criteria related to a task: the teacher can then comment on both the original student's response and the others' comments and evaluations, again by referring to the criteria (noting how the criteria are themselves progressively developing over time to be more challenging). Second, in relation to a given task, students can be asked to consider and state their own criteria in advance, before completing the task, and then to refer to them as part of the feedback process on their work: the teacher may comment not only on original answers and the later evaluative comments but also on the selection, appropriateness, and application of the criteria in relation to the desired Gold Standard. Overall and over time, the teacher is not only modeling more challenging uses and expressions of English and more advanced thinking, but is also modeling how learning

progressively meets advancing criteria in a learning-to-learn model. This culture of learning includes the conception of English that many responses are not considered yes-no or right-wrong in a binary model of English language expression but rather as meeting combinations of criteria in delicate ranges of ever-advancing criteria towards an increasingly appropriate expression of thoughtful and creative answers. The strategy suggested here (and illustrated in Jin et al., 2016) helps to shift the culture of learning from teacher-and- textbook-centered processes towards learning-centered participation with clear goals defined by attainable-but-developing criteria made explicit and, probably, uses of group collaboration and teamwork as students formulate their own criteria and engage in participation in the feedback model. The teacher may show how student work can be further advanced in relation to additional or more complex criteria so that, over time in a spiral fashion of repetition with variation, the teacher gradually ensures students are progressively developing, using, and internalizing more appropriately advanced and challenging Gold Standard-related criteria.

## 8. Conclusions

Arguably, in English teaching in China, there is a desirable synergy between contemporary Chinese developments and international pedagogies and practices, and another synergy between classical Chinese heritages and modern cultures of learning, including digital learning and mindful adaptation to diverse contexts. As shown above, strands in Confucian concepts of good teaching and learning, together with an applied linguistic analysis of current “good teacher” metaphors from students in Chinese universities, can give insights, inspiration, and constitute food for thought not only for Gold-Standard aspirations in universities in China but also for Western teachers outside China. This reciprocates the acknowledged ways for Chinese teachers to learn from Western developments and vice versa. The metaphor analysis illustrates how teachers can learn about teaching from students, in a learning-centered pedagogy, complementing the obvious ways in which students learn from teachers. Reaching for the Gold Standard will involve many teaching-and-learning elements in an ongoing process: one key feature is the recognition and further development of good teachers. An applied linguistic analysis of metaphors related to pedagogy emerges as a useful method to complement other research strategies related to language teaching and learning. The richness and variety of expression and thought in these students’ metaphors, in English, is also a compliment to their creativity. As metaphors show, the conception of “good teachers” is a rich network of complex and sometimes diverse ideas rather than a uniform concept or single model. Sharing a metaphor analysis is to share students’ aspirations and inspirations, insights, and implications: such sharing also helps to reach Gold Standard.

## References

- Allen, M. (1988). *The goals of universities*. Milton Keynes: The Society for Research into Higher Education & Open University Press.



- Bol, P. K. (2008). *Neo-Confucianism in history*. Cambridge, MA: Harvard University Press.
- Brown, H. D. (2007). *Principles of language learning and teaching* (5<sup>th</sup> ed.) New York: Longman.
- Cameron, L., & Low, G. (Eds.). (1999). *Researching and applying linguistics*. Cambridge: Cambridge University Press.
- Cameron, L., & Maslen, R. (Eds.). (2010). *Metaphor analysis, research practice in applied linguistics, social sciences and the humanities*. London: Equinox.
- Chen, J. (1990). *Confucius as a teacher: Philosophy of Confucius with special reference to its educational implications*. Beijing: Foreign Languages Press.
- Cortazzi, M., & Jin, L. (1996). Cultures of learning: Language classrooms in China. In H. Coleman (Ed.), *Society and the language classroom* (pp. 169-208). Cambridge: Cambridge University Press.
- Cortazzi, M., & Jin, L. (1999). Bridges to learning; Metaphors of teaching, learning and language. In L. Cameron & G. Low (Eds.), *Researching and applying metaphor* (pp. 149-176). Cambridge: Cambridge University Press.
- Cortazzi, M., & Jin, L. (2001). Large classes in China: Good teachers' and interaction. In D.A. Watkins & J. B. Biggs (Eds.), *Teaching the Chinese learner: Psychological and pedagogical processes* (pp 115-134). Hong Kong: CERC, University of Hong Kong.
- Cortazzi, M., & Jin, L. (Eds.). (2013). *Researching cultures of learning: International perspectives on language learning and education*. Basingstoke: Palgrave Macmillan.
- Cortazzi, M., & Jin, L. (2017). Practicing cultures of learning in internationalizing universities. *Journal of Multilingual and Multicultural Development*, 38(3), pp. 237-250.
- Cortazzi, M., & Jin, L. (2019). Journeys of learning: Dimensions of metaphor and narrative landscapes across cultures. In M. Hanne & A. Kaal (Eds.), *Narrative and metaphor in education: Look both ways* (pp. 164-176). London: Routledge.
- Cortazzi, M., & Jin, L. (2020). Elicited metaphor analysis: Researching teaching and learning. In S. Delamont & M. Ward (Eds.), *Handbook of qualitative research in education*. Cheltenham: Edward Elgar.
- Cortazzi, M., Jin, L., & Wang, Z. (2009). Cultivators, cows and computers: Chinese learners' metaphors of teachers. In T. Coverdale-Jones & P. Rastall (Eds.), *Internationalizing the university, the Chinese context* (pp. 107-130). Basingstoke: Palgrave Macmillan.
- De Bary, W. T. (1989). Chu Hsi's aims as an educator. In W. T. de Bary & J. W. Chaffee (Eds.), *Neo-Confucian education: The formative stage* (pp. 186-218). Taipei: SMC Publishing.
- Eliot, T. S. (1969). Choruses from "The rock," 1934. In *The complete poems and plays of T. S. Eliot* (p. 147). London: Faber and Faber.
- Gardner, D. (Ed. & Trans.). (1990). *Learning to be a sage: Selections from the conversations of Master Chu, arranged topically*. Berkeley, CA: University of California Press.
- Gardner, D. (2007). *The Four Books: The basic teachings of the later Confucian tradition*. Indianapolis: Hackett Publishing Company.
- Hare, W. (1995). *What makes a good teacher?* Winnipeg: University of Western Ontario.
- Hartman, C. (1986). *Han Yü and the T'ang search for unity*. Princeton, NJ: Princeton University Press.
- Jin, L., & Cortazzi, M. (2006). Changing practices in Chinese cultures of learning. *Language, Culture and Curriculum*, 19(1), 5-20.

- Jin, L., & Cortazzi, M. (2008). Images of teachers, learning and questioning in Chinese cultures of learning. In E. Berendt (Ed.), *Metaphors for learning: Cross-cultural perspectives* (pp. 177-204). Amsterdam: John Benjamins.
- Jin, L., & Cortazzi, M. (Eds.). (2011a). *Researching Chinese learners: Skills, perceptions and intercultural adaptations*. Basingstoke: Palgrave Macmillan.
- Jin, L., & Cortazzi, M. (2011b). More than a journey: “Learning” in the metaphors of Chinese students and teachers. In L. Jin & M. Cortazzi (Eds.), *Researching Chinese learners: Skills, perceptions and intercultural adaptations* (pp. 67-92). Basingstoke: Palgrave Macmillan.
- Jin, L., & Cortazzi, M. (Eds.). (2012). *Researching Chinese learners: Skills, perceptions and intercultural adaptations* (English with Chinese translation). Beijing: Foreign Language Teaching and Research Press.
- Jin, L., & Cortazzi, M. (Eds.). (2013). *Researching intercultural learning: Investigations in language and education*. Basingstoke: Palgrave Macmillan.
- Jin, L., & Cortazzi, M. (2019). Chinese cultures of learning: Elicited metaphor research. In C-R Huang, Z. Jing-Schmidt, & B. Meistererst (Eds.), *The Routledge handbook of Chinese applied linguistics* (pp. 131-145). London: Routledge.
- Jin, L., Cortazzi, M., & Leetch, P. (Eds.). (2016). *Real communication, an integrated course, New standard college English*, Teacher’s books 1, 2, 3, 4. Beijing: Foreign Languages Teaching and Research Press.
- Kövecses, Z. (2005). *Metaphor in culture: Universality and variation*. Cambridge: Cambridge University Press.
- Kövecses, Z. (2010). *Metaphor, a practical introduction* (2<sup>nd</sup> ed.). Oxford: Oxford University Press.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: The University of Chicago Press.
- Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York: Basic Books.
- Lin, Y. T. (Ed. & Trans.). (1938). *The wisdom of Confucius*. New York: The Modern Library.
- Liu, S. S. (Ed. & Trans.). (1979). *Chinese classical prose: The eight masters of the T’ang-Sung Period*. Hong Kong: The Chinese University Press.
- Low, G., Todd, Z., Deignan, A., & Cameron, L. (Eds.). (2010). *Researching and applying metaphor in the real world*. Amsterdam: John Benjamins.
- Milton, J. (1644). *Areopagitica and of education* (Ed. G. H. Sabine). New York: Appleton- Century Crofts.
- MoE [Ministry of Education]. (2018). How to cultivate a gold standard class: Talks on 1-11-2018, 24-11-2018. Beijing: Higher Education Department, Ministry of Education.
- Moore, A. (2004). *The good teacher: Dominant discourses in teaching and teacher education*, London: Routledge.
- Newman, J. H. C. (1908). *University teaching, considered in nine discourses*. London: Longmans, Green and Co.
- Ortega Y Gasset, J. (1944). *Mission of the university* (trans. H. L. Nostrand). New York: Norton and Co.
- Plaks, A. (2003). *Ta hsueh and chung yung (The highest order of cultivation and on the practice of the mean), translated*. London: Penguin Books.
- Wan, W., & Low, G. (Eds.). (2015). *Elicited metaphor analysis in educational discourse*. Amsterdam: John Benjamins.

Warnock, M. (1989). *Universities: Knowing our minds*. London: Chatto and Windus.

Xu, D., & McEwan, H. (Eds.). (2016). *Chinese philosophy on teaching and learning: Xueji in the twenty-first century*. Albany, NY: State University of New York Press.

Zhunussova, G. (2019) *Exploring teachers' and students' expectations of good English teachers in Kazakhstan through narrative and metaphor analysis*. Unpublished Ph.D. thesis, University of Nottingham.

## About the authors

Dr. Lixian JIN is Chair Professor of Applied Linguistics at the University of Nottingham Ningbo China. Her research focuses on English and intercultural communication; speech and language therapy; cultures of learning; and narrative and metaphor analyses. Email: [lixian.jin@nottingham.edu.cn](mailto:lixian.jin@nottingham.edu.cn)

Dr. Martin CORTAZZI is Visiting Professor in Applied Linguistics at the University of Warwick, UK, where he researches issues in languages, cultures and learning; language teaching; applying narrative and metaphor analysis to education. Email: [m.cortazzi@warwick.ac.uk](mailto:m.cortazzi@warwick.ac.uk)