

HOW CULTURE SHAPES THE READING OF FAIR TALES:
A CROSS-CULTURAL APPROACH

Yehong Zhang and Gerhard Lauer

ABSTRACT

A large body of research consistently found cultural differences in cognition between Westerners and East Asians. We undertook a study to explore whether culture-specific thinking models may influence how German and Chinese children understand fairy tales. By transferring the established theoretical framework of individualism versus collectivism from cultural psychology to literary studies, we hypothesize that readers in western Europe prefer an individualistic-oriented thinking model for character evaluation, adventurous attitude to plot development, as well as concrete time and spatial perception; by contrast, their counterparts in East Asia use social-oriented interpretation styles for character judgment, a self-restrained attitude towards plot development, and a symbolic time and spatial imagination. The method we used relies on questionnaires, item-based analysis and factor analysis to learn about the most salient dimensions for cross-cultural story comprehension. We found differences in all three dimensions of story comprehension, namely character evaluation, plot development, and time/space imagination. The results reveal how culture shapes the way we read and point to the important role of embedded schematic knowledge for story comprehension.

KEY WORDS: culture, reading, cross-cultural story comprehension, individualism–collectivism, children reading

Culture shapes the manner in which people habitually think and has a significant impact on the way individuals perceive the world. “Culture and psyche make each other up”¹—but how and to what extent are still unanswered questions. Research in cross-cultural psychology has given growing evidence

for cultural differences in many interrelated aspects of human cognition, like visual perception, spatial and time orientation, and causal attribution, as well as social institutions like kinship, moral judgments, emotional regulations, mental representation of numbers, and memory effects.² However, little research is done with regard to the role of cultural specific patterns in story comprehension. Since the late 1980s, psychological studies have started to pay increasing attention to the role of cultural imperatives in human behavior triggered by languages and confirmed a revised version of the Sapir-Whorf hypothesis on linguistic relativity.³ Some cross-linguistic typologies of rhetorical styles of narratives expand this kind of research on (literary) texts and stories.⁴ Likewise, a small number of studies examine event representation⁵ or the relation between life stories and the structure of the (Western) self.⁶

These findings point to a kind of literary relativity. Literary relativity could be explained by the assumption that narrative comprehension simultaneously employs both bottom-up (information-extracting) and top-down (strategic) processes.⁷ By top-down processes readers use their cultural and world knowledge to make a narrative coherent. As reader response criticism and reception theory have highlighted, readers fill the “gaps” within the texts by inferring the missing information according to their cultural knowledge.⁸ Cultural knowledge is mainly organized in schemata and these culturally shaped schemata became increasingly important when readers build a coherent mental model, or what van Dijk and Kintsch called the situation model.⁹ In this cognitive framework, the domain of culture regulates the understanding of typical settings, typical genres, and typical attributions of intentions,¹⁰ and is therefore an essential part of meaning formation.¹¹ Accordingly, inference-making in story interpretation is strongly linked to the reader’s culture-specific thinking models and will particularly affect their situation model. Nevertheless, the existing theories and research on literary reading and interpretation usually do not include cultural variables and most findings regarding reading processes are thought to apply to individuals everywhere. It is our main argument here to give evidence why it is necessary to include culture as a variable.

I

To overcome the cultural blindness in reading studies, we suggest the psychological framework common in cross-cultural psychology, which is also useful for literary studies. Cross-cultural psychology has a long tradition of research on the differences of social behavior and the sense of self across cultures and describes these differences with terms like independent versus interdependent

social relationships,¹² or other, although similar frameworks, like analytic versus holistic,¹³ loose versus tight cultures,¹⁴ and separate versus relational, exist,¹⁵ which all typify the cultural contrast we are interested in. Among them, the individualism–collectivism theory is the most researched dimension in cross-cultural psychology over the past thirty years.¹⁶ Individualism emphasizes the loose connections between individuals. According to its opposite, collectivism, individuals are integrated into their social groups.¹⁷ The comparison has been examined especially between North American cultures and East Asian cultures. A strong sense of individual identity accompanies the Western sense of personal agency. By contrast, there is a strong sense of collective interest in East Asian tradition.¹⁸ Prior research indicates that western Europeans tend to live independently of the expectations of other people, whereas East Asians' interdependence with others leads them to stress the importance of maintaining intragroup harmony and fulfilling expectations of other members. The different styles of thinking could explain even different ways of making works of art.¹⁹

Based on this assumption of different mind-sets in East Asia and western Europe, we presume culture-specific thinking models influence the higher level of text understanding, namely the situation model.²⁰ Consequently, we assume that individualistic and collectivistic thinking traditions will affect the perception of character judgment, plot prediction, and spatial and time perception in a literary text, which are the established categories for story interpretation in literary studies.²¹ In particular, we estimated that the Western readers read a literary text with a more individual-oriented interpretation style, while East Asian readers comprehend the same story with the tendency of a more society-oriented interpretation. Under this premise, we build the hypotheses for the respective literary categories: character, plot, and time (space).

Character: Based on the contrast of self-identification styles, we speculate that western Europeans interpret the activities of characters with a more individualistic-oriented tendency and their East Asian counterparts with more social-oriented tendency. Concretely speaking, readers with the individual-oriented response are inclined to accept characters that tend to break social rules and try to create new opportunities. By contrast, readers with the society-oriented reading response should have a preference for the characters that adapt more to the social rules, have a strong sense of duty and try to keep social relationships in order. Accordingly, the characters the readers prefer should stand for their social group. Thus, the interpretation of character is summarized in the following hypothesis:

Hypothesis 1: Westerners have individualistic-oriented interpretations of characters, whereas East Asians have social-oriented interpretations of characters.

Plot: Consequently, in an independent environment, behavior is interpreted as the realization of needs and goals of the self.²² In an

interdependent environment, a greater group-bias orientation to social expectations is dominant.²³ We suppose that readers with the individual-oriented reading response comprehend conflicts in the plot as external conflicts—which protagonists have with the outside world—and that they easily accept adventurous activities of protagonists. By contrast, readers with the society-oriented reading response prefer the plot development in which characters try to keep strong self-control and the conflicts in the plot are likely regarded as internal conflicts, which protagonists have with themselves. So we propose the plot interpretation in the following hypothesis:

Hypothesis 2: Westerners are inclined to adventurous plot development (individual versus society), whereas East Asians tend to have a more self-restrained attitude toward plot development (individual versus self).

Place: The investigation into the perception of spatial and time description is also based on the previous research results. Past findings demonstrate that the Western focus is more on the objects, while the East Asian focus is more on the whole picture and on the context in which the objects stand.²⁴ Similarly, Westerners are more likely to foreground some focal objects and their causal contexts, whereas East Asians are inclined to foster holistic imagination, and therefore deemphasize individual objects. East Asians have a greater tendency to pay attention to the frames of abstract figures.²⁵ Transferred to story comprehension, the previous research results indicate that Westerners take the story elements like time description and spatial setting more concretely, and East Asians are more likely to take these elements abstractly. Thus, we propose the perception of temporal or spatial description in the following hypothesis:

Hypothesis 3: Westerners have more concrete time and spatial perceptions, whereas East Asians take the time description more symbolically and are inclined to holistic spatial imagination.

II

To test the hypotheses, a more simple text genre like fairy tales is a good starting point. A fairy tale is a short story involving an additive succession of motifs or episodes with flat characters.²⁶ As a text sample for our reading study, we chose a little-known traditional German folk tale that comes from the early nineteenth century, i.e., *Jorinde and Joringel* by Johann Heinrich

Jung-Stilling.²⁷ As a Chinese counterpart we take a traditional tale²⁸ that contains topics and structures comparable to those of the German tale. Both fairy tales are not familiar to most of the contemporary young Chinese or German readers. We do so to avoid rereading effects. As there were no established reading response questionnaires to test cultural comparative thinking models, we first carried out several pilot tests with open-ended questions. The pilot studies, which had eight German schoolchildren and ten Chinese schoolchildren at the age of twelve as subjects, show that the subjects had neither read the fairy tale from their own culture or (in translation) the one from the other.

In a second step, our subjects were children in the sixth grade from Chinese and German schools who were uninformed readers, but were able to perform formal operational tasks and abstract logical thinking and comprehend story lines.²⁹ The participants were 111 German schoolchildren (48% female, *M*_{age} = 12) and 101 Chinese schoolchildren (55% female, *M*_{age} = 12). Both samples were of average socioeconomic status and had similar academic achievement, which is important to avoid social, instead of cultural, variables. For reasons of statistics, the 212 participants were randomly assigned to read either the story from their own culture or the one from the other culture in translation and complete the respective questionnaires. Fifty-one German children and fifty Chinese children read the German story, while fifty-nine German children and fifty-two Chinese children read the Chinese story. The study has a between-subjects design: each participant only read one story, either from their own culture or from the other culture, each in their native language. That means German participants read the original German tale or a German translation of the Chinese tale, and vice versa. Both text samples were presented to the participants in their native languages, respectively. The translations of both stories were done and controlled by independent professional translators who were fluent in both languages. In order to sufficiently demonstrate the appropriateness of the cross-cultural research, the items had been back-translated into the original language with the help of a bilingual translator.

The empirical test settings, outlined here briefly, are obviously a laborious attempt to measure in detail what is generally known since Ferdinand Tönnies and the so-called "Völkerpsychologie" of the nineteenth century.³⁰ To take the standards of modern cross-cultural psychology, though, was required to gain reliable results, which in the end could be compared with recent findings in empirical psychology. The experiment was carried out during a school lesson in which participants were given 45 min. to read the story and finish the respective questionnaire. This work was taken seriously

as a lesson for reading interpretation. Each participant read only one story and filled out the respective questionnaire immediately after reading. The participants who read the story from their own culture were the control group for interpretation and the participants who read the story from the counterpart culture comprise the experimental group for the study. Each item on the questionnaires was administered using a six-point scale from 1 (completely agree), 2 (mostly agree), 3 (slightly agree), 4 (slightly disagree), 5 (mostly disagree), to 6 (completely disagree). The participants responded to each item using this scale. Generally, higher numbers indicate greater agreement. But in our pilot studies, we found that reversing the scoring is better in line with the expectations of the schoolchildren in both countries. Therefore, we considered reversing the scoring to be more consistent with children's expectations in our study: higher numbers indicate greater disagreement. The pilot studies also indicate when using such scale tests that participants tend to choose the middle number on the scale. That is why we used a six-point scale, since it has no middle point, which thus forces participants to clearly express their agreement or disagreement with each item. The items have been designed to correspond with the major categories of literary interpretation: judgment of character, plot reasoning and prediction, and spatial (time) perception. The questionnaires for both text samples were developed with the same categories in literary study: character, plot, and space (time).

We did the investigation of reading responses to German and Chinese fairy tale separately. For each story, the collection of data was conducted in three separate steps: first, we did item-based analyses to identify the items with the strongest difference in interpretation. Then, we did factor analysis to extract the categories involved in interpretation of a narrative story. Finally, based on the driven categories, we compared the data of both cultural groups to observe the structural differences and similarities.

III

Culture makes a difference in reading. The data collected during this experiment shows to what extent and on which part of story comprehension culture shapes reading. We describe our major findings first on the German fairy tale sample and then on the Chinese sample. The description of the data is based on the common statistical method, the *t*-test. The test simply assesses whether the means of two data sets are significantly different from

each other—in our case, for which item we found the most different interpretation of the fairy tales when we compare the data by the Chinese and by the German readers.

German fairy tale sample: We first did a *t*-test to find out to what extent the German and Chinese children understood the story on the item level differently. Using the Bonferroni correction to control the cumulation of the alpha error, we divided the error rate .05 by the number of items (29). Thus the highest accepted original *p*-value should be .0017 in the *t*-test. This correction is necessary to avoid an addition of errors, because each item might have the same flaws and the cumulation of errors should be reduced. Table 1 shows the composite index of significant items after Bonferroni correction. Higher numbers in *t*-value indicate a stronger cultural difference in one, two, or all three hypotheses.

TABLE 1: Composite Index of Statistical Significant Items for the German Story After Bonferroni Correction

Items	CH ()	GE ()	-value	-value
<i>H1: Individual-oriented response: negative evaluation for dependent action/passive activity.</i>	3.66 (1.57)	2.00 (1.37)	5.66	.000*
<i>H2: Individual-oriented response: positive evaluation for an independent self with contacts with the outside world.</i>	3.42 (1.61)	2.29 (1.14)	4.08	.000*
<i>H1: Individual-oriented emotional response: in sympathy with protagonist who tries to create new opportunities.</i>	3.88 (1.92)	2.61 (1.46)	3.75	.000*
<i>H2: Familiarity of specific cultural schema: European culture.</i>	3.08 (1.71)	1.98 (1.30)	3.64	.000*
<i>H2: Society-oriented attitude toward taboo: respect and adaptation to the social rules.</i>	2.08 (1.63)	3.22 (1.68)	-3.45	.001*
<i>H2: Individual-oriented response: the nonserious consequence of ignoring rules.</i>	5.30 (1.06)	4.59 (1.27)	3.06	.003 ⁺

Note: *N* = 101, CH = Chinese; GE = German; *M* = Mean, *SD* = Standard Deviation.

Shown are the items with greatest cultural differences in ratings of the text perception. Ratings can be interpreted with scale labels: 1 = completely agree, 2 = mostly agree, 3 = slightly agree, 4 = slightly disagree, 5 = mostly disagree, 6 = completely disagree.

**p* < .05 after Bonferroni correction, ⁺*p* < .10 after Bonferroni correction.

The result of the *t*-test confirms hypotheses 1 (H1) and 2 (H2) that the Chinese are far more concerned with self-discipline and the fulfillment of the requirements of others in comparison to their German counterparts. The Chinese find the dependent action (passive activity) of the characters in the German fairy tale quite normal. For the active initiatives of the protagonist, the German readers present more positive evaluation. In addition, Chinese participants show more concern regarding the rules that are described in the story.

The data indicates that Chinese children are more familiar with the theme of the story, for example, one item with a significant difference between the two cultures is: "I predicted correctly at the beginning of the story that the girl and the boy would have a problem later." ($M_{\text{Chinese}} = 2.0$ versus $M_{\text{German}} = 3.2$). The data reveals that Chinese children are more familiar with the theme of the story *Jorinde and Joringel*. This result can be explained by the fact that the Chinese children also grow up with the German fairy tales and their schemata.

After the *t*-test, we combined the data of both groups to detect the unobserved variables called factors, which influence the observed variables of story comprehension between Chinese and German readers. For interrelations among the items of the questionnaire, an exploratory factor analysis, with rotated component matrix, was conducted based on the combined data. Five factors have been derived. As can be seen in Appendix 1, factor loadings basically higher than .40 were retained. The five derived factors are "evaluation of characters" (factor 1), "plot comprehension" (factor 2), "emotional affection" (factor 3), "spatial imagination" (factor 4), and "deep inference on plot, character & space (time)" (factor 5). The definition of factors is based on the authors' understanding. Factor 1 clearly focuses on the judgment of characters and has the highest item-loading. The majority of items in Factor 2 relate to familiarity of the storyline or to the schemas in the story. Familiarity with the storyline also closely relates with the prediction of the story development. The items in Factor 3 express the emotional proximity with characters. The items in Factor 4 focus on the perception of spatial setting in the story. Time perception is included as part of the spatial imagination. The items in Factor 5 consist of intensive inference-building on plot, character, and space. Given this line of statistical methods, it turned out that these extracted factors correspond with the major categories of story interpretation in literary studies, on which the construction of the questionnaire is based. A noteworthy finding of this factor analysis is that emotion forms an additional category besides the established categories for literary interpretation.

Drawing on the results of the factor analysis, we investigated whether there is any significant difference between the two cultural groups in the domain of each factor. We entered the data for the items in each factor into one scale to carry out a *t*-test. The results are as follows: Factor 1 “evaluation of characters” $t = .020, p < .888$; Factor 2 “plot comprehension” $t = 16.215, p = .000$; Factor 3 “emotional affection” $t = 2.370, p < .127$; Factor 4 “spatial imagination” $t = .831, p < .364$; Factor 5 “deep inference on plot, character & space (time)” $t = 19.195, p = .000$. Again a higher *t*-number indicates a stronger cultural effect in comparing Chinese and German readers. These results show the differences and similarities between the two cultural groups in the five derived domains, respectively. Concretely, the results indicate the similar response to the judgment for characters, emotional reaction, as well as spatial imagination. The highly significant difference in intensive inference-making on plot, character, and spatial (time) setting demonstrates the effective influence of culture-based different thinking models on inference-building while reading the story, here on the level of the situation model. This can be traced back to the assumption that German readers tend to use the individualistic-oriented comprehension way for character as well as plot and are inclined to regard time/spatial description concretely, whereas Chinese readers prefer the social-oriented inference-building style for plot causality and are inclined toward holistic spatial perception as well as abstract temporal perception.

Chinese fairy tale sample: Similar to the responses to the German story, we first carried out a *t*-test on the item level to explore the differences of the responses between the two groups. Using again the Bonferroni correction to control the cumulation of the alpha error, we divided the error rate of .05 by the number of items (34). Table 2 shows the composite index of significant items after Bonferroni correction.

The result of the *t*-test partly confirms hypotheses 1, 2, and 3 (see Table 2, H₁, H₂, and H₃). However, there are also some surprising results. Although our version of the Chinese story dates from the nineteenth century, it started with more of a dreamed-up social life: a boy tends to break the social rules and tries to create new opportunities for his life. The present study hypothesized that the boy would be considered a self-realized hero by the Western readers. However, responses to the items related to the male protagonist contradict this assumption. The responses to them by German children are far more negative. In the post-hoc study—which included some open-ended questions—German participants find the activities of the male protagonist

absurd. Chinese participants, by contrast, show more sympathy with the protagonist because they are familiar with the small plot motif. These statistical results indicate that familiarity with plot schema plays an essential role in comprehension.

TABLE 2: Composite Index of Statistically Significant Items for the Chinese Story After Bonferroni Correction

Items	CH ()	GE ()	-value	-value
<i>Storyline familiarity.</i>	2.41 (1.60)	4.72 (1.56)	-7.76	.000*
<i>H3: Abstract time perception.</i>	2.76 (1.78)	4.92 (1.45)	-7.00	.000*
<i>H3: Familiarity of symbol.</i>	3.04 (1.81)	5.02 (1.58)	-6.15	.000*
<i>H1: Individual-oriented: to tend to break the social rules.</i>	3.80 (2.01)	5.27 (1.15)	-4.79	.000*
<i>H1: Individual-oriented: to try to create new opportunities.</i>	4.57 (1.36)	3.28 (1.46)	4.76	.000*
<i>H1: Society-oriented: to keep social relationships in order.</i>	3.82 (1.74)	2.48 (1.28)	-4.66	.000*
<i>H1: Individual-oriented: if someone goes beyond the social boundary, he will win in the end.</i>	3.39 (1.70)	4.68 (1.29)	-4.54	.000*
<i>H2: Individual-oriented: to tend to break the social rules.</i>	1.92 (1.45)	3.22 (1.71)	-4.26	.000*
<i>H3: Schema familiarity.</i>	3.45 (1.74)	4.55 (1.23)	-3.89	.000*
<i>H2: Society-oriented: negative consequence of breaking social rules.</i>	4.90 (1.47)	3.80 (1.89)	3.38	.001*
<i>H1: Individual-oriented: in sympathy with protagonist who tries to create new opportunities.</i>	2.92 (1.85)	4.02 (1.65)	-3.29	.001*
<i>H2: Individual-oriented: strong self-control is not to be understood.</i>	3.22 (1.70)	2.33 (1.28)	3.11	.002*
<i>H2: Individual-oriented: to tend to break the social rules.</i>	2.71 (1.51)	3.52 (1.23)	-3.12	.003*
<i>H3: Holistic spatial perception.</i>	2.98 (1.79)	3.77 (1.68)	-2.38	.019

Note: $N = 111$, CH = Chinese; GE = German; M = Mean, SD = Standard Deviation.

Shown are the items with greatest cultural differences in ratings of the text perception. Ratings can be interpreted with scale labels: 1 = completely agree, 2 = mostly agree, 3 = slightly agree, 4 = slightly disagree, 5 = mostly disagree, 6 = completely disagree.

* $p < .05$ after Bonferroni correction, * $p < .10$ after Bonferroni correction.

For interrelations among the items of the questionnaire for the Chinese story, an exploratory factor analysis with rotated component matrix was conducted similar to the above-mentioned analysis. Five factors (with loading of greater than .40) were derived: "evaluation of characters," "plot comprehension," "emotional affection," "spatial imagination," and "deep inference on character, plot & space," which are presented in Appendix 2. The exploratory factor analysis is comparable to the factor analysis related to the German story. On the basis of the factor analysis, we carried out *t*-tests to find out whether there is any significant difference between the two cultural groups in the domain of each factor. The results are as follows: Factor 1 "evaluation of characters" $t = 15.283$, $p = .000$; Factor 2 "plot comprehension" $t = 89.266$, $p = .000$; Factor 3 "emotional affection" $t = 4.377$, $p < .039$; Factor 4 "spatial imagination" $t = .000$, $p < .993$; Factor 5 "deep inference on characters, plot & space" $t = 57.682$, $p = .000$. These results show how different or similar the two reading groups respond, respectively, in the five derived domains of story interpretation. In contrast to responses to the German story, the evaluation of the characters in the Chinese story by the two cultural groups is significantly different, which corresponds to the findings from the data analyses on the item level. The post-hoc analysis reveals the reason for the significantly different effect: when the plot or schema are unfamiliar to the readers from another culture, the readers of the control group and experimental group come to very different meaning formations in evaluation of characters and inference on plot. The different reaction to the characters and plot has also a potential influence on the emotional effect (Factor 3). The highly significant differences ($p = .000$) in the evaluations concerning Factor 1 "evaluation of characters," Factor 2 "plot comprehension," and Factor 5 "deep inference on characters, plot & space" trace back to the tradition and cultural knowledge which are located in the schematic memory in long-term memory.

As in the factor analysis of the German story, the spatial imagination is not significant. In the Chinese story, the spatial imagination (Factor 4) displays highly similar results for reception between two cultural groups. These results disclose in which domains of literary interpretation the reading response differs, or alternatively, the areas where there are cross-cultural identifications. The findings correspond to those from the exploratory data analysis of the item level.

According to the categories of narrative understanding, the results of response on both text samples demonstrate the importance of character

shaping for story interpretation. No matter which culture readers belong to, they all follow the characters. The factor analysis illustrates that the interpretation of the main characters is the key point for the understanding of the tales, as the factor “judgment of character” is the factor with the highest item-loading. Other than the established categories in literary study, emotion could become the new factor that is generated through the exploratory factor analysis. With good cause, the study of emotion in literary study is an emerging research field on the narrative reading³¹ and our findings allude to the fact that even with regard to emotion during reading, culture matters.

IV

In this study, story interpretation—the chief concern of literary study—was examined employing a research methodology from the social science. Today, cross-cultural psychology is the area where most of the research on cultural differences in cognition and emotion is done, and that is why standards in research are adopted from this field of analysis for research in literary studies. Our exploratory test provides initial evidence of cultural differences in narrative comprehension of traditional fairy tales. The quasi-experimental setting in this study was built in an everyday environment. Unlike common psychological experiments that are carried out in a laboratory context, we examine children’s story interpretation in their everyday environment and use fairy tales, which have a cultural function for literary socialization of children.³² Hence, the presented study is of some significance for pedagogical issues like different reading styles in class due to different cultural backgrounds.

Whether cultural differences on reading response can or should be measured is a challenge and still debatable, but these measures of culture-specific mind-sets have helped spur more awareness of differences on cross-cultural narrative interpretation. The analysis of the data not only demonstrates that individualistic and collectivistic thinking models influence literary interpretation, but also illustrates the similarities and differences in a concrete way: German children tend to evaluate characters according to their individualistic motivation and causality, whereas Chinese children show a bias toward society-oriented behavior of the characters and prefer plots with collectivistic causality.

In addition to the influence of the culture-specific thinking models, reading experience also plays an essential role in differences of meaning formation. Reading experience is based on the familiarity of schemata or motifs described in the story, such as achievement imagery.³³ Although fairy tales are known for their peculiar fictional status, neither Chinese nor German child readers show any strong tendency to treat characters and plots differently than people and actions in real life. Schemata, scripts, and frames are used to fill the 'blanks' in the text, as reception theory predicts. With regard to our findings, this research would explain the differences of responses between Chinese and German readers not only in the psychological differences in social orientation but also the differences in getting involved in a story. The acceptance to step into a fictional world could be to some extent triggered by the culturally different appreciation of formal and textual features of the genre fairy tale. It could be assumed that readers not only construct a mental model of what is going on in a story (situation model), but also build a model of the communicative event in which they participate (context model). However, context models have only gained theoretical argumentation and there is still nearly no empirical work on it.³⁴

This study attempts to combine the narrative interpretation in literary studies with a psychological framework. The paper presents evidence showing that Chinese and German readers differ in understanding fairy tales. One is led to assume that these differences in story comprehension might rule the reading not only of fairy tales, but also of many stories, if not all. As yet, only a small amount of research has provided evidence that culture shapes the way we understand stories. The complex experimental design and the hard-to-avoid flaws in methods from confounding variables and general limits of adapting methods from psychology in literary studies might be the reasons why cognitive and emotional differences in reading are widely ignored in literary studies. But stories are part of how we create reality and cultural differences seem to play a significant role for comprehending stories. There is no good reason to ignore these cognitive differences between cultures and there are many reasons why we should explore more closely the differences that ultimately make sense of stories. We would like to close our article by again emphasizing that we do not advocate the view that cultural function on reading is perfectly measurable. Reading narrative stories is a complicated process. The aim of our research was rather modest: to develop a measurement tool for the culture-specific mind-sets of story comprehension that may generate new research possibilities in literary studies.

Factor	Item	Loading
5. Deep inference on plot, character, and space (time)	The girl only waits for someone to rescue her.	.608
	The plot in the story extends over a very long time.	.584
	I find that the girl is too incautious.	.540
	It would be better if the boy and the girl had paid more attention while walking into the forest.	.496
	I would stroll in the forest like the girl and the boy, but I would pay much more attention to the boundary.	.428

Appendix 2: Factor analysis of the Chinese fairy tale

Factor	Item	Loading
1. Evaluation of characters	It is wonderful that the girl married the boy.	.699
	I like the boy very much.	.671
	The boy is very brave.	.668
	In the story the boy liked the girl very much.	.596
	I feel very sad that the boy and the girl could not be together forever in the end.	.566
	It was all the boy's own fault that the girl left him.	-.557
	If I were a boy, I'd like to be the boy in the story.	.543
	They both had lived very happily until the girl left the boy.	.461
	I like the girl very much.	.457
2. Plot comprehension	It felt strange to me that certain numbers often appear in the story.	.807
	I enjoyed the ending very much.	.688
	I'm very familiar with the storyline.	.623
	I predicted right at the beginning of the story that the girl and the boy would have a problem later.	.583

(Continues)

Appendix 2: Factor analysis of the Chinese fairy tale ()

Factor	Item	Loading
3. Emotional affection	I feel very sad for the girl.	.567
	The boy did not fight strongly enough to win the girl.	.557
	It's difficult to understand that the girl absolutely obeyed the family.	.544
4. Spatial imagination	The girl spent a very long time together with the boy, before she left him.	.533
	I can imagine the world in the sky very well.	.514
	It's understandable that the girl flew back to her world.	-.490
5. Deep inference on characters, plot, and space	The boy has his own strong opinion.	.568
	The girl always thinks of her work.	.482
	It is very impudent that the boy forced the girl to marry him.	.471
	It's wonderful that the boy flew to the heaven where the girl lived.	.458

Tsinghua University, Beijing
G ttingen University, Germany

Notes

This research was supported by Chinese National Social Science Fund (13CWW002) and Tsinghua University Initiative Scientific Research Program.

1. Richard A. Shweder, "Cultural Psychology—What Is It?," in *Cultural Psychology*, eds. James W. Stigler, Richard A. Shweder, and Gilbert Herdt. *Cultural psychology* (Cambridge: Cambridge University Press, 1990), 1–46, 24.

2. Shinobu Kitayama and Dov Cohen, eds., *Handbook of Cultural Psychology* (New York: Guilford, 2007).

3. Cf. Benjamin L. Whorf, "Language, Mind, and Reality," in *Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf*, ed. John B. Carroll (Cambridge, MA: MIT Press, 1956), 246–70; Dan I. Slobin, "Thinking for Speaking," *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society* 13 (1987): 435–44; Dan I. Slobin, "From 'Thought and Language' to 'Thinking For Speaking,'" in *Rethinking Linguistic Relativity*, ed. John J. Gumperz and Stephen Levinson (Cambridge: Cambridge University Press, 1996), 70–96; William J. M. Levelt, *Speaking: From Intention to Articulation* (Cambridge, MA: MIT Press, 1989); Lera Boroditsky, "Metaphoric Structuring: Understanding Time Through Spatial Metaphors," *Cognition* 75, no. 1 (2000): 1–28; Lera Boroditsky, "Linguistic Relativity," in *Encyclopedia of Cognitive Science*, ed. Lynn Nadel (London: MacMillan, 2003), 917–21; Lera Boroditsky, Orly

Fuhrman, and Kelly McCormick, "Do English and Mandarin Speakers Think Differently About Time?," *Cognition* 118, no. 1 (2011): 123–29; Stephen C. Levinson, *Presumptive Meanings: The Theory of Generalized Conversational Implicature* (Cambridge, MA: MIT Press, 2000); Stephen C. Levinson and David P. Wilkins, eds., *Grammars of Space* (Cambridge: Cambridge University Press, 2006); and Dedre Gentner and Susan Goldin-Meadow, eds., *Language in Mind: Advances in the Study of Language and Thought* (Cambridge, MA: MIT Press, 2003).

4. Dan I. Slobin, "Relating Narrative Events in Translation," in *Perspectives on Language and Language Development: Essays in Honor of Ruth A. Berman*, eds. Dorit Ravid and Hava B. Shyldkrot (Dordrecht: Springer, 2005), 115–29 and Ruth A. Berman and Dan I. Slobin, *Relating Events in Narrative: A Crosslinguistic Developmental Study* (Hillsdale, NJ: Lawrence Erlbaum, 1994).

5. Mary Carroll and Christine Stutterheim, "Event Representation, Time Event Relations, and Clause Structure: A Crosslinguistic Study of English and German," in *Event Representation in Language and Cognition*, ed. Jürgen Bohnemeyer and Eric Pederson (Cambridge: Cambridge University Press, 2000), 68–83.

6. Kenneth J. Gergen and Mary M. Gergen, "Narrative and the Self as Relationship," in *Advances in Experimental Social Psychology*, ed. Leonard Berkowitz, vol. 21 (New York: Academic Press, 1988), 17–56; Jerome Bruner, *Acts of Meaning* (Cambridge: Harvard University Press, 1990); and Fred Vollmer, "The Narrative Self," *Journal for the Theory of Social Behavior* 35, no. 2 (2005): 189–205.

7. Paul van den Broek, L. Rohleder, and Darcia F. Narváez, "Cognitive Processes in the Comprehension of Literary Texts," in *Naturalistic Text Comprehension*, ed. Herre van Oostendorp and Rolf A. Zwaan (Norwood, NJ: Ablex Publishing, 1994), 229–46; Simone Winko, "Verstehen Literarischer Texte Versus Literarisches Verstehen von Texten? Zur Relevanz Kognitionspsychologischer Verstehensforschung für das Hermeneutische Paradigma der Literaturwissenschaft" ["Understanding of Literary Texts Versus Literary Understanding of Texts? About the Relevance of Cognitive Research for the Hermeneutic Paradigm of Literary Studies"], *Deutsche Vierteljahrsschrift für Literaturwissenschaft und Geistesgeschichte* 69 (1995): 1–27; and David N. Rapp and Paul van den Broek, "Dynamic Text Comprehension: An Integrative View of Reading," *Current Directions in Psychological Science* 14 (2005): 276–79.

8. Ursula Christmann and Margit Schreier, "Kognitionspsychologie der Textverarbeitung und Konsequenzen für die Bedeutungskonstitution Literarischer Texte" ["Cognitive Psychology of Understanding Texts and the Consequences for Meaning Construction in Literary Texts"], in *Regeln der Bedeutung [Rules of Meaning]*, ed. Fotis Jannidis et al. (Berlin and New York: de Gruyter, 2003), 246–85.

9. Teun A. van Dijk and Walter Kintsch, *Strategies of Discourse Comprehension* (London: Academic Press, 1983).

10. Teun A. van Dijk, "Context Models in Discourse Processing," in *The Construction of Mental Representations During Reading*, ed. Herre van Oostendorp and Susan R. Goldman (Mahwah, NJ: L. Laurence Erlbaum Associates, 1999), 123–49.

11. Danielle S. McNamara and Joe P. Magliano, "Towards a Comprehensive Model of Comprehension," in *The Psychology of Learning and Motivation*, ed. Brian Ross, vol. 51 (New York: Elsevier Science, 2009), 297–84.

12. Georg A. Ferguson, "On Transfer and the Abilities of Man," *Canadian Journal of Psychology* 10 (1956): 121–31; Herman A. Witkin and Donald R. Goodenough, *Cognitive Style: Essence and Origins* (New York: International UP, 1981); Hazel R. Markus and Shinobu Kitayama, "Culture and the Self: Implications for Cognition, Emotion, and Motivation," *Psychological Review* 98 (1991): 224–53; Harry C. Triandis, *Culture and Social Behavior* (New York: McGraw-Hill, 1994); and Richard E. Nisbett, *The Geography of Thought: How Asians and Westerners Think Differently and Why* (New York: Free Press, 2003).

13. Richard E. Nisbett, Kaiping Peng, Incheol Choi, and Ara Norenzayan, "Culture and Systems of Thought: Holistic Versus Analytic Cognition," *Psychological Review* 108, no. 2 (2001): 291–310.

14. Michele J. Geldfandt et al., "Differences Between Tight and Loose Cultures: A 33-Nation Study." *Science* 332, no. 6033 (2011): 1100–1104.

15. Yoshihisa Kashima, "Culture, Gender, and Self: A Perspective from Individualism-Collectivism Research." *Journal of Personality and Social Psychology* 69, no. 5 (1995): 925–37.

16. Geert Hofstede, *Culture's Consequences: International Differences in Work-Related Values* (London: Sage, 1980).

17. Harry C. Triandis, *Individualism & Collectivism* (Boulder, CO: Westview Press, 1995); Michael E. W. Varnum et al., "The Origin of Cultural Differences in Cognition: Evidence for the Social Orientation Hypothesis," *Current Directions in Psychological Science* 19, no. 1 (2010): 9–13.

18. Hazel R. Markus and Shinobu Kitayama, "Culture and the Self: Implications for Cognition, Emotion, and Motivation," *Psychological Review* 98 (1991): 224–53; Hazel R. Markus and Shinobu Kitayama, "The Cultural Psychology of Personality," *Journal of Cross-Cultural Psychology* 29 (1998): 63–87; Harry C. Triandis, *Individualism & Collectivism* (Boulder, CO: Westview Press, 1995); Alan P. Fiske, Shinobu Kitayama, Hazel R. Markus, and Richard E. Nisbett, "The Cultural Matrix of Social Psychology," in *The Handbook of Social Psychology*, ed. Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindzey (New York: McGraw-Hill, 1998), 915–81; Steven J. Heine, Darrin R. Lehman, Hazel R. Markus, and Shinobu Kitayama, "Is There a Universal Need for Positive Self-regard?," *Psychological Review* 106, no. 4 (1999): 766–94.

19. Richard E. Nisbett and Takahiko Masuda, "Culture and Point of View," *Proceedings of the National Academy of Sciences* 100, no. 19 (2003): 11163–70.

20. Kaiping Peng, Daniel R. Ames, and Eric D. Knowles, "Culture and Human Inference. Perspectives from Three Traditions," in *The Handbook of Culture and Psychology*, ed. David Matsumoto (New York: Oxford University Press, 2001), 245–84.

21. Peter Hühn, Jan Christoph Meister, John Pier, Wolf Schmid, and Jörg Schönert, eds., *The Living Handbook of Narratology* (Hamburg: Hamburg University Press, 2013), <http://www.lhn.uni-hamburg.de/>.

22. Shinobu Kitayama, Sean Duffy, Tadashi Kawamura, and Jeff T. Larsen, "Perceiving an Object and Its Context in Different Cultures: A Cultural Look at New Look," *Psychological Science* 14, no. 3 (2003): 201–6.

23. Shinobu Kitayama and Yukiko Uchida, "Interdependent Agency: An Alternative System for Action," in *Culture and Social Behavior. The Ontario Symposium*, eds. Richard M. Sorrentino, Dov Cohen, James M. Olson, and Mark P. Zanna, vol. 10 (Mahwah, NJ: Lawrence Erlbaum Associates, 2004), 137–64.

24. Richard E. Nisbett and Takahiko Masuda, "Culture and Point of View," *Proceedings of the National Academy of Sciences* 100, no. 19 (2003): 11163–70.

25. Li-Jun Ji, Kaiping Peng, and Richard E. Nisbett, "Culture, Control, and Perception of Relationships in the Environment," *Journal of Personality and Social Psychology* 78, no. 5 (2000): 943–55; Shinobu Kitayama, Sean Duffy, Tadashi Kawamura, and Jeff T. Larsen, "Perceiving an Object and Its Context in Different Cultures: A Cultural Look at New Look," *Psychological Science* 14, no. 3 (2003): 201–6; Takahiko Masuda et al., "Culture and Aesthetic Preference: Comparing the Attention to Context of East Asians and Americans," *Personality and Social Psychology Bulletin* 34, no. 5 (2008): 1260–75.

26. Volker Heeschen, "The Narration 'Instinct': Everyday Talk and Aesthetic Forms of Communication," in *Verbal Art Across Cultures: The Aesthetics and Proto-aesthetics of Communication*, ed. Hubert Knoblauch and Helga Kotthoff (Tübingen, Germany: Narr, 2001), 137–65.

27. Synopsis of the selected German fairy tale: In a forest there lives a witch who fixes everyone who comes near her castle to the ground, and turns maidens into birds. One day, a young couple that is walking through the forest falls under the witch's spell. The girl is turned into a bird and caged, but the boy is freed. He is very sad and goes to a distant village and becomes a shepherd. One night, the boy has a dream about a flower that could break the witch's spells. The boy searches nine days for this flower. When he finds it, he returns to the castle, but this time he does not stick to the ground and the doors open. He finds the witch and touches her

with the flower, rendering her powerless. He then touches all the birds and they are transformed back into women, and he and the girl are reunited.

28. Synopsis of the selected Chinese fairy tale: A poor young man, encouraged and aided by his ox, flies into heaven. There, he sees fairy sisters bathing in a lake. Following the ox's advice, the boy steals the clothes of one, who weaves colorful clouds in the sky. Only if she agrees to marriage will he return her clothes. Under the mediation of an old willow tree on the shore of the lake, the girl agrees. After several days, the girl leaves the boy to return to her job weaving clouds. The boy follows her, but the girl scratches a broad river in the sky with her hairpin to separate the boy. Once a year all the magpies in the world fly up into heaven and form a bridge so that the couple can be together for a single night.

29. Josef Perner and Johannes Roessler, "From Infants' to Children's Appreciation of Belief," *Trends in Cognitive Sciences* 16, no. 10 (2012): 519–25.

30. Ferdinand Tönnies, *Community and Society* (New York: Dover, 2011). Original work *Gemeinschaft und Gesellschaft* published 1887.

31. Raymond A. Mar, Keith Oatley, Maja Djikic, and Justin Mullin, "Emotion and Narrative Fiction: Interactive Influences Before, During, and After Reading," *Cognition & Emotion* 25, no. 5 (2011): 818–33; David Miall, "Emotions and the Structuring of Narrative Responses," *Poetics Today* 32, no. 2 (2011): 323–48.

32. Jack Zipes, *Fairy Tales and the Art of Subversion: The Classical Genre for Children and the Process of Civilization* (New York: Routledge, 2006).

33. David C. McClelland, *The Achieving Society* (Princeton, NJ: Van Nostrand, 1961).

34. Richard Decharms and Gerald H. Moeller, "Values Expressed in American Children's Readers: 1800–1950," *The Journal of Abnormal and Social Psychology* 64, no. 2 (1962): 136–42.