

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/357170813>

# L2 Learners' Ability to Recognize Ironic Online Comments and the Effect of Instruction

Article in *System* · January 2022

DOI: 10.1016/j.system.2022.102733

CITATION

1

READS

191

2 authors:



**Caleb Prichard**

Okayama University

25 PUBLICATIONS 241 CITATIONS

[SEE PROFILE](#)



**John Rucynski**

Okayama University

21 PUBLICATIONS 86 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Eye tracking to analyze L2 reading strategies: Selective attention on main points [View project](#)



Humor Competency Training in Foreign Language Education [View project](#)

## L2 Learners' Ability to Recognize Ironic Online Comments and the Effect of Instruction

Caleb Prichard

John Rucynski

*Okayama University*

**Abstract:** Verbal irony is common in Web 2.0 communication but detecting it can be challenging. Language learners may have even more difficulty with verbal irony, including *meaning reversal irony* (e.g., sarcasm, jocularly) and *meaning replacement irony* (surrealistic irony), possibly leading to miscommunication and demotivation. The study involves two experiments. The first investigates the ability of Japanese learners of English ( $N = 148$ ) to detect verbal irony in social media comments using a validated instrument. The second experiment examines the effect of instruction on recognizing verbal irony using a pre- posttest, control group design. The first experiment found that the participants had some difficulty with meaning reversal irony (e.g., sarcasm), especially when cued by incongruous comments by the same person. The second experiment suggested that instruction on detecting verbal irony led to gains in the experimental group's ability to recognize irony when marked by paralinguistic cues. Implications for educators are discussed.

**Keywords:** verbal irony; sarcasm; jocularly; humor; L2 pragmatics; media literacy

### 1. Introduction

As people are increasingly using social media platforms and other Web 2.0 sites at the expense of traditional media (Twenge et al., 2019), being able to effectively read online comments and responses has become an important media literacy skill (Moon & Bai, 2020; Tsang, 2019). Verbal irony, including sarcasm and jocular irony, is common on such English-speaking sites, with various functions (Peled & Reichart, 2017; Whalen et al., 2012). During recent power outages in Australia, for example, nearly a quarter of all tweets were sarcastic (Peng et al., 2019). However, recognizing verbal irony online is complicated, and it can lead to miscommunication if the non-literal intent is unrecognized (Attardo, 2002).

To cue ironic intent, writers may use irony markers, such as the /s marker, a hashtag (#sarcasm), and certain emojis (Ghosh & Muresan, 2018; Thompson & Filik, 2016). Cues are not always present or salient, however, so readers need to carefully consider the context

and the writer's likely viewpoint to notice the incongruity between what is expected and the literal comment (Bamman & Smith, 2015; Wallace et al., 2014).

L1 readers can have difficulty detecting verbal irony (e.g., Bruntsch & Ruch, 2017; Howman & Filik, 2020), and it may be even more challenging for language learners (Kim & Lantolf, 2016; Prichard & Rucynski, 2020; Taguchi et al., 2016). In certain cultures, sarcasm may be less common, used in different contexts, or marked by different cues (Fitzgerald, 2013; Kim & Lantolf, 2016; Okamoto, 2007). Research has suggested that instruction can lead language learners to improve their ability to recognize verbal irony in conversation (Kim & Lantolf, 2016; Prichard & Rucynski, 2020). However, L2 research involving irony on social media is lacking. With this in mind, this study investigates whether 148 Japanese university-level language learners have difficulty recognizing verbal irony online in English. Second, it uses a pretest-posttest control group design to examine whether explicit instruction improves their ability to detect ironic comments.

## **2. Literature Review**

### *2.1. Types of verbal irony and their roles*

Classification of verbal irony, such as sarcasm and jocularity, is often debated (Gibbs et al., 2014; Dynel, 2014; Kapogianni, 2014). While we do not intend to settle the debate here, we will discuss some of the common definitions and describe the interpretation used in this study.

#### *2.1.1. Meaning reversal irony: Sarcasm and jocularity*

Sarcasm is a non-literal message intended to criticize a target (Dynel, 2014). It often uses positive language but with a negative meaning, sometimes referred to as *praise by blame* (e.g., Gibbs et al., 2014). Sarcasm may be considered as nasty and mean, as it is often used to ridicule (Gibbs, 2000). However, it can also be used to lighten criticism (Gibbs & Colston, 2002) and can be humorous (Gibbs et al., 2014; Kapogianni, 2011). Lighter, jocular

examples include teasing about a trivial matter or finding humor in a dark situation (Bruntsch & Ruch, 2017). Sarcasm can also be used to amuse and bond if the audience agrees with the message (Dynel, 2014). As for online usage, research has shown that sarcastic tweets received significantly more likes and retweets compared to sincere complaints (Peng et al., 2019).

In some studies (e.g., Gibbs, 2000; Gibbs et al., 2014), *jocular* has been considered a different form of verbal irony which uses negative language with a positive, humorous intent (i.e., *praise by blame*). An example could include commenting on photos of a friend's dinner party, "Good thing I couldn't make it. The food looks TERRIBLE!"). Like sarcasm, jocular irony can be negated to form its true meaning (*The food looks delicious.*). Such jocular may be intended to amuse, flirt, or set an informal mood.

Although jocular and sarcasm are often distinguished by intent, the line between humorous and critical intent is blurred in cases such as light-hearted humorous insults and harsh criticism meant to humor non-targets (Dynel, 2021). Therefore, we will not seek to distinguish jocular and sarcasm in this study. We will consider both as *meaning reversal irony*, as in Kapogianni (2011), since the intended meaning is often the mirror of the words. Moreover, previous research with Japanese learners of English (Prichard & Rucynski, 2020) found that they correctly detected jocular and sarcasm at the same rate (83%) in conversations.

### 2.1.2. *Meaning replacement irony (surrealistic irony)*

There is another type of verbal irony seemingly common on social media, *meaning replacement irony*, which functions very differently in that there is no obvious semantic connection between the literal message and its meaning (Kapogianni, 2014). An example could include responding "I'm going to Disneyland!" after a colleague texts before lunch, "Where ya going?" Negating this sentence (i.e., *I am not going to Disneyland!*) would not be an acceptable response, so this does not fit the meaning reversal condition (Kapogianni,

2011, 2014). It is absurd that someone would go to Disneyland during the lunch break, and such comments have also been termed *surrealistic irony* (Kapogianni, 2011),

Meaning replacement irony may be used to indicate the question is ridiculous (e.g., *That's a stupid question.... I am going to the same place as always!*). However, such absurd comments can be intended simply to amuse. In fact, Kapogianni (2011) found that people rated examples of surrealistic irony as much more often humorous (94%) than meaning reversal irony (22%). Surrealistic comments are also less often misinterpreted as sincere (5%) compared to meaning reversal irony (24%; Kapogianni, 2011). As surrealistic irony is interpreted differently and leads to a different response, it will be considered separately from meaning reversal irony (e.g., sarcasm) in this study.

## 2.2. Cues for written verbal irony

Verbal irony is meant to be detected (Attardo, 2002), and readers often rely on context (Bamman & Smith, 2015; Peled & Reichart, 2017). The incongruity between what one expects to read or hear is juxtaposed with the actual words. In addition to awareness of the topic, knowledge of the writer is valuable in judging if a message is out of character based on their viewpoints (González-Ibáñez et al., 2011; Wallace et al., 2014) and their propensity to be sarcastic (Kolchinski & Potts, 2018). This is often easy on social media sites where users tend to interact with their acquaintances. However, on sites such as Reddit or sites with comment sections, users interact with strangers. In this case, it often is necessary to closely follow the previous replies in a thread to recognize a user's stance (Wallace et al., 2014).

When using verbal irony online with strangers, users more often use paralinguistic signaling devices (Bamman & Smith, 2015). In writing, sarcasm may be conveyed using the rolling eyes emoji or a frowning emoji with positive words. After a jocular or surreal comment, other devices are used: the tongue-face emoticon (:~p), a smiling emoji with negative words, a laughing emoji, or a winking emoji (Ghosh & Muresan, 2018; Thompson & Filik, 2016). Different markers are used depending on the site or community; writers tend

to use a sarcasm hashtag (#sarcasm) on Twitter and the tag /s on Reddit (Ghosh & Muresan, 2018).

Readers of tweets heavily rely on emoji or emoticons when adequate context is not present; in one study, rater agreement increased from 50% to 89% when emoticons were available (González-Ibáñez et al., 2011). However, not all readers attend to such cues; among readers older than 65, a winking emoticon had no influence on judgements of whether a post was ironic (Howman & Filik, 2020).

While speakers use prosody to hint at their intent, in writing, text features are manipulated (Ghosh & Muresan, 2018). Data scientists have analyzed corpora of sarcastic posts on social media, finding that using capital letters (CAPs) is one cue (Bamman & Smith, 2015; Ghosh & Muresan, 2018). This may be done particularly for intensifiers that highlight the hyperbole to hint at the irony (e.g., “The weather is SO perfect today.”). Using the Comic Sans font or all alternating upper- and lowercase letters (e.g., “He Is SuCh A gOoD cOaCh!”) are other ways of marking irony among certain communities. Finally, ellipses or exclamation marks are often used (Thompson & Filik, 2016).

Even with cues, L1 speakers and highly proficient L2 speakers can have difficulty detecting verbal irony (Bruntsch & Ruch, 2017; Howman & Filik, 2020; Peled & Reichart, 2017); indeed, anyone can miss verbal irony if it is subtle and if context is lacking. However, those who often have trouble detecting verbal irony may be considered overly serious, naive, or lacking knowledge (Kapogianni, 2014).

### *2.3. Verbal irony in the L1 and potential difficulty with L2 irony*

Relatively little research has detailed the use of online verbal irony in other languages, but it is clear that verbal irony is used differently in certain cultures, such as Korean (Kim & Lantolf, 2016). Recognizing these differences may be key in planning instruction on L2 irony detection.

As for Japanese, the L1 in this study, sarcasm (*hiniku*) is used in a variety of ways (Okamoto, 2007), though it may be less common than in English (Erickson, et. al 2002),

especially critical sarcasm (Fitzgerald, 2013). As for jocular irony, it may be used less often on social media with non-acquaintances considering that jokes tend to be used only amongst close friends in Japanese conversations (Takekuro, 2006). Considering meaning replacement irony, it is used in Japanese, but it seems to be rare. Okamoto (2007) found that *unrealistic assumptions*, which seems to be her term for surrealistic irony, made up just 2% of all of the cases of irony in her Japanese data set. In contrast, Kapogianni (2014) found it made up 22% of the instances in her English data.

Irony cues may also differ across languages. Emojis and emoticons may be used or processed differently in various cultures (Markman & Oshima, 2007; Thompson & Filik, 2016). For example, eye rolling is not a common sarcasm cue in Japanese conversation (Prichard & Rucynski, 2020), so the rolling eyes emoji may not be used as a sarcasm cue in Japanese.

In English conversations, Japanese learners could identify meaning reversal irony in roughly four in five occurrences (Prichard & Rucynski, 2020). Research on detecting sarcasm in English writing is lacking, as is data on recognizing meaning replacement irony (in conversation or writing). Anecdotal evidence suggests that Japanese may have difficulty with surrealistic irony in English. Neff and Rucynski (2017) cited an example where an American baseball player's surrealistic ironic response to the Japanese media (that he had made an error on purpose because he did not like his teammate) was taken literally, prompting local sports headlines. Even if surreal English jokes are detected, Japanese may not necessarily truly *get* them; rather, they are often labeled an "American joke," or a joke that cannot possibly be comprehended.

### *2.3.1 The potential for competency instruction*

As verbal irony has several functions and miscomprehending it has numerous consequences, educators have been interested in the potential of explicit instruction on improving L2 learners' competency (Kim & Lantolf, 2016; Prichard & Rucynski, 2020). Research into pragmatics and humor competency has been utilized in forming materials and

activities on verbal irony. Bell and Pomerantz (2015) advocated for backward design for humor instruction, by first identifying desired outcomes and assessments, and then determining the necessary structures and strategies needed to be acquired.

For his Humor-Integrated Language Learning approach, Heidari-Shareza (2020) suggested that humor competency can be a secondary outcome of language-focused lessons where instructors teach with humor or teach humor implicitly. He correctly added that explicitly focusing on humor is not always feasible in language classrooms. However, for forms of humor that are complicated and divergent from the L1 in terms of use and delivery, Rucynski and Prichard (2020) argued that humor competency instruction may not lead to results if it is not explicit and if the practice is not extensive. Indeed, for L2 pragmatics instruction, meta-analysis suggests that explicit instruction is more effective (Taguchi, 2015).

Studies have examined the effect of instruction on L2 verbal irony in conversation. Kim and Lantolf (2016) found that nine advanced Korean learners of English were better able to identify irony cues in videos after an extensive ten-week, small-group training. Involving Japanese learners of English ( $N = 94$ ), Prichard and Rucynski (2020) examined the effect of three classroom lessons on recognizing context, prosody, and non-verbal cues. Significant experimental group gains were found overall compared to the control.

Although there have been studies on verbal irony in conversation, research has yet to explore L2 learners' ability to recognize it online. This is an area worth examining considering the prevalence of irony online and the miscommunication that can occur when it is not detected. Therefore, this study aimed to fill this research gap by examining three research questions (RQs):

RQ1. To what degree can Japanese learners of English detect ironic responses on social media?

RQ2. What kind of irony (surrealistic or meaning reversal) and irony cues are most problematic for participants?



RQ3. Does explicit instruction lead to gains in the ability of participants to recognize verbal irony online?

### **3. Method and Materials**

There were two experiments. The first aimed to determine if, and in what ways, Japanese participants had trouble detecting English verbal irony online (RQs 1 & 2). The second examined the effect of instruction on participants' ability (RQ3) using a pre- and posttest and a control group.

#### *3.1 Instrument*

Both studies used the same instrument. Two versions were created as the second experiment involved a posttest. Each version included 45 items, involving nine "friend" replies to five fictional social media posts. After each item, the participants needed to judge whether each response was "sincere" or "not sincere (sarcastic or jocular)." Japanese was used for these terms on the form.

The posts prompting the replies were created by the researchers to resemble Facebook posts in form, design, and content (see Figure 1). Two of the five posts in each version were personal posts describing an image (e.g., a dog that had made a mess of one's junk mail). One post shared and comment on a humorous meme (e.g., an image of a grinning girl in front of a burning house, with the text "THERE WAS A SPIDER - IT'S GONE NOW"). Two posts shared and commented on a news story on a more serious topic, including a proposed law (e.g., a cigarette tax) and a research study (e.g., the health effects of cold weather). As is typical of social media feeds, the headline and a short snippet of the article were visible.



Figure 1. An example post, which was followed by 9 responses.

The 45 test items (9 for each of the 5 posts) involved one- or two- sentence replies. Fifteen of these items were in a subthread, and participants were asked to judge the last comment (see Figure 2).



Figure 2. An example sub-thread response (to the post in Figure 1).

Of the 45 items, 30 were sincere responses and 15 were ironic. The items were piloted and validated by 145 participants, including L1 speakers from four predominantly English-speaking countries and proficient L2 speakers from 12 countries. They were

recruited from the authors’ network of friends on Facebook and a sarcasm group on Reddit. Initial piloting revealed that the respondents’ judgements for sincerity and verbal irony met the researchers’ intentions 90% of the time on version A and 88% percent for version B. For the items where the L1 speaker judgements were congruous less than 70% of the time, revisions were made to make the intentionality more obvious. The revised versions reached 95% judgement congruency on both versions. Therefore, the irony used could be considered fairly obvious, with the meaning reversal irony items of the *dripping sarcasm* variety and the surrealistic comments thoroughly absurd. While subtle irony is also worth examining, such items were not included (as in Prichard & Rucynski, 2020) since it was considered difficult to ensure the instrument’s reliability.

The 15 ironic items on each test were divided into three categories. Table 1 provides the categories used and examples. Five were surrealistic, and ten used meaning reversal irony. Of the latter, five responses (1 per post) were cued with a paralinguistic irony marker (e.g., emojis, tags), and five could be judged as ironic by following a user’s incongruent replies in a subthread. In the latter case, the friend first wrote one’s true viewpoint and then replied ironically to another user with something quite different (see Example E in Table 1). The categories were designed to reliably judge which type of irony and which cues were most difficult for participants (Experiment 1) and to evaluate the efficacy of various aspects of the intervention (Experiment 2).

**Table 1. Categories of the Items: Category Details and Examples**

Category	Number of items	Example items (responses to the post in Figure 1)
Sincere	30 (6 per post)	A. Mike is soooo lucky to have you! B. I can’t believe you are in Hawaii!!! C. <b>Janet Fox:</b> So, you will be at work on Monday.... Too bad you cannot stay longer. <b>Melinda Lawson: @ Janet</b> Yeah, that is a long flight for just the weekend. <b>Janet Fox: @ Melinda</b> <u>It is worth it, but two days is too short!</u>
Ironic: Meaning reversal - marked by paralinguistic cues	5 (1 per post)	D. Hawaii? I am TOTALLY not jealous....

IroniC: Meaning reversal - cued by incongruent replies	5 (1 per post)	E. <b>Beth Mueller:</b> Hawaii sounds so good right now. <b>Melinda Lawson:</b> @ <b>Beth</b> The weather here has been pretty nice here actually! <b>Beth Mueller:</b> @ <b>Melinda</b> <u>Yes, I bet the weather here is much, much          better than Hawaii.</u>
IroniC: Surreal	5 (1 per post)	F. Nice idea! Does your husband know you're going?!

*Note.* In subthreads, the evaluated comment was the last one (underlined above).

The ironic items were also marked in other ways, such as the use of hyperbole and content which could be judged as ironic based on one's basic knowledge of the world. Specialized knowledge of English-speaking cultures was not required. Simple vocabulary was used, including the top 2,000 words in the British National Corpus (2007) and other words deemed known to participants, such as loanwords.

The 30 sincere items sometimes featured humorous comments and disagreements, and some included paralinguistic devices sometimes used to mark verbal irony (e.g., emojis, CAPs). This was done to make the test more authentic, since these features are also used in sincere posts. This also meant that in Experiment 2 it would not be easy to "teach to the test" by just simply instructing students to look for emojis or humor.

### 3.1. Experiment 1

The first experiment examined participants' ability to recognize verbal irony online (RQs 1 and 2).

#### 3.1.1. Participants

Experiment 1 involved 148 participants from a variety of faculties of a national university in Japan. Participants were in the authors' English courses. Students were placed in the classes by the university using the GTEC Advanced two-skill test. The participants' mean score was 288.80. This proficiency test is not widely used, and reliable conversions have not been published. However, the participants' English skills could be considered relatively advanced by Japanese standards, as their scores were much higher than the

university mean (244.11) and the university's English proficiency scores are consistently higher than the Japanese average (Prichard, 2013).

### *3.1.2. Procedures and analysis*

The participants were assigned to take the test online during class. It was estimated to take 30 minutes, but there was no time limit.

To answer the research questions, the total score was calculated (RQ1) and the results were broken down based on the irony categories specified in Table 1 above to determine which aspects were most problematic (RQ2).

### *3.1.3. Experiment 1 results*

The participants could correctly judge sincerity or irony in roughly three-fourths of the responses (76%). The mean scores were somewhat lower for the ironic items ( $M = .73$ ,  $SD = .13$ ) compared to the sincere items ( $M = .78$ ,  $SD = .10$ ).

Participants had more difficulty with the meaning reversal items ( $M = .66$ ,  $SD = .16$ ) than the surrealistic irony ones ( $M = .86$ ,  $SD = .17$ ), a significant difference,  $t(147) = 10.11$ ,  $p < .0001$  (see Figure 3). Of the meaning reversal irony items, the participants had much more difficulty with irony cued by incongruent user replies ( $M = .54$ ,  $SD = .24$ ) compared to the replies marked with paralinguistic markers ( $M = .79$ ,  $SD = .19$ ), again a significant difference,  $t(147) = 10.11$ ,  $p < .0001$ .

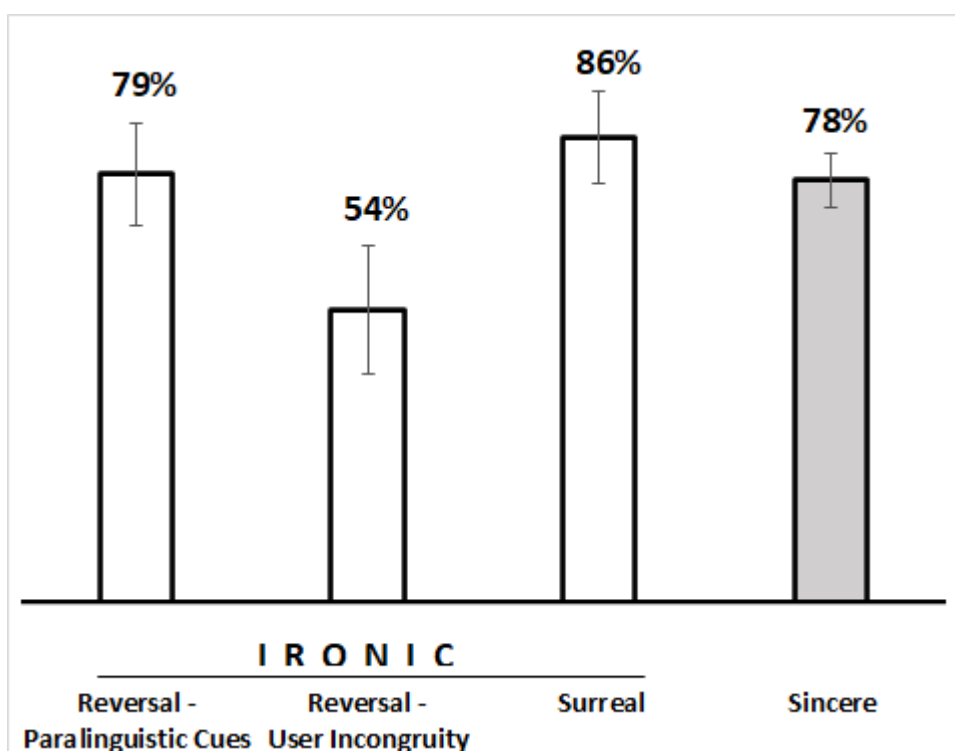


Figure 3. Mean scores on each category.

The most difficult paralinguistic cues were CAPs to highlight the hyperbole (68%) and the rolling eye emoji (68%). Items with the /s tag (95%), the winking emoji (86%), and alternating CAPs for the whole sentence (86%) were relatively easier.

### 3.1.4. Experiment 1 discussion

As for RQ1, it could be determined that Japanese language learners have some difficulty identifying irony. They missed more than a quarter of the ironic items, even though they were of the dripping sarcasm or absurd irony type (which were correctly identified 95% of the time by L1 speakers). The 76% mean score overall was similar to Japanese learners' ability to distinguish irony from sincere utterances in recorded conversations (78%; Prichard & Rucynski, 2020).

As for what kind of irony is most problematic for participants (RQ2), meaning reversal irony (e.g., sarcasm) was more difficult for participants compared to surrealistic irony. This is similar to L1 research (Kapogianni, 2011) where meaning reversal items were five times more likely to be misinterpreted than the surreal items.

Among the meaning reversal irony items, learners missed 21% that had paralinguistic markers, suggesting that learners could benefit from an overview of these. The most difficult items included capitalized words to highlight the hyperbole and the rolling eye emoji. It makes sense that these cues would be new to participants as roman letters are not used in Japanese (i.e., capitalization as a cue is not possible) and rolling one's eyes sarcastically is not prevalent, as previously noted.

The greatest difficulty by far was with the items where participants needed to notice the incongruity between the same users' multiple responses; participants missed nearly half of these items. In research on detecting conversational verbal irony (Prichard & Rucynski, 2020), Japanese participants did not score significantly worse on items which involved incongruous comments by the same speaker. Therefore, it was a bit surprising that participants struggled so much on these items in the current study.

Overall, the results here suggest that even fairly proficient Japanese learners of English have difficulty recognizing verbal irony online even when they are looking for it. Whether other L1 learner groups have similar difficulty is an issue worth exploring. This experiment provides an example of how this can be examined empirically.

### *3.2. Experiment two*

The first experiment suggested that the ability to detect verbal irony is an issue worth tackling in L2 education, at least with Japanese learners of English. Therefore, the second experiment aimed to examine the effect of instruction (RQ3).

#### *3.2.1. Participants*

The authors identified five of their required English classes ( $N = 129$ ) as fit for instruction on detecting verbal irony online. The classes were split into control and experimental groups so that the two groups had almost identical mean scores on the GTEC test; three classes ( $n = 78$ ;  $M = 288.81$ ) were assigned to the experimental group, and two classes ( $n = 51$ ;  $M = 288.78$ ) served as the control group.

### 3.2.2. Procedures and intervention

The participants were randomly assigned one of two versions of the test as the pretest. Two weeks later, the experimental group received instruction on detecting verbal irony online as the intervention (see below). The control group had a regular class, which focused on comprehending an article on a global issue and writing one's response.

As the course curriculum was tight and part of two classes was already to be used for the pre- and posttests, only 30 minutes could be allotted for the intervention. Therefore, it was recognized that the instruction could not be as extensive as perhaps necessary. Moreover, since the classes were held online and asynchronous due to the coronavirus pandemic, communicative practice activities were deemed difficult. Therefore, the instruction consisted only of sharing a slide show online using Google Slides and one reflection activity on Google Forms.

The slide show started by overviewing sarcasm (18 slides), including examples, its functions, and the risks of using it. The focus then transitioned to detecting verbal irony (12 slides; see Figure 4), starting with paralinguistic cues and then considering one's expectations. The latter included two slides on checking the congruity of a user's comments. Linguistic terms like "paralinguistic" were avoided, and some Japanese terms, several images, and multiple examples were used to make the instruction more salient.

**Sarcasm Marker** 合図 (continued):  
🙄 emoji

Well, I really like the rain. 🙄

In face-to-face conversation, rolling eyes is a common way to show sarcasm. We show this in text by an emoji > 🙄.

This usually means sarcasm!

Consider your expectations... do the words match?  
(continued): Use your knowledge of **the person**

Bob Smith  
I hate the rainy season.

Jesse Wilson  
Yeah. It is supposed to rain again, so maybe we shouldn't play baseball.

Bob Smith  
But I love playing in the rain!

合わない! = probably sarcasm!!!

Figure 4. Sample slides on detecting sarcasm.



Considering the limited time available and considering the results of the first experiment suggested that surrealistic irony was relatively easy to identify, only one slide was devoted to detecting meaning replacement irony. An example and a simplistic explanation (“crazy ideas that can’t be real”) were given.

Two more slides stressed that not all cues mentioned necessarily equaled verbal irony; it was explained that these devices could simply be used to indicate a humorous situation but that the *message* might be literal. It was also noted that, although sarcasm is often used in English, we are usually sincere.

After the students had clicked through the slides, there was a review activity. There were eight responses to an example post, and the participants needed to guess whether they were sincere or not based on the instructional slides. On the next page, the answers were given with explanations. Then, ten aspects from the training were listed, and participants needed to reflect on whether or not each aspect was new information and whether it was understood.

As both a posttest and a delayed posttest was not considered feasible based on the course curriculum, the researchers waited one week to assign the posttest. In the posttest, participants took the version of the test they did not previously take.

### *3.2.3. Analysis*

To examine the effect of the treatment, between-subjects univariate ANOVA tests were used involving the experimental and control groups’ posttest gains.

### *3.3. Experiment 2 results*

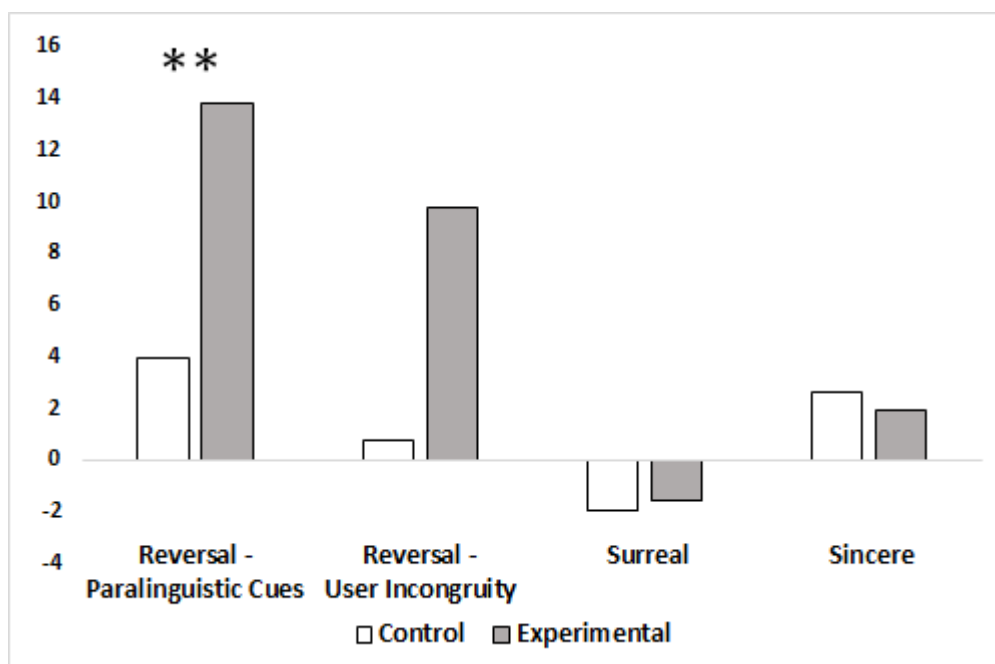
On the meaning reversal items, the main focus of the intervention, the experimental group improved their score from 68% ( $SD = .17$ ) to 80% ( $SD = .14$ ). The gains were significantly higher than the control group,  $F(1, 127) = 8.71, p = .004, \eta^2 = .06$ .

Of the meaning reversal items with paralinguistic cues, the experimental group participants improved by over 13 percentage points (see Table 2 & Figure 5), a significant improvement compared to the control group,  $F(1, 127) = 8.27, p = .005, \eta^2 = .06$ .

**Table 2. Mean Pre- and Posttest Scores for the Control and Experimental Groups**

	Experimental ( $n = 78$ )						Control ( $n = 51$ )					
	Pretest			Posttest			Pretest			Posttest		
	Mean		SD		Mean	SD	Mean		SD		Mean	SD
Meaning Reversal - Paralinguistic Cues	79.74		18.65		93.59	12.69	79.22		17.42		83.14	15.68
Meaning Reversal - User Incongruity	55.90		24.83		65.64	24.95	54.90		25.25		55.69	24.43
Surreal	85.13		17.18		83.59	18.72	88.24		15.06		86.27	16.73
Sincere	78.16		9.64		80.08	10.12	76.60		10.49		79.22	11.23

Of the meaning reversal items with user comment incongruity, the experimental group improved nearly ten percentage points, which was a significant within group improvement,  $F(1, 154) = 8.51, p = .005, \eta^2 = .05$ . However, the gains were not significantly higher than the control group,  $F(1, 127) = 2.83, p = .095, \eta^2 = .02$ . On the surrealist irony items and the sincere items, the experimental group did not improve compared to the control group.



*Figure 5. The pre-posttest gains made by participants.*

Comparing the mean gains across each of the four constructs, the experimental group improved significantly compared to the control,  $F(1, 127) = 5.59, p = .02, \eta^2 = .04$ . However, comparing the mean score gains on the 45 items did not show significant results, considering two-thirds of the items were sincere.

### *3.4. Experiment 2 discussion*

The intervention seemed partially successful in improving participants' ability to detect verbal irony on social media. Items involving paralinguistic cues (e.g., emojis, CAPs) were where the biggest improvements were made. Visual cues are salient, relatively simple to teach, and perhaps easy to remember, so gains were possible despite the limited time for instruction and practice. In the study on detecting irony in conversation (Prichard & Rucynski, 2020), participants also improved their score on visual cues, but the gains were not significant, perhaps because facial expressions are often flashed for a limited time in conversation. In written texts, the cues can be observed carefully and juxtaposed with the comment.

Gains were also observed on the items where meaning reversal was marked by user response incongruity as the context cue. However, the significance did not hold up when compared to the control group, just as in the L2 conversational irony research with context cues (Prichard & Rucynski, 2020). More extensive communicative activities may be needed to lead to stronger gains on these items.

As mentioned, only one slide was devoted to surrealistic irony due to the limited time and because these items were relatively easy to detect in Experiment 1. Therefore, it is not surprising that significant gains were not made here. While this was not a large part of the intervention, it still may be worth focusing on in the classroom or in future research. First, the mean scores on these items were still over 10-percentage points lower than the scores of L1 English speakers on the pilot test. Moreover, even if they do detect surrealistic

irony, Japanese may not necessarily always *get* it (see section 2.3). While L2 learners do not necessarily need to develop a foreign sense of humor, appreciating it could help motivate learners and increase bonds with target language users (Rucynski & Prichard, 2020).

Only two slides focused on sincerity, and unsurprisingly participants did not improve significantly on these items in the posttest. Participants still rated one in five sincere items as ironic. Although assuming sincerity may be one's default mode, the task may have led some participants to tend to presume irony. Perhaps, the instruction could have stressed even more strongly that most comments are sincere, even though verbal irony is common on English social media (Peng et al., 2019). Further practice may be needed in distinguishing humorous or snarky *literal* responses from ironic ones.

Nevertheless, the data suggest that the intervention was somewhat effective, even though the training was delivered online asynchronously for only roughly 30 minutes. Instruction on humor competency must fit the overall needs of the students and the curriculum, and few teachers will be able to devote ten weeks to verbal irony, as in Kim and Lantolf (2016). Therefore, it is encouraging that at least highly salient pragmatic aspects, such as paralinguistic cues, can be learned with explicit instruction in a short time.

Whether more extensive and interactive instruction leads to significant gains on other aspects of written irony (e.g., surrealistic irony) deserves further research. If so, educators will need to consider if these outcomes warrant the use of more class time based on student needs and the curriculum.

In terms of student viewpoints, participant feedback suggested the lesson was worthwhile. In the reflection activity, most of the participants responded that each of the points was new information. In the feedback section, the responses were overwhelmingly positive. Several participants commented that it was interesting and valuable based on their past struggles and current needs online. While there were no negative comments, two mentioned that it still seemed difficult. Further qualitative research would be useful to examine the struggles participants faced on the test and during the instruction.

### **3.4.1. Limitations**

One limitation of this study is the task required participants to focus on detecting irony. It is possible that learners would not recognize it as much in normal online contexts where learners are not explicitly focused on looking out for irony. Because of this and because the responses used rather simple vocabulary and avoided culture-specific topics, it is possible the participants would have even greater trouble with social media posts in the real world than in this research. Moreover, although there was one week between the intervention and the posttest, it is unclear if the gains made would be long term.

## **4. Conclusion and Recommendations**

People are communicating on Web 2.0 platforms more and more, and verbal irony is common on discussion boards and social media with numerous functions. This research found that Japanese language learners have some difficulty recognizing meaning reversal irony (e.g., sarcasm) in responses. They particularly had difficulty in cases where a user's multiple responses were incongruent, hinting at the irony. More research is needed among other learner populations to explore if detecting verbal irony is also relevant and challenging for them. This study offers an empirical example on how this can be examined empirically.

The second experiment investigated the effects of a short online intervention. The results showed that the gains made by the experimental group were significantly higher than the control group on the meaning reversal items. The results have implications for L2 educators in that they demonstrated that explicit online instruction on salient pragmatic cues can be effective, even in a somewhat limited amount of class time. Nevertheless, areas which received the briefest focus in the intervention (surrealistic irony and sincerity) did not result in gains. Further research is needed to examine how extensive instruction needs to be for significant results.

Other related areas can also be explored by educators and researchers, such as comprehending, responding to, and even producing verbal irony online (Bell & Pomerantz, 2015). Although the focus here was on detecting irony, there was evidence that some

learners did learn to use it. In the intervention reflection activity feedback, four participants jocularly praised the lesson using three different cues covered. This included a sarcasm tag (/s), alternating CAPs (e.g., “THiS leSsON wAS NOt IntEresTinG!!”), and a response with incongruous comments (“This topic is very interesting..., so I am glad to attend your class. What a bad teacher you are!”).

While we considered teaching learners to *use* irony too risky and not fitting the curriculum, it may be worth teaching (as in Cheang & Pell, 2011) to help learners avoid the serious risks of misusing it and to enable them to use it effectively for its many functions (e.g., to amuse, to lighten criticism). Indeed, L2 educators need to consider the potential costs and rewards of teaching humor and verbal irony, and more research is needed to judge its efficacy.

## References

- Attardo, S. (2002). Humor and irony in interaction: From mode adoption to failure of detection. In Anolli, L., Ciceri, R., & Riva, G. (Eds.) *Say not to say: New perspectives on miscommunication* (pp. 159-180). IOS Press.
- Bamman, D., & Smith, N. A. (2015). Contextualized sarcasm detection on Twitter. In *The Ninth International AAAI Conference on Web and Social Media*.  
<https://www.aaai.org/ocs/index.php/ICWSM/ICWSM15/paper/view/10538/10445>
- Bell, N., & Pomerantz, A. (2015). *Humor in the classroom: A guide for language teachers and educational researchers*. Routledge.
- The British National Corpus (2007). *BNC XML Edition*. Distributed by Oxford University Computing Services on behalf of the BNC Consortium.
- Bruntsch, R., & Ruch, W. (2017). Studying irony detection beyond ironic criticism: Let's include ironic praise. *Frontiers in Psychology*, 8, 606.  
<https://doi.org/10.3389/fpsyg.2017.00606>

- Cheang, H. S., & Pell, M. D. (2011). Recognizing sarcasm without language: A cross-linguistic study of English and Cantonese. *Pragmatics & Cognition*, 19(2), 203-223.  
<https://doi.org/10.1075/pc.19.2.02che>
- Dynel, M. (2014). Linguistic approaches to (non) humorous irony. *Humor—International Journal Humor Research*, 27(4), 537-550. <https://doi.org/10.1515/humor-2014-009>
- Dynel, M. (2021). Desperately seeking intentions: Genuine and jocular insults on social media. *Journal of Pragmatics*, 179, 26-36.  
<https://doi.org/10.1016/j.pragma.2021.04.017>
- Fitzgerald, C. (2013). *A qualitative analysis of irony as humor in Japanese conversation*. [Master's Thesis, Tohoku University].
- Gibbs, R. W. (2000). Irony in talk among friends. *Metaphor and Symbol*, 15(1-2), 5-27.  
<http://dx.doi.org/10.1080/10926488.2000.9678862>
- Gibbs, R. W., Bryant, G. A., & Colston, H. L. (2014). Where is the humor in verbal irony? *Humor*, 27(4), 575-595. <https://doi.org/10.1515/humor-2014-0106>
- Gibbs, R. W., & Colston, H. (2002). The risks and rewards of ironic communication. In L. Annolli, R. Ciceri, & Riva, G. (Eds.), *Say not to say: New perspectives on miscommunication*. IOS Press.
- Ghosh, D., & Muresan, S. (2018). “With 1 follower I must be AWESOME : P.” Exploring the role of irony markers in irony recognition. In *the Twelfth International AAAI Conference on Web and Social Media*, (pp. 588-591).  
<https://www.aaai.org/ocs/index.php/ICWSM/ICWSM18/paper/viewPaper/17904>
- González-Ibáñez, R., Muresan, S., & Wacholder, N. (2011). Identifying sarcasm in twitter: a closer look. In *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies* (pp. 581-586).
- Heidari-Shahreza, M. A. (2020). Humor-integrated language learning (HILL): Teaching with and about humor. In J. Rucynski Jr. & C. Prichard (Eds.), *Bridging the humor barrier: Humor competency training in English language teaching* (pp. 79-106). Lexington Books.

- Howman, H. E., & Filik, R. (2020). The role of emoticons in sarcasm comprehension in younger and older adults: Evidence from an eye-tracking experiment. *Quarterly Journal of Experimental Psychology*, 73(11), 1729-1744.  
<https://doi.org/10.1177/1747021820922804>
- Kapogianni, E. (2011). Irony via ‘surrealism’: The humorous side of irony. In M. Dynel, *The pragmatics of humour across discourse domains* (pp. 52-68). John Benjamins Publishing Company.
- Kapogianni, E. (2014). Differences in use and function of verbal irony between real and fictional discourse: (Mis) interpretation and irony blindness. *Humor*, 27(4), 597-618.  
<https://doi.org/10.1515/humor-2014-0093>
- Kim, J., & Lantolf, J. P. (2016). Developing conceptual understanding of sarcasm in L2 English through explicit instruction. *Language Teaching Research*, 22(2), 208-229.  
<https://doi.org/10.1177/1362168816675521>
- Kolchinski, Y. A., & Potts, C. (2018). Representing social media users for sarcasm detection. In *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing* (pp. 1115-1121).
- Markman, K. M., & Oshima, S. (2007). Pragmatic play? Some possible functions of English emoticons and Japanese kaomoji in computer-mediated discourse. In *Association of Internet Researchers Annual Conference* (Vol. 8).  
<https://doi.org/10.31235/osf.io/qa764>
- Moon, S. J., & Bai, S. Y. (2020). Components of digital literacy as predictors of youth civic engagement and the role of social media news attention: The case of Korea. *Journal of Children and Media*, 14(4), 458-474.  
<https://www.tandfonline.com/doi/abs/10.1080/17482798.2020.1728700>
- Neff, P., & Rucynski, J. (2017). Japanese perceptions of humor in the English language classroom. *Humor*, 30(3), 279-301. <https://doi.org/10.1515/humor-2016-0066>



- Okamoto, S. (2007). An analysis of the usage of Japanese hiniku: Based on the communicative insincerity theory of irony. *Journal of Pragmatics*, 39(6), 1143-1169. <https://doi.org/10.1016/j.pragma.2006.08.012>
- Peled, L., & Reichart, R. (2017). Sarcasm SIGN: Interpreting sarcasm with sentiment based Twenge monolingual machine translation. *arXiv preprint arXiv:1704.06836*.
- Peng, W., Adikari, A., Alahakoon, D., & Gero, J. (2019). Discovering the influence of sarcasm in social media responses. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 9(6), e1331. <https://doi.org/10.1002/widm.1331>
- Prichard, C. (2013). Okayama University LEC English Program Evaluation Plan and Pretest Results. *大学教育研究紀要*, 9, 181-194. <https://doi.org/10.18926/52201>
- Prichard, C., & Rucynski, J. (2020). Humor competency training for sarcasm and jocularity. In J. Rucynski Jr. & C. Prichard (Eds.), *Bridging the humor barrier: Humor competency training in English language teaching* (pp. 165-192). Lexington Books.
- Rucynski, J., & Prichard, C. (2020). *Bridging the humor barrier: Humor competency training in English language teaching*. Lexington Books.
- Taguchi, N. (2015). Instructed pragmatics at a glance: Where instructional studies were, are, and should be going. *Language Teaching*, 48(1), 1-50. <https://doi.org/10.1017/S0261444814000263>
- Taguchi, N., Gomez-Laich, M. P., & Arrufat-Marques, M. J. (2016). Comprehension of indirect meaning in Spanish as a foreign language. *Foreign Language Annals*, 49(4), 677-698. <https://doi.org/10.1111/flan.12230>
- Takekuro, M. (2006). Conversational jokes in Japanese and English. In J. Milner Davis (Ed.) *Understanding humor in Japan* (pp. 85-98). Wayne State University Press.
- Thompson, D., & Filik, R. (2016). Sarcasm in written communication: Emoticons are efficient markers of intention. *Journal of Computer-Mediated Communication*, 21(2), 105-120. <https://doi.org/10.1111/jcc4.12156>

- Twenge, J. M., Martin, G. N., & Spitzberg, B. H. (2019). Trends in US adolescents' media use, 1976–2016: The rise of digital media, the decline of TV, and the (near) demise of print. *Psychology of Popular Media Culture*, 8(4), 329.
- Tsang, S. J. (2019). News Credibility and Media Literacy in the Digital Age. In *Handbook of Research on Media Literacy Research and Applications Across Disciplines* (pp. 135-155). IGI Global. <https://doi.org/10.4018/978-1-5225-9261-7.ch009>
- Wallace, B. C., Kertz, L., & Charniak, E. (2014). Humans require context to infer ironic intent (so computers probably do, too). In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers)* (pp. 512-516).
- Whalen, J. M., Pexman, P. M., Gill, A. J., & Nowson (2012). Verbal irony use in personal blogs. *Behaviour & Information Technology*, 32(6), 560-569.  
<https://doi.org/10.1080/0144929X.2011.630418>