Hacettepe University Graduate School of Social Sciences
Department of English Linguistics

TURKISH VERBAL IRONY COMPREHENSION IN CHILDREN AGED 5 AND 6 YEARS

Sena Gizem BODUR

Master's Thesis

Ankara, 2023

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ACCEPTANCE AND APPROVAL

The jury finds that Sena Gizem Bodur has on the date of 12/04/2023 successfully passed the defense examination and approves his/her Master's Thesis titled "Turkish Verbal Irony Comprehension in Children Aged 5 and 6 Years".

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ETİK BEYAN

Bu çalışmadaki bütün bilgi ve belgeleri akademik kurallar çerçevesinde elde ettiğimi, görsel, işitsel ve yazılı tüm bilgi ve sonuçları bilimsel ahlak kurallarına uygun olarak sunduğumu, kullandığım verilerde herhangi bir tahrifat yapmadığımı, yararlandığım kaynaklara bilimsel normlara uygun olarak atıfta bulunduğumu, tezimin kaynak gösterilen durumlar dışında özgün olduğunu, **Doç. Dr. Emine YARAR** danışmanlığında tarafımdan üretildiğini ve Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü Tez Yazım Yönergesine göre yazıldığını beyan ederim.

Sena Gizem BODUR

To all the women who never give up…

ACKNOWLEDGEMENTS

I would like to thank so many wonderful people who have encouraged and helped me survive the difficulties of this academic adventure in several ways. This thesis would not have been possible without their precious support, effort and motivation during this study.

First of all, I would like to express my gratitude to my supervisor Assoc. Professor Dr. Emine YARAR for giving me support and guidance during the research. Without her expertise, this whole tiring process could not have been completed.

I would also like to thank Prof. Dr. Seda Gülsüm GÖKMEN and Assist. Professor Dr. Zeynep DOYURAN, the members of Thesis Committee, for their constructive feedback and suggestions for the study. I am thankful for their valuable comments and contribution to this thesis.

I am also grateful to my former manager Sinem ARIK, for letting me collect the necessary data for my thesis, and to Demet ULUSOY, for her precious support to help me to collect the data.

Special thanks to my brilliant friends Nur Pınar YÜKSEL, Onuralp Fikret YÜKSEL and Gizem BALYEMEZ for their constant supports, valuable discussions about the subject, and always being there for the motivation that I needed. My sincere thanks also go to Hatice SOY who supported to to collect the data and shared my workload at work every time I felt overwhelmed during this process.

My endless gratitude is to my beloved husband, Berkay YÜKSEL who supported me from the beginning till the end, and has always believed in me more than I ever did myself. I am deeply grateful to him for his valuable support, great patience, and unconditional love. I would like to thank him for being there for me and with me whenever I need.

Last but not least, my biggest thanks go to my precious parents Esra TURAN, Eşref BODUR and my gorgeous sister Derin Sevil BODUR for their consistent support and belief in me. This work also has the spirit of them whom I cannot thank enough for making me as I am. I owe them a lot.

ABSTRACT

BODUR, Sena Gizem. *Turkish Verbal Irony Comprehension in Children Aged 5 and 6 Years.* Master's Thesis, Ankara, 2023.

This study aims to investigate the accuracy rate of the comprehension and processing times of ironic and literal utterances among five- and six-year-old Turkish-speaking children (N = 60) and a control group of adults (N = 30) and whether vocabulary, character dyads, morphological and syntactic complexity, and context have an effect on their comprehension. In this study, audio recordings of ten narrated stories, five of which ended with ironic sentences and five with literal sentences, were used. After listening to the stories, the participants were asked to click on teasing or real emojis to show their understanding of the speaker's attitude and their reaction times were analyzed based on the Standard Pragmatic Model and the Direct Access Model. The stories were followed by two optional close-ended questions and three open-ended questions including first-order ToM and second-order ToM questions. For the study's statistical analysis, the Wilcoxon signed-rank test, Mann-Whitney U test, and descriptive statistics were utilized. The findings of the study revealed that children performed better when answering questions about literal stories than those about ironic stories and morphological and syntactic complexity, vocabulary, word length, and character dyads in the stories had no effect on the participants' comprehension. The only explanation for their accuracy rates could be the context of the stories and their exposure to ironic and literal statements. Furthermore, it was found that the types of Theory of Mind questions had no effect on their ability to provide accurate responses. Another finding of the study was that children's reaction times were faster after listening to ironic stories than literal ones. This finding is similar to the findings of studies supporting the Direct Access Model (DAM). However, more research on the processing of ironic expressions within the context of the Standard Pragmatic Model and the Direct Access Model is required.

Keywords: Verbal Irony, Ironic criticism, Turkish, Theory of Mind, Comprehension, Direct Access Model

ÖZET

BODUR, Sena Gizem. *5 ve 6 Yaşlarındaki Çocuklarda Türkçe Sözlü İroni Kavrayışı.* Yüksek Lisans Tezi, Ankara, 2023.

Bu çalışmanın amacı, beş ve altı yaşındaki Türkçe konuşan çocukların (N = 60) ve yetişkinlerden oluşan bir kontrol grubunun (N = 30) ironik ve gerçek ifadeleri anlama ve işleme sürelerinin doğruluk oranını ve sözcük bilgisinin, karakter çiftlerinin, biçimbilimsel ve sözdizimsel karmaşıklığın ve bağlamın anlama üzerinde bir etkisi olup olmadığını araştırmaktır. Bu çalışmada, beşi ironik tümcelerle, beşi de gerçek anlamlı tümcelerle biten on hikayenin ses kayıtları kullanılmıştır. Hikayeleri dinledikten sonra, katılımcılardan konuşmacının tutumunu anladıklarını göstermek için alaycı veya gerçek emojilere tıklamaları istenmiş ve tepki süreleri Standart Pragmatik Model ve Doğrudan Erişim Modeli'ne göre analiz edilmiştir. Hikayelerin ardından birinci dereceden zihin kuramı ve ikinci dereceden zihin kuramı sorularını içeren isteğe bağlı iki kapalı uçlu soru ve üç açık uçlu soru sorulmuştur. Çalışmanın istatistiksel analizi için Wilcoxon işaretli sıralar testi, Mann-Whitney U testi ve tanımlayıcı istatistikler kullanılmıştır. Çalışmanın bulguları, çocukların gerçek hikayelerle ilgili soruları yanıtlarken ironik hikayelerle ilgili sorulara göre daha iyi performans gösterdiklerini ve hikayelerdeki biçimbilimsel ve sözdizimsel karmaşıklığın, sözcük bilgisinin, kelime uzunluğunun ve karakter çiftlerinin katılımcıların anlamaları üzerinde bir etkisi olmadığını ortaya koymuştur. Doğruluk oranlarının tek açıklaması hikayelerin bağlamı ve ironik ve gerçek ifadelere maruz kalmaları olabilir. Ayrıca, Zihin Teorisi sorularının türlerinin doğru yanıt verme becerileri üzerinde bir etkisi olmadığı tespit edilmiştir. Çalışmanın bir diğer bulgusu, çocukların ironik hikayeleri dinledikten sonra tepki sürelerinin gerçek hikayelere göre daha hızlı olduğudur. Bu bulgu, Doğrudan Erişim Modeli'ni (DAM) destekleyen çalışmaların bulgularıyla benzerlik göstermektedir. Bununla birlikte, ironik ifadelerin Standart Pragmatik Model ve Doğrudan Erişim Modeli bağlamında işlenmesi konusunda daha fazla araştırmaya ihtiyaç vardır.

Anahtar Kelimeler: Sözel İroni, İronik Eleştiri, Türkçe, Zihin Kuramı, Anlama, Doğrudan Erişim Modeli

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INTRODUCTION

For effective communication, it is necessary to understand not only the literal but also the nonliteral meanings of utterances. According to Capelli et al. (1990), the ability to comprehend nonliteral language is crucial for a substantial portion of daily communication. Therefore, speakers and listeners of a language must be acquainted with nonliteral uses of their language. In other words, they need to be aware of the fact that when people use nonliteral language, they do not mean what they are saying; instead, they mean something else (Searle, 1979). Hence, the listener must infer the speaker's intent in communicative acts.

Nonliteral language is a central issue in language development that highlights the interconnections between linguistic, cognitive, and pragmatic skills (Tolchinsky, 2004). Therefore, in order to become successful communicators, speakers must master not only the rules of semantic and syntactic language but also the pragmatic characteristic of the language.

Verbal irony is a non-literal form of language (Winner, 1997) characterized by incongruence between the literal statement and its intended meaning. Adults are able to use and understand the verbal irony in everyday language. However, the age in which children start to understand verbal irony is a controversial subject. Children are able to understand the contradiction between the actual and intended meanings of simple ironic statements when they are five or six years old, according to a number of studies on irony comprehension (Ackerman, 1983; Whalen & Pexman, 2010; Hancock et al., 2000; Harris & Pexman, 2003; Sullivan, Winner, & Hopfield, 1985; Winner & Leekam, 1991). On the other hand, some studies (e.g., Demorest et al., 1983; Pexman & Glenwright, 2007) demonstrated that throughout middle childhood, an increasingly sophisticated understanding of irony develops. Therefore, it is essential to keep in mind that recognizing irony and comprehending the speaker’s intended meanings are not the same thing. It is necessary for the listener to possess theory of mind skills in order to comprehend the intentions and beliefs of the speaker.

Theory of Mind (ToM) is the ability to recognize that others may have perspectives, knowledge, or beliefs that are different from one's own (e.g., Wellman, 2014). Since the theory of mind refers to psychological skills that are theoretically associated with irony comprehension and is a key element

of pragmatic competence, it is essential to be able to recognize irony. Perner and Wimmer (1985) claim that two levels of belief attribution emerge at various stages of child development and play a crucial role in children's understanding of social interactions. First-order beliefs are the foundation and involve the representation of another person's real-world and event-related thoughts. Typically, this occurs during the fourth year of childhood. After a couple of years of developing first-order Theory of Mind skills, children advance to the second level, which consists of second-order beliefs, which involve the beliefs of another individual regarding the thoughts of another individual. Therefore, Sullivan, Zaitchik, and Tager-Flusberg (1994) claim that advanced (or second-order) Theory of Mind is a significantly greater comprehension of states of mind and false beliefs. Hence, to comprehend irony in a statement, one must be able to account for the speaker's assumptions regarding the level of comprehension of the listener.

ToM is examined from many different angles and has many subcomponents, including emotional theory, false belief, indirect expression, social development, language development, and theoretical understanding. The emotional theory of ToM refers to the ability of individuals to identify and interpret emotional expressions, including facial expressions, tonal cues, and other emotional cues, correctly (Baron-Cohen, 1995). False belief is the ability to understand that individuals may have incorrect beliefs about another's mental state. This includes the ability to predict behaviors resulting from these false beliefs when individuals understand that someone knows something incorrect about another person's thoughts or beliefs. The indirect expression refers to the ability to understand indirect expressions that help individuals understand others' ideas or thoughts. This enables individuals to understand the real meaning or intention behind what a person says. Social development focuses on how ToM develops in children, examining how social and cognitive skills develop, how children begin to understand others' minds, and how these skills change based on their age and experiences (Astington & Baird, 2005).

To investigate both children's detection of irony and their ability of Theory of Mind, several studies have been conducted through the use of closed-ended and open-ended questions. In addition, the processing of irony has been a topic of research interest and it has been investigated through the use of eye-tracking or response time measurements to see the difficulty when people comprehend ironic utterances. It should be noted that the study of language processing mechanisms is the subject of psycholinguistics.

According to Blumenthal (1987:313) and Trask (1999:167), psycholinguistics is the "interdisciplinary activity between psychology and linguistics" and the "study of the relationships between language and mind." Researchers in this field include psychologists, linguists, philosophers, computer scientists, and neuroscientists. It is the field of study that concentrates on the psychological processes of humans and deals with linguistic problems resulting from disorders, language production, language comprehension, language processing, etc. Language processing is an important field to study in psycholinguistics since it demonstrates whether people have difficulty when they process embedded clauses, ambiguous sentences, or nonliteral sentences. Although ironic language has captivated theorists and scholars for centuries, it wasn't until the 1980s that psycholinguistic methods were used to investigate how readers and listeners detect, process, and comprehend ironic language. Since psycholinguistics has traditionally assumed that response or reading time measures reflect meaning comprehension, this has given rise to a number of contemporary theories regarding the processing and comprehension of irony, namely the Standard Pragmatic Model and the Direct Access Model.

According to the Standard Pragmatic Model (Grice, 1975; Searle, 1979, 1993), irony is a form of speech that expresses the opposite of what is said and the comprehension of figurative language develops gradually over time because there are stages. The model claims that a reader or listener must first determine the context-independent, literal interpretation of the utterance before determining whether the literal interpretation corresponds to the speaker's intended meaning. If a mismatch with the context indicates that the literal interpretation is inappropriate, the surface-literal interpretation must be discarded and the non-literal interpretation must be computed by assuming the literal interpretation is incorrect. During this process, the literal meaning that is incompatible with the context is eliminated because it is irrelevant or disruptive to the intended interpretation. Evidently, non-literal language requires more processing effort than literal language, in the form of additional inferential processes caused by a context mismatch. Therefore, from a processing standpoint, non-literal language should incur a greater processing cost than the same literal utterance.

In contrast, the Direct Access Model assumes contextual information interacts with lexical processes very early on (for similar assumptions, see, for example, Gibbs (1986, 1994), Clark & Gerrig (1984), and Sperber & Wilson (1995)). The fundamental premise is that both literal and figurative language are initially processed using the same underlying mechanisms (Gibbs, 1994). Therefore,

"understanding irony does not necessitate cognitive processes distinct from those used to comprehend literal speech" (Gibbs, 1994, p. 437). For this reason, it is not necessary to first access (or construct) the literal interpretation of a statement when its context supports an ironic interpretation. Instead, it can be accessed directly (or constructed in the case of unfamiliar ironies). Nonliteral statements would necessitate no additional processing steps, resulting in no additional processing expenses. It follows that only the ironic interpretation would be retained in the reader's mental representation, as it would be the only interpretation ever calculated, as people do not need to analyze the literal, pragmatic-free meaning of an utterance prior to determining its figurative, implicated meaning (Gibbs, 1994, p. 421).

CHAPTER 1

PRESENTATION OF THE STUDY

This section contains information about the statement of the problem, the aims of the study, research questions, and limitations of the research that was conducted.

1.1. STATEMENT OF THE PROBLEM

It is important to study irony across locations and languages due to the possibility that the selection of particular linguistic forms may vary between communities. In addition to several studies in English-speaking children, numerous studies have been conducted on children's comprehension of irony in different languages, including Italian (Bosco et. al., 2013; Angeleri & Airenti, 2014) French (Aguert et. al., 2017), Polish (Banasik, 2013; Banasik & Posiadło, 2016; Banasik-Jemielniak & Bokus, 2019), Finnish (Loukusa & Leinonen, 2008), Norwegian (Köder & Falkum, 2021), etc. However, irony comprehension in Turkish-speaking children has not been studied yet and the lack of a study on this subject in the Turkish language causes a deficiency in the full understanding of language comprehension among Turkish children. As one of the earliest studies on young children's comprehension of verbal irony in Turkish, the current study will provide the missing information about the topic at hand. Additionally, studies examining children's processing times by measuring their reaction times are rare. Therefore, this study will provide data regarding the nature of verbal irony processing in Turkish by analyzing response times to test two competing hypotheses: the Standard Pragmatic Model and the Direct Access Model. In light of this, the study's findings will shed light on the theoretical studies in the field.

1.2. AIMS OF THE STUDY

This study aims to investigate the accuracy rate of the comprehension and processing times of ironic utterances and literal utterances in five- and six-year-old Turkish-speaking children. Additionally, this study tries to shed light on whether morphological and syntactic complexities, vocabulary, character dyads, and context of the stories have an influence on children’s comprehension. Also, the aim of the study is to compare the children’s performances between ironic stories and literal stories in terms of their answers to the questions and incorrect explanations. Additionally, based on the

Standard Pragmatic Model and the Direct Access Model, the study also aims to investigate the participants' reaction times that demonstrate their comprehension of the speaker's attitude in ironic and literal stories.

1.3. RESEARCH QUESTIONS

In the light of the aims given above, the study attempts to provide answers to the following research questions:

1. What is the accuracy rate of the comprehension of ironic utterances in Turkish-speaking children?

2. What is the accuracy rate of the comprehension of literal utterances in Turkish-speaking children?

3. Is there a difference between comprehension of ironic utterances and literal utterances in Turkish-speaking children?

1.4. LIMITATIONS OF THE STUDY

This study has some limitations. First, this study analyses only ironic criticisms rather than ironic compliments because it is believed that ironic criticism is the easiest type of irony (Demorest et al., 1983; Kumon-Nakamura et al., 1995; Hancock et al., 2000; Pexman & Glenwright, 2007) and it occurs frequently in everyday language. Furthermore, previous research has shown that children are significantly better at analyzing the intentions of a speaker when he or she makes an ironic criticism rather than an ironic compliment. Even though several researchers have studied various forms of verbal irony, this is the case. In particular, ironic criticisms are much simpler for children to comprehend than ironic compliments (e.g., Hancock et al., 2000; Climie & Pexman, 2008). Therefore, to avoid observing the participants' poor performance as a result of the type of irony, the stories were constructed using ironic criticism. Another limitation of the study is that the study did not include a second-order Theory of Mind task to determine whether participants who comprehend second-order ToM also comprehend irony. Due to the length of this irony experiment, however, this would result in an experiment that is too long for children. This study could be repeated with a ToM task included, by reducing the number of stories or with older children who have long attention spans. The other limitation is that the participants were presented with the stories using only audio stimuli, with no visual support. Also, the stories were played to all children in the same order. Therefore, the study

could be repeated by changing the order or the stories for each participant. Additionally, in this study, no information regarding the socioeconomic status of the participants was collected. In short, the study's conclusions should be evaluated in light of these limitations.

1.5. OUTLINE OF THE STUDY

This study is organized as follows: In Chapter 1, background information of the study is given. Additionally, the statement of the problem, aims of the study, research questions, and limitations of the study are presented in this chapter. Chapter 2 gives information about the theoretical framework of the thesis. In this chapter, explanations on verbal irony and the previous studies in related fields are provided. Also, some psycholinguistic models on irony processing are presented providing examples from previous studies. Chapter 3 is allocated for the methodology of the study. The pilot study, research methods, data collection procedures, and data analysis are provided here. In Chapter 4, the findings of the experiments of 5- and 6-year-old Turkish-speaking children and the control group of adults were discussed based on the analysis of the data. Based on the data analysis, Chapter 5 concludes this research by providing answers to the research questions. Additionally, suggestions for future studies on Turkish children’s irony comprehension are given.

CHAPTER 2

BACKGROUND TO THE STUDY

2.1. VERBAL IRONY

Verbal irony is a form of deliberate nonliteral communication in which the intended meaning of the speaker is conveyed indirectly by using linguistic propositions (Hancock et. al., 2000). In other words, it is traditionally defined as saying one thing while actually meaning the opposite. Figurative meanings such as irony, according to Grice, are implicatures, which are based on a violation of the first maxim of quality (do not say what you believe to be false) (Grice, 1967). This is in contrast to 'literal' language use, in which the speaker's intended meaning corresponds with a decontextualized interpretation of the utterance. Therefore, in a literal utterance, the relation between what is said and what is meant is one of consonance whereas in nonliteral language, this relationship is one of dissonance (Winner & Gardner, 1993). Despite the presence of numerous definitions of verbal irony, they all share common characteristics. To illustrate, they all include dual meanings and there is always intentionality in ironic utterances. Also, all ironic utterances are context-dependent. The relationships between the meanings may vary and irony necessitates the presence of duality of meaning. Typically, the surface meaning of an ironic statement is viewed as contradictory to its actual, implied meaning, thereby establishing a relation of semantic inversion (Barbe, 1995; Anolli, 2001). Nonetheless, semantic inversion is not the only conceivable relationship between the two meanings. In fact, the concept of semantic inversion as the defining characteristic of verbal irony has been criticized by a number of scholars (Sperber, 1994; Sperber & Wilson, 1995). Not all communication is the exact opposite of what was said. Irony may also be communicated through understatement or hyperbole (Kreuz & Gluecksberg, 1989). Even though verbal irony can take a variety of forms (Kumon-Nakamura, Glucksberg, & Brown, 1995), its simplest and most common form occurs when the speaker's intended meaning is the opposite of what is stated literally. Therefore, verbal irony emphasizes a disparity between expectations and reality. With the indirectness of verbal irony, speakers likely achieve certain pragmatic goals, which justifies its use. The explanations given for the use of verbal irony may reflect these aims. Numerous recent studies have examined this subject from various perspectives. In their 1994 research, Roberts and Kreuz listed a variety of discourse goals that can be attributed to the use of indirect speech, including the use of verbal irony. These include possessing a sense of humor, exhibiting positive emotion, and looking out for oneself. Verbal

irony, which is frequently combined with hyperbole, is another method for expressing surprise (Colston & Keller, 1996). Brown and Levinson (1987) argued that verbal irony is used to emphasize shared knowledge and attitudes among interlocutors while also diminishing the perceived threat.

According to Kierkegaard, irony is the name of a word game frequently used in the art of speech, and its characteristic is the implication of the contrary of the word spoken. Thus, a determination is obtained that can be valid for every form of irony (Frazier, 2004). The word that is a phenomenon is the opposite of essence, not meaning but of essence. Irony is always based on the opposition between essence and form, between meaning and word, and between what is said and what is meant to be said. Since the real meaning arises in the intention, it cannot be blamed on the visible/grammatical meaning of the expressions it says (Taşdelen, 2007).

It is widely thought that irony and sarcasm are the same. However, they are different in terms of their focus. Sarcasm is a form of language that uses irony to mock or convey contempt. It is often characterized by a tone of voice or a facial expression that indicates the opposite of what is actually being said. Sarcasm is typically used to express disapproval or ridicule, and it can be directed at a person or a situation. For example, if someone says "Oh great, another Monday!" in a sarcastic tone, they are expressing their dislike for Mondays in a mocking way (Matzke, 2017). On the other hand, irony is a rhetorical device that uses words to convey the opposite of their literal meaning. It is often used to express a discrepancy between what is expected and what actually happens. Irony can be used to convey humor, irony, or even tragedy. For instance, if it starts raining on the day of a picnic, one might say "Oh great, just what we needed" in an ironic tone. This statement is ironic because it expresses the opposite of what one would expect to say in that situation (Giora, 2003). In summary, while both sarcasm and irony involve saying the opposite of what is meant, sarcasm is more focused on mocking or ridiculing, while irony is more focused on highlighting unexpected outcomes or discrepancies.

In recent decades, numerous linguistics disciplines, including semantics, cognitive linguistics, sociolinguistics, and pragmatics, have devoted considerable ink to the trope of irony. Irony is studied from a vast array of scholarly perspectives, including developmental studies (e.g. Creusere, 2000) and socio-pragmatics (e.g. Dews et al. 1995; Jorgensen 1996; Colston 1997; Gibbs 2000). It is also discussed in relation to various discourse domains, unless constructed examples are used, as is

common in theoretical works. Irony can also be found in media discourse, such as advertisements (e.g. Lagerwerf, 2007) and televised political debates (e.g. Nuolijarvi and Tiittula 2011). It is widespread on the Internet, both in instant messaging (Hancock, 2004) and in user-generated content such as forums or blog posts (Aguert et al., 2016, see also Ask & Abidin, 2018). Algorithms for irony detection in online written content are a new area of study (Reyes et al., 2012), highlighting the importance of understanding irony as a communicative phenomenon. Irony is a complex and internally diverse linguistic phenomenon, so the range of research topics is infinite. Therefore, even the most fundamental definition of irony has been the subject of decades of heated debate.

In everyday communication, there are situations in which verbal irony is substituted for literal language. A significant portion of the meaning that people intend to convey when they speak extends beyond the literal meaning of the words they utter. Frequently, individuals do not say what they mean by using indirect speech for a variety of strategic reasons, and these strategies rely on social cognition inherently. Verbal irony, a type of indirect speech in which a speaker produces an explicit evaluative utterance that implies an unstated, opposing evaluation, is a well-studied illustration of this phenomenon. It has a strategic mechanism that is used in different texts and in different discourse situations (Partington 2007: 1556). Partington found that irony is utilized in every moment of life in its corpus of different texts, discourses, and political briefings. Additionally, according to Gibbs (2000), approximately 8% of all conversation turns are ironic. Therefore, the ability to comprehend verbal irony is crucial for successful communication. Some argue that irony has become the ethos of our time (Bokus & Kaowski, 2016), and because its use can easily generate problems in the communication process, such as a lack of understanding of the statement by the recipients of the message (Pexman & Zvaigzne, 2004) or a negative affective reaction of the person to whom the statement is addressed, contrary to the speaker's intention. Understanding this type of figurative language could therefore be a valuable skill.

The meaning of verbal irony depends on the context because it refers to a situation in the world that both the speaker and the addressee need to be aware of to comprehend the purpose behind the dual meaning. According to the findings of previous studies (e.g., Colston, 2002; Colston & O'Brien, 2000; Gerrig & Goldvarg, 2000; Ivanko & Pexman, 2003; Katz & Lee, 1993; Katz & Pexman, 1997; Kreuz & Glucksberg, 1989; Pexman, Ferretti, & Katz; 2000; Pexman&Olineck, 2002), inconsistency between a statement and its surrounding context can be interpreted as irony. Consider the following

situation: Can and Ahmet will go to the beach. Can informs Ahmet that the weather is ideal for swimming as they travel to the beach. Rain begins to fall as they find a place to sit. ‘’What ideal weather to swim!’’ Can remarks. In order to determine the intended meaning of the context, in which the remark was made, context must be considered since there is a discrepancy between the statement and the event. Giora and Fein (1999) emphasize the influence of context in making sense of an ironic discourse, while on the other hand state that irony is a means of drawing attention.

In contemporary literature, irony is often used to expose the flaws and contradictions of modern society. In the novel "Catch-22" by Joseph Heller, the protagonist, Captain Yossarian, is trapped in a military bureaucracy that is more concerned with its own interests than the well-being of its soldiers. The novel uses irony to expose the absurdity of war and the military hierarchy. For example, when Captain Yossarian asks why he has to fly more missions than anyone else, he is told that it is because he is still alive. This statement is ironic because it implies that the value of a soldier's life is determined by how many missions they have flown (Jorgensen, 2017). So, irony is a complex literary device that depends heavily on the context in which it is used. To fully understand irony, it is important to consider the surrounding circumstances, cultural references, and historical background of the speaker and the audience. By doing so, we can appreciate the humor, wit, and deeper meanings that irony can convey.

In addition to context, specificity is another important factor in understanding irony. Specificity refers to the use of specific details and descriptions to create a more vivid and concrete image in the mind of the listener or reader. By using specific details, speakers, and writers can add depth and nuance to their language, and this can be particularly effective in the use of irony (Coulson, 2008). One example of the importance of specificity in irony can be seen in the use of irony in advertising. Advertisers often use irony to create a more memorable and engaging message that resonates with consumers. In one example, an advertisement for a fast-food restaurant shows an athlete who is in great physical shape eating a cheeseburger. The use of irony in this ad is clear, as the athlete is eating something that is generally seen as unhealthy. However, the specificity of the ad, which includes details about the athlete's physique and the type of food he is eating, makes the irony even more effective. Another example of the importance of specificity in irony can be seen in the use of irony in literature. In the short story "The Lottery" by Shirley Jackson, the author uses irony to highlight the brutality and senselessness of a small-town lottery. The story takes place in a seemingly idyllic town where the

residents hold an annual lottery to select a person to be stoned to death. The use of specificity in this story, which includes details about the town and the lottery process, makes the irony even more powerful. The use of irony in this story is intended to shock and provoke the reader, and the specificity of the language makes the message even more impactful (Gibbs, 1999).

Finally, the importance of specificity in irony can be seen in the use of irony in personal conversations. Irony is often used in personal conversations to express humor or criticism. In these situations, the use of specific details and descriptions can make the irony more effective. For example, a person might say to their friend, "I'm so glad you decided to wear your pajamas to this fancy dinner party." The specificity of the language, which includes details about the friend's attire and the context of the party, makes the irony more effective and humorous. In conclusion, the use of specificity is an important element of irony. By using specific details and descriptions, speakers and writers can add depth and nuance to their language, and this can make the irony more powerful and effective. In advertising, literature, and personal conversations, specificity plays a key role in creating memorable and impactful messages that resonate with audiences.

While irony can evoke a sense of laughter, it also establishes hierarchical relationships and raises subordinations, judgment, and claims to moral superiority. Understanding irony requires the existence of a community of interpretation that assesses the existence or absence of irony. Communities of interpretation are included within diverse discourse communities that share similar feelings and thoughts. Rather than irony forming these communities; It is perceived by these communities that are formed around age, gender, occupational group, etc., and share the same discourse. The overlap of various discourse communities makes it possible for these groups to be in indirect communication. In the transmission and sharing of irony, there is an overlap between the discourse communities to which the ironist and the commentator belong (Cebeci, 2008).

Understanding irony is facilitated by a close relationship between the speaker and the hearer (Pexman & Zvaigzne, 2004) since it is dependent on factors such as shared knowledge between the interlocutors or references to commonly held beliefs and assumptions (Kumon-Nakamura et al., 1995). It is also impacted by the unique characteristics of the parties involved (who is speaking to whom; Milanowicz & Bokus, 2013). However, in situations where there is no close relationship between the interlocutors, the listener must recognize that the speaker's intended meaning is vastly

different from the literal meaning of the statement. In their research from 1989, Kreuz and Glucksberg demonstrated that nonveridicality is necessary for the understanding of irony. That is to say, in order to be understood in the appropriate manner, an ironic statement needs to be in direct opposition to the actual circumstances. The reality and the utterance need to be different in some way, and the listener needs to be aware of this difference in order for them to be able to interpret the utterance in the way that it was intended to be interpreted. Even though irony proficiency can serve a variety of pragmatic purposes, irony comprehension deficits can have negative social consequences because a person is engaging in social risk-taking when he or she makes an ironic remark. In other words, there is a chance the remark will be interpreted incorrectly if the speaker makes it. According to research conducted in the past, an ironic speaker takes this risk because verbal irony has the potential to pay off in terms of communication. In some contexts, ironic remarks are more critical than literal ones, while in others, they are less critical (e.g., Colston, 1997, 2002; Dews & Winner, 1995; Jorgensen, 1996; Pexman & Olineck, 2002a; Toplak & Katz, 2000). Irony serves a number of other communicative functions, including the ability to be humorous (Colston & Keller, 1998; Colston & O'Brien, 2000; Kreuz, Long, & Church, 1991; Kumon-Nakamura, Glucksberg, & Kumon-Nakamura, 1995). Irony in speech can have various functions. One of the functions of irony is to reveal a speaker's attitude toward a given situation or individual (Andrews et al., 1986; Dews, Kaplan, & Winner, 1995; Giora, 1995; Kreuz & Glucksberg, 1989; Kumon-Nakamura, Glucksberg, & Brown, 1995; Sperber & Wilson, 1995). Humor (e.g., Dews et al., 1995; Littman & Mey, 1991) and muting the speaker's intended meaning are two additional functions of irony and sarcasm (e.g., Dews & Winner, 1995). In many instances, irony is employed humorously (e.g., Long & Graesser, 1988; Roberts & Kreuz, 1994); therefore, it is also possible to examine the evolution of irony in relation to the evolution of humor.

The importance of interaction in irony is evident in the way that irony is used to convey meaning, humor, and social commentary. Irony can take many different forms, from sarcasm to understatement, and it can be used in a variety of settings, from personal conversations to literature and media. One example of the importance of interaction in irony can be seen in the use of sarcasm in social media. Sarcasm is often used on social media platforms like Twitter and Facebook to convey humor, but it can also be used to express frustration, anger, or criticism. For example, a user might tweet, "Thanks for the early morning wake-up call, neighbor. Your loud music was just what I needed at 6 AM." This statement is ironic because the user is expressing annoyance with their neighbor's behavior in a

sarcastic way. The use of sarcasm in this context is intended to convey a message to the neighbor that their behavior is disruptive and inconsiderate (Gibbs, 2000).

Another example of the importance of interaction in irony can be seen in the use of irony in literature. In the novel "1984" by George Orwell, irony is used to expose the hypocrisy of the ruling party and its propaganda. For example, the party's slogan "War is Peace" is a clear example of situational irony, as the party's war efforts actually result in more suffering and oppression. The interaction between the ruling party and the citizens of Oceania is a key element of the novel, and the use of irony is intended to highlight the party's manipulation of language and its control over the thoughts and actions of its citizens (Leach & Scott, 2016). So, the importance of interaction in irony can be seen in the use of irony in personal conversations. Irony is often used in personal conversations to express humor, sarcasm, or criticism. For example, a person might say to their friend, "Thanks for canceling our plans at the last minute. I love spending Friday night alone." This statement is ironic because the person is expressing disappointment in a sarcastic way. The interaction between the two friends is key to understanding the irony in this statement, as the friend's cancellation of plans is a source of frustration and disappointment for the speaker (Lindstromberg & Boers, 2018). In conclusion, the importance of interaction in irony is evident in the way that irony is used to convey meaning and humor in a variety of settings. Irony relies heavily on context and the interaction between speakers and listeners, and it can take many different forms depending on the situation. By understanding the role of interaction in irony, we can appreciate the complex and nuanced ways in which language is used to express meaning and convey social commentary.

Colston (2002) elaborated on the simple concept of contrast in verbal irony comprehension by proposing that the perception of verbal irony and the appreciation of its pragmatic functions are subject to contrast effects. Contrast effects are observed in numerous contexts (e.g., perception, judgment, interpretation) and describe the situation in which biased information is presented and influences perception or interpretation in the opposite direction. This occurs when the biasing information differs substantially from the target along the dimension along which judgments or perceptions are formed. Colston argued that this is typically the case when the verbal irony is interpreted. In a negative situation, a strongly positive statement (the biasing information) can make the situation (the target) appear even more negative. Additionally, Colston argued that the interpretation of verbal irony is susceptible to assimilation effects. These occur when the biasing

information is only marginally distinct from the target, resulting in a perception that the target is more like the biasing information. This occurs when a statement is only slightly positive when interpreting verbal irony. In this case, the statement improves the situation's appearance. Likewise, Colston and O'Brien (2000) manipulated the degree of contrast between a context situation and an ironic statement (e.g., Sheila anticipated Walter's visit. Sheila turned to him and asked: (a) with weak verbal irony: "Aren't you in a pleasant mood?" (b) with strong verbal irony: "Aren't you in a magnificent mood?" (c) literally: "Aren't you in a bad mood?". Colston and O'Brien examined both the pragmatic functions of strong and weak ironic statements. When there was a large difference between the strong and weak versions of statements, the speakers of strongly ironic statements were rated as more critical, more humorous, and more self-protective than the speakers of weakly ironic statements. These results suggest that the perception of irony depends on disparity or contrast, which can be created by the strength of the statement (as in the Colston and O'Brien study) or the strength of the context (as in the Gerrig & Goldvarg, 2000, study). This mechanism and its predicted patterns are consistent with previous research on the extent to which verbal irony serves the pragmatic function of condemnation. A series of studies investigating the degree of criticism expressed by verbal irony (Dews and Winner, 1995; Dews et al., 1995) discovered that ironic commentary (e.g., "You're so considerate"; note: a literally positive comment) was perceived as less critical than literal commentary (e.g., "You're so inconsiderate"; note: a literally negative comment) when an addressee(s) was being criticized by a speaker for doing (e.g., a roommate borrowing a pair of shoes without permission). Colson (1997b; see also Colson and O'Brien, 20OOa,b; Toplak and Katz, 2OOO) found the opposite pattern - ironic comments (e.g., 'We'll win the championship for sure now') were viewed as more critical than literal comments (e.g., 'We'll never win the championship now') when directed at an addressee(s) engaging in negative behavior (e.g., a star player partying too much and getting sick prior to the game).

2.2. CHILDREN'S IRONY COMPREHENSION

Over the past four decades, comprehension of verbal irony has been studied since it demonstrates pragmatic competence in understanding non-literal language. Age is a significant factor in irony understanding and application. In the field of developmental psychology, where young children were examined, extensive studies on the topic have been conducted. Also, Jean Pieget's theory of cognitive development has significant importance in understanding the development of children's comprehension.

Piaget's theory posits that individuals go through specific stages of cognitive development from birth to adulthood. The four stages of cognitive development as identified by Piaget are the sensorimotor stage, the preoperational stage, the concrete operational stage, and the formal operational stage (Piaget, 1952). Piaget's theory of the sensorimotor stage explains the development of infants' perception and understanding of the world. This stage spans from birth to two years old and focuses on the role of sensory and motor activities in infants' acquisition of knowledge about the world. The preoperational stage, the second stage of cognitive development, occurs between the ages of 2 and 7. During this stage, children try to understand the world more deeply by using concrete operations. The concrete operational stage, the third stage of cognitive development, occurs between the ages of seven and twelve. During this stage, children develop a more sophisticated understanding of the world by grounding their thoughts in concrete objects (Piaget, 1969). The final stage of cognitive development, the formal operational stage, occurs in children aged twelve and above. During this stage, children possess the ability to understand and process abstract concepts and propositions. Jean Piaget's theories are regarded as one of the most influential theories in cognitive development. They have played a fundamental role in numerous psychological research studies and educational practices. Piaget's theories have also been a source of inspiration for many psychologists and educators.

Jean Piaget's cognitive development theory asserts that children go through specific stages in their mental processing and that these stages emerge at certain age intervals. Piaget's theory is based on observing the differences in children's understanding of the world, and dividing these into four main periods of cognitive development:

- The Sensorimotor Period,
- Preoperational Period,
- Concrete Operational Period, and
- Formal Operational Period

Jean Piaget's Sensorimotor Period is the first stage in his cognitive development theory, lasting from birth until approximately two years of age. During this period, infants develop their first cognitive schemas, which involve coordinating their sensory experiences with their motor actions. The Sensorimotor Period is divided into six sub-stages, each of which has its own unique cognitive

milestones. During the first sub-stage, the Reflexes sub-stage, infants use innate reflexes, such as sucking and grasping, to interact with the world around them. They do not have any conscious control over these actions, but they are important for survival. The cognitive interpretation of the infants' smile led Piaget (1951) to reveal the following hypothesis as a result of observing his own three children: After a period of behavior in which a baby seriously obeys a stimulus, the baby reveals the success he assimilates by expressing his pleasant emotions. Successful adaptation occurs when the child freely assimilates the stimulus and exhibits a behavior of conforming to a new scheme. This assimilative behavior of the child was described by Piaget as "practice play". This process is best observed in the sensory-motor period. Piaget based the smile of babies not on their mastery of the situation, but on recognitory assimilation, which is defined as identification of a stimulus as familiar (Piaget, 1952). According to this definition, babies need to experience a certain amount of a difficult stimulus in order to master it. The second sub-stage, Primary Circular Reactions, begins at around one month of age. Infants start to repeat pleasurable actions, such as sucking their thumb and gradually begin to recognize that they are responsible for producing these actions. The third sub-stage, Secondary Circular Reactions, starts at around 4 months of age. Infants begin to repeat actions that produce interesting or pleasurable effects, such as shaking a rattle. They also start to develop basic cause-and-effect relationships. The fourth sub-stage, Coordination of Secondary Circular Reactions, begins at around 8 months of age, and infants begin to use their newly developed cause-and-effect understanding to intentionally produce desired outcomes (Piaget, 1952). They also develop object permanence, the understanding that objects continue to exist even when they are out of sight. The fifth sub-stage, Tertiary Circular Reactions, starts at around twelve months of age. Infants begin to experiment with different actions to see how they affect the environment (Piaget J. ,1977). They also begin to develop mental representations, or symbols, of objects and actions. The final sub-stage, Mental Representations, begins at around eighteen months of age and continues until the end of the Sensorimotor Period. Infants begin to use symbols to represent objects and events in their minds. They also start to use mental representations to plan and solve problems. Overall, the Sensorimotor Period is a crucial time for infants' cognitive development. They learn to understand the world around them through their sensory experiences and motor actions. As they progress through the six sub-stages, they develop increasingly complex cognitive schemas that lay the foundation for their future cognitive growth (Piaget & Inhelder, 1969).

Schema is one of the most basic concepts in the pre-transaction period. Schemas are cognitive constructs. The schema is expressed as a pattern of organized behavior or thought. They are behavior and thought patterns that children develop as a result of their interactions with their environment. One of the concepts in cognitive development theory is adaptation. According to Piaget (1951), people are in the process of adapting to their environment from birth. Harmony involves two basic processes. These are assimilation and accommodation. Assimilation and compliance explain the formation and development of schemes. Assimilation is when people use the schemas that exist in them to understand the events in their own world. Assimilation alone is not enough for cognitive development. The fact that the individual constantly explains and reacts to new situations with the existing schemes limits development and is not always sufficient. Harmony arises when the individual needs to change the schemas that exist in him in order to react to a new situation. If the existing schemas in the individual are not sufficient to explain new situations, these schemas need to be rearranged and formatted. The cognitive schemas of adults develop starting from the sensory-motor schemas of children. In this process of development, assimilation, and compliance are effective. For example, a child who sees a tiger for the first time in his life may try to explain the tiger with the cat scheme he has and say "a big cat". Maybe after a while, this description will be enough for him. However, if he realizes that his own schema will not be enough after a while, he tries to understand it by creating a new schema (tiger) in his mind. Trying to use the concept of the cat shows the function of assimilation of the mind and the formation of the tiger scheme shows the function of compliance (Piaget, 1951).

Jean Piaget's Preoperational Period is the second stage in his cognitive development theory, lasting from approximately two to seven years of age. During this period, children develop a variety of cognitive abilities, such as symbolic thought, language, and pretend play. However, their thinking is still largely egocentric, meaning that they have difficulty understanding other people's perspectives. The cognitive interpretation of the infants' smile led Piaget (1951) to reveal the following hypothesis as a result of observing his own three children: After a period of behavior in which a baby seriously obeys a stimulus, the baby reveals the success he assimilates by expressing his pleasant emotions. Successful adaptation occurs when the child freely assimilates the stimulus and exhibits a behavior of conforming to a new scheme. This assimilative behavior of the child was described by Piaget as "practice play". This process is best observed in the sensory-motor period. Piaget based the smile of babies not on their mastery of the situation, but on recognitory assimilation, which is defined as identification of a stimulus as familiar (Piaget, 1952). According to this definition, babies need to

experience a certain amount of a difficult stimulus in order to master it. One of the key features of the Preoperational Period is the development of symbolic thought. Children begin to use symbols, such as words and images, to represent objects and ideas. This allows them to think about things that are not present and to communicate with others about abstract concepts (Piaget & Inhelder, 1969). However, their use of symbols is still limited, and they often struggle with concepts like conservation, which involves understanding that changing the shape or appearance of an object does not change its fundamental properties. Another important cognitive ability that develops during the Preoperational Period is language. Children begin to use language to communicate with others and to think about the world around them. They also begin to develop metacognitive skills, such as thinking about their own thinking, which allows them to become more aware of their own thought processes and regulate their own behavior. Pretend play is another important aspect of the Preoperational Period. Children engage in pretend play to explore different roles and scenarios, and to practice social skills. Pretend play also allows children to use their imagination and creativity, which is important for their cognitive development (Piaget, 1952). However, the Preoperational Period is also characterized by a number of cognitive limitations. Children in this stage are still largely egocentric, meaning that they struggle to understand other people's perspectives. They also often engage in animistic thinking, attributing human characteristics to inanimate objects. Children in this stage also struggle with concepts like conservation and reversibility, which are important for later cognitive development. In this period, they have a tendency to focus on the present situation without taking into account past situations. The reasoning of the child of this period seems to be limited to the here and now. In this period, children are under the influence of superficial appearances. The child usually focuses his attention on only one aspect of a task or limited information and is unable to deal with more than one aspect at a given time. Irreversibility is a characteristic seen in this period. By the opposite process of transforming, the child cannot conceive that the water is in the same amount when 32 repetitions are put in the first glass. This result is related to the child's inability to think about more than one factor at a given time. At the same time, children have not yet gained the principle of protection during this period. Children cannot comprehend that reality would remain the same if the image changed (Piaget, 1951). Overall, the Preoperational Period is a crucial time for children's cognitive development. They develop a variety of cognitive abilities, such as symbolic thought, language, and pretend play, which are important for their future cognitive growth. However, they also have a number of cognitive limitations, which will gradually be overcome as they progress through the next stages of cognitive development (Flavell, 1999).

Jean Piaget's Concrete Operational Period is the third stage in his cognitive development theory, lasting from approximately seven to eleven years of age. During this period, children begin to think more logically and systematically about concrete objects and events in the physical world. They also become less egocentric and are better able to understand other people's perspectives. One of the key cognitive abilities that develops during the Concrete Operational Period is conservation. Children begin to understand that certain physical characteristics of objects, such as their mass or volume, remain the same even when their appearance changes. They are also able to understand the concept of reversibility, which means that they can mentally reverse a sequence of events to arrive back at the starting point. Another important cognitive ability that develops during this stage is classification (Flavell, 1999). Children become better at grouping objects based on shared characteristics, such as color or shape. They also begin to understand hierarchical relationships, such as the fact that a dog is a type of animal. Children in the Concrete Operational Period are also better able to understand spatial relationships. They are able to mentally manipulate objects in their mind, such as rotating a block to see how it would fit into a space (Piaget J. , 1952). They are also able to understand maps and directions more easily. However, the Concrete Operational Period is still limited by certain cognitive constraints. Children in this stage are still not able to think abstractly or hypothetically. They also have difficulty with tasks that require them to coordinate multiple variables or to think outside of the physical world. Overall, the Concrete Operational Period represents a significant step forward in children's cognitive development. They become better able to think logically and systematically about the physical world and are better able to understand other people's perspectives. However, they are still limited by certain cognitive constraints, which will gradually be overcome as they progress through the next stages of cognitive development (Piaget & Inhelder, 1969).

Jean Piaget's Formal Operational Period is the fourth and final stage in his cognitive development theory, lasting from approximately eleven years of age and beyond. During this period, individuals become capable of abstract reasoning and hypothetical thinking. They are able to think beyond concrete objects and events in the physical world and are better able to understand complex systems and relationships. One of the key cognitive abilities that develops during the Formal Operational Period is the ability to think hypothetically. Individuals become capable of generating and testing hypotheses and can use deductive reasoning to draw logical conclusions from a set of premises. They are also able to think abstractly, which means that they can think about concepts that do not have a physical presence in the world. Another important cognitive ability that develops during this stage is

the ability to think systematically about complex systems and relationships. Individuals become better able to understand and manipulate abstract concepts, such as algebraic equations or scientific principles (Piaget & Inhelder, 1969). They are also able to think about multiple variables at once and to consider all possible outcomes of a situation. However, not all individuals progress through the Formal Operational Period. Some individuals may never reach this stage, while others may only reach it in certain domains of knowledge. Additionally, even individuals who have reached the Formal Operational Period may still struggle with certain types of abstract reasoning or may need support and guidance to fully develop their cognitive abilities. Overall, the Formal Operational Period represents a significant step forward in cognitive development. Individuals become capable of abstract reasoning and hypothetical thinking and are able to understand complex systems and relationships. However, not all individuals may reach this stage, and those who do may still need support and guidance to fully develop their cognitive abilities (Flavell, 1999).

Piaget's theory maintains that different stages of cognitive development are gradual and universal, meaning that although not all children go through the exact same stages, most children do follow the same order. Additionally, the completion of these stages is believed to be tied to specific ages (Lourenço & Machado, 1996). Piaget's theory also emphasizes that different stages of cognitive development are based on and built upon earlier stages. For example, the formal operational period builds upon the concrete operational period. Piaget's cognitive development theory provides a framework for understanding how children's perceptions of the world develop. This theory offers insight into when and how changes in children's cognitive development occur. However, the theory has also faced criticism, such as not taking into account cultural differences and experiences, and some research suggests that the stages of the theory need to be more specifically defined (Piaget, 1972).

For five- and six-year-old children, the period that Jean Piaget calls the Pre-Processing Period is very important in cognitive development. During this period, children develop the skills to create symbolic representations, understand concepts, use language, and deepen their understanding of the world. During this period, children go through the early stages of their cognitive development and acquire basic cognitive skills based on their concrete experiences. Symbolic representations are the ability to express thoughts and concepts using symbols that are not specific to objects or events (Piaget J. , 1952). These symbols may not be tangible objects such as numbers, letters, colors, symbols, or

pictures. Therefore, symbolic representations are an important step in the development of abstract thinking. Five- and six-year-olds can solve mathematical problems using symbolic representations, create stories using their imaginations, or give directions to locate an object.

During the Preprocessing Period, children can also make significant improvements in their language use and comprehension skills. During this period, children learn how to use language to interact with other people. These skills help them develop into deeper levels of language use, including their ability to detect verbal references such as irony, nuance, and wordplay. During the Preprocessing Period, children also develop conceptual thinking. This includes their ability to group objects or concepts based on their similarities and differences. This skill makes children's understanding of the world more sophisticated. For example, a child might group a set of animals based on their similarities or sort a set of colored blocks by color (Piaget J., 1977).

Five- and six-year-old children acquire many cognitive skills during the Pre-Processing Period, which is stated in Jean Piaget's theory of cognitive development. These skills are important steps toward the development of abstract thinking skills, such as language use, symbolic representations, and conceptual thinking abilities. However, before abstract thinking skills are fully developed, children's cognitive development must go through several stages. Piaget's theory argues that abstract thinking skills will be fully developed during the Formal Operations Period. This period starts from the age of eleven and continues until adolescence.

During the Preprocessing Period, children can also make significant improvements in their ability to understand what others are thinking. This includes the skills needed to understand other people's feelings, thoughts, and intentions. This skill helps children relate to other people and have a more sophisticated understanding of the world. Like irony, the ability to understand verbal references also develops during the Pre-Processing Period. This includes the skills needed to understand what a person wants to understand rather than what they are saying. For example, a child may understand that when someone says, "This is a really great day," it can have a positive meaning even when the weather is really bad (Lourenço & Machado, 1996).

In conclusion, in Jean Piaget's theory of cognitive development, the Preprocessing Period is an important step in the cognitive development of five- and six-year-old children. During this period,

children acquire many cognitive skills such as creating symbolic representations, using and understanding language, conceptual thinking, and understanding what others are thinking. These skills are important steps toward the development of abstract thinking skills.

Although irony production develops primarily in adolescence (Aguert et al., 2016), irony comprehension emerges much earlier in childhood and continues to develop throughout adolescence and adulthood. Even when compared to other forms of figurative language, irony comprehension has been regarded as a relatively late-developing skill (Andrews et. al. 1986). Irony is frequently misunderstood by children in particular (Demorest, Silberstein, Gardner, & Winner, 1983; Winner, 1988). Children frequently confuse verbal irony with deception, according to numerous studies (e.g., Demorest, Silberstein, Gardner, & Winner, 1983; Winner, 1988). According to recent studies on child development, children start to understand verbal irony around the age of 5 to 6 (Ackerman, 1981, 1982, 1983, 1986; Andrews, de Groot, Kaplan, Rosenblatt, Dews, et al., 1996; Creusere, 2000; Demorest et al., 1984; Dews, & Winner, 1995; Dews et al., 1996; Hancock, Dunham, & Purdy, 2000; Harris&Pexman, 2003; Nakassis & Snedeker, 2002; Andrews, Rosenblatt, Malkus, Gardner, & Winner, 1986; Sullivan, Winner, & Hopfield, 1985; Whalen & Pexman, 2010; Winner & Leekam, 1991), at least to the extent that they can identify the incongruity between the actual and intended meaning of ironic statements. In other words, they are able to understand the speaker believes something different from what they have actually said. Also, since they show some ability to understand humor, it is possible for them to get the humor behind the ironic utterance. Understanding humor requires cognitive, perceptual, linguistic skills, and at the same time, humor is a tool that enables social interaction (Clikeman & Glass, 2008). Thanks to the development of preschool children's mental processes, language, and social skills, it is possible for them to capture humorous elements, find jokes funny, and express funny elements. Mental processes are becoming important to measure preschoolers' ability to find a joke funny. In order for children to find physical jokes funny, they need to remember the real representation of the object, be able to recognize the discrepancy between the representation in the joke, perceive it, and distinguish between the real and the present representation. In order for children to find intentional jokes funny, they need to gain the skill of theory of mind. The ability to understand the intent behind ironic statements generally develops between these ages, although younger children may be able to detect verbal irony (de Groot, Kaplan, Rosenblatt, Dews, & Winner, 1995; Winner, Windmueller, Rosenblatt, Bosco, Best, & Gardner, 1987). The age at which children first comprehend counterfactual emotions such as regret and relief

is similar to the age at which the typical form of irony first appears (e.g. McCormack, O'Connor, Beck, & Feeney, 2016). Children can use linguistic and discourse cues such as intonation (Capelli, Nakagawa, & Madden, 1990; Winner&Leekam, 1991), incongruity (Ackerman, 1982; 1986), allusion to expectations (Creusere, 2000), echoic mention (Hancock et al., 2000; Keenan & Quigley, 1999), and speaker personality traits to identify ironic intent (Pexman, Glenwright, Hala, Kowbel & Jungen, 2006). Even though young children who are as five or six can recognize the nonliteral nature of irony, they may not be able to discern the pragmatic intent of the speaker when ironic statements are employed. In his seminal study, Ackerman (1983) demonstrated that children's early interpretation of ironic criticism requires a two-step process: (1) identification of the literal versus nonliteral nature of the ironic remark, and (2) inference of the ironic speaker's intended social purpose. Hancock et al. (2000) demonstrated the existence of these two distinct components of irony comprehension by demonstrating that the detection of the non-literal form does not guarantee an accurate inference regarding the speaker's pragmatic intent.

It is known that the development of children's irony comprehension is linked to the maturation of their cognitive and linguistic skills. This extended trajectory affords researchers the opportunity to examine how these connections function. According to Peterson et al. (2012), the ability to successfully interpret irony represents a major milestone in the cognitive development of children. This process typically begins around the age of three, when language skills stabilize, and a new dimension of interpersonal communication opens up as a result. In comparison to other forms of figurative language, the capacity for irony comprehension typically develops at a later stage of the developmental process. According to Andrews et al. (1986), it specifically follows the ability to comprehend similes and metaphors. According to Bernicot et al. (2007), comprehension of irony lags significantly behind other pragmatic phenomena. As mentioned previously, one possible explanation is that in addition to linguistic competence (lexical, syntactic, discourse), non-linguistic cognitive and/or socio-cultural skills are required to comprehend the speaker's intended message.

According to some studies, children as young as three and four years old may already be displaying early signs of irony comprehension (Banasik, 2013; Milanowicz & Bokus, 201; Loukusa and Leinonen, 2008; Reccia et al., 2010). However, it is unclear what influences or supports children's ability to adopt a perspective when understanding irony (Falkum and Köder, 2020). At the same time,

there is evidence that this ability is still improving at age twelve or thirteen (Capelli, Nakagawa, & Madden, 1990; Demorest, Meyer, Phelps, Gardner, & Winner, 1984).

Through adolescence, children continue to develop an appreciation for the forms and functions of irony. Children, like adults, can determine whether a speaker intends irony based on a variety of cues. There is evidence that children's interpretations of ironic intent are influenced by the speaker's tone of voice and the degree to which a statement echoes stated or implicit expectations for event outcomes. Further, children's impressions of the speaker's intent for irony are modulated by what they know about the speaker's personality; if told that the speaker of a statement such as "you are so careful" is a mean person (as opposed to a nice person), children are more likely to judge that the speaker intended to be ironic (Pexman, Glenwright, Hala, Kowbel, & Jungen, 2006).

Using vastly different methodologies, Climie and Pexman (2008) demonstrated that children younger than thirteen should be attributed with the ability to interpret irony. Children were given puppet show scenarios by Climie and Pexman (2008), which had comments at the end that were either ironic or literal. After watching the puppet show, the children were asked to determine whether the ironic speaker was attempting to be mean or kind (which was assumed to reflect how the children interpreted the intent of the ironic remark). As the children made their decisions, the researchers monitored their eye movements toward the response objects. Children as young as five tended to always look at the object reflecting an ironic interpretation of the statement first, indicating, according to the authors, that children as young as five can comprehend ironic intent.

This discrepancy regarding the age of acquisition of ironic statements may not only be due to the fact that different tasks are used across studies to assess irony comprehension in children (ranging from yes/no questions to open-ended questions), but also to the fact that different irony components, such as the detection of meaning, intentions, attitudes, and beliefs of the ironic speaker, are typically measured. Presently, it is believed that children begin to comprehend certain facets of verbal irony between the ages of five and six and that this ability develops with age (e.g., Filippova & Astington, 2010; Pexman & Glenwright, 2007). However, the precise development of children's understanding of the various components of ironic comments remains unknown.

2.2.1. Previous Studies on Children's Irony Comprehension

Banasik (2013) tried to find out the age at which ironic utterances can first be grasped and tested forty-six Polish preschool children (four- to six- years old) by using Irony Comprehension Task (Banasik & Bokus, 2013) which is a story comprehension task including twelve stories, of which six were ironic and six literal. The stories were created by controlling morphosyntactic and lexical complexity and the length. Also, they were presented using audio and visual stimuli. To assess the children's irony comprehension, a pictorial Likert scale (emojis), which is used to check the degree of how funny the narrative was and how nice the speaker was and a set of questions, were used to test whether ironic or literal messages were correctly understood, were used. The results of the study showed that there was no significant difference between the three age groups and not only five- and six-year-olds but also four-year-olds are able to understand certain forms of ironic utterances.

Banasik, Jemielniak & Bokus (2019) conducted another study to investigate irony understanding among Polish-speaking children. Two hundred and thirty-one Polish-speaking children were tested using the Irony Comprehension Task, which consists of twelve stories, six of which are ironic and six of which are literal. The ages of the children ranged from four to six years old. The purpose of this study was to examine whether even four-year-old children can correctly interpret ironic utterances and to determine whether or not they can understand the meaning of an ironic utterance under four different conditions: targeted, non-targeted, with symmetric dyads, and asymmetric dyads. Following each story, the children in the experiment were given a multiple-choice question with two possible answers and then asked an open-ended question about the speaker's intended meaning of the ironic remark. In order to determine if older or younger children had an easier time with the task, response time differences in irony comprehension were also measured. The study found that the accuracy gap between four- and six-year-olds is significant only in ironic stories, but not between four- and five-year-olds or five- and six-year-olds. Nonetheless, with an accuracy of 81%, children who speak Polish are able to understand even the most rudimentary forms of irony by the time they are four years old. On the other hand, regardless of age, people were equally adept at grasping the statement's literal meaning. Also, the youngest group understood targeted irony more than non-targeted irony, whereas no such difference was seen in the older age groups; and while there were no significant differences in the understanding of irony in symmetrical and asymmetrical dyads in five- and six-year-olds, the youngest children scored higher on asymmetrical rather than symmetrical dyads. This study's reaction times showed that while there was no difference in the proportion of correct responses between age

groups, there was a significant age gap in how quickly participants responded to questions about ironic versus literal statements. In line with the modular theory or SPM, the questions pertaining to ironic utterances resulted in significantly longer response times than those pertaining to literal utterances.

Loukusa&Leinonen (2008) aimed to find out 210 Finnish children aged from three to nine years. All the participants answered four questions that required them to connect their world knowledge with the given verbal context in order to derive the intended meaning of the ironic question and the children who answered the questions correctly were asked to give explanations for their correct answers to show how they had derived their answers. Also, the children's incorrect answers were classified into different incorrect answer categories and the explanations were classified into different incorrect explanation categories. The findings showed that for correct answers a significant difference between six- and seven-year-olds and for correct explanations between age groups of three-four, six–seven, and seven-eight was found. According to this study, there is no significant difference between five and six-year-olds. Additionally, among the incorrect answer categories, the most common incorrect answer type in all age groups was ''literal'' interpretation, and ''irrelevant'' answers were only given by three and four-year-olds. Also, in terms of incorrect explanations, the most common categories were "turn-taking" and "incorrect focus" category types. The results of this study suggest that some children start to recognize correctly the intended meaning behind verbal irony as early as at the age of 3 and 4 even though their ability is still limited.

Angeleri&Airenti (2014) analyzed the comprehension of 100 Italian children aged three to six and a half years. They gathered data by using sixteen puppet shows which include four types of puppet scenarios describing different communicative interactions: control (literal), joke, contingent irony (irony with a contextual cue), and background irony (irony without a contextual cue) stories. The participants were asked a question (''Why did the puppet say that?'') after each puppet scenario to show their understanding of communicative intent. The aim was to investigate whether younger children can understand irony used in familiar communicative situations. The findings revealed that children develop their irony comprehension across early childhood since their performance significantly increased with increasing age and it was concluded that even the younger group (three- and four-year-old children) may sometimes understand ironies since they showed a good performance in the contingent irony and acceptable comprehension of background irony.

The investigation into the level of understanding of both simple and complex ironies was the goal of the study conducted by Bosco et al. (2013). This study included a total of 390 children who were native speakers of Italian. The ages of the children varied from five to eight years old. Each participant was shown a series of videotaped scenes that concluded with either Simple or Complex Ironies, and then they were asked a question to determine if they understood the speaker's intentions. According to the results, it was found that participants who are younger than seven years of age performed poorly both with simple and complex ironies, and thus no significant difference was found. eight-year-olds, the oldest age group, had 70% correct responses for Simple Irony and 66% for Complex Irony. Therefore, they concluded that irony comprehension is a difficult task for children younger than seven years of age and these results are in line with Bosco and Bucciarelli (2008) since they found that children are only good at understanding ironic communication acts after the age of seven years and that starting from eight years of age, it is easier for them to comprehend simple (linguistic) irony rather than complex (linguistic) irony.

Köder and Falkum (2021) investigated the comprehension of irony in Norwegian-speaking children aged 3–8 by focusing on the normative bias involved in irony and the ironical tone of voice which are distinctive features defined by the relevance-theoretic echoic analysis (Wilson and Sperber, 2012) since it is the theory taken as a starting point of this study. Also, they tested 20 adults as a control group. They aimed to examine the effect of these factors on children's processing and interpretation of irony and whether there is a literal stage in the development of nonliteral uses of language that children go through. To assess irony processing and understanding, the offline measure of picture selection following the presentation of twelve prerecorded stories and the online measure of eye-tracking were used. They gathered data by presenting happy and angry emoticons asking the participants How is mum/dad feeling inside? Is she/he happy or angry? The participants could answer either verbally or by pointing to one of the emoticons. The findings showed that irony understanding improves with age since the children above six-years-old performed better than 4 and 5-year-olds who were better than three-year-olds. The differential performance of three-year-old children provides input to the debate on the existence of a so-called literal stage in pragmatic development. However, three-year-olds performed well in the two literal control conditions and it is an evidence that the test used in this study is age-appropriate. The results of the norm violation type revealed that it affected four- to five-year-olds' offline understanding of irony since they showed better performance on moral compared with social norm violations. Additionally, in online measure of eye-

tracking it was found that tone of voice had an effect on gaze behavior in adults, but not children. Nevertheless, when they heard the pretense-oriented tone of voice in ironic utterances, they looked more at angry compared with the happy emoticon. Therefore, tone of voice potentially facilitates children's irony understanding. They concluded from this study that while sensitivity to some of irony's features can be identified many years earlier, the comprehension of irony can be detected on measures around age six - with the formation of second-order perspective-taking skills.

Hancock et al. (2000) aimed to examine irony comprehension in five- and six-year-old English-speaking children in two experiments. Short videotaped scenarios that ended with ironic criticisms, literal criticisms, ironic compliments, and literal compliments were presented. In order to assess their comprehension, subjects were asked three forced-choice questions. The findings of Experiment 1 revealed that ironic criticism is much easier for five- and six-year-olds to understand than ironic praise. Among twenty-four children, fifteen participants detected at least one ironic criticism while only nine could find out ironic compliments. In addition to this, the children who detected ironic criticism were also able to detect ironic compliments. They stated that one reason for the asymmetry seen in this experiment is the prior research by Dews and Winner (1997), which showed that children have more exposure to ironic criticism throughout early development. Another factor may be the echoic marker used ironic criticism condition. The speaker's final statement in the ironic complement condition (e.g., You sure are a bad basketball player) does not echo the initial boast, whereas the speaker's final statement in the ironic criticism condition (e.g., You sure are a good basketball player) does. Therefore, in Experiment 2, with all other factors equivalent across these two experiments, the echoic marker was used in ironic compliments rather than ironic criticisms to see whether children use this echoic marker as an important cue to detect the nonliteral nature of ironic comments. The results showed that the number of children who could detect ironic compliments in Experiment 1 increased from nine to fifteen in Experiment 2. However, the number of children detecting irony was the same. They concluded that the echoic factor plays an important role in detecting the nonliteral nature of ironic compliments whereas it does not have any effect on ironic criticisms.

Another study about ironic compliments and ironic criticism was conducted by Pexman & Glenwright (2007) in order to examine how children develop the ability to understand verbal irony. six- to ten-year-old English-speaking children were presented with short prerecorded narratives puppet shows with four different endings: literal compliment, ironic compliment, ironic criticism, or literal

criticism. As a result, they come to the conclusion that the evolution of ironic criticism and ironic compliments differs. For ironic criticism, following with the comprehension of the speaker's intent (teasing question) and the speaker's attitude, the speaker's belief will first become clear. Regarding ironic compliments, the comprehension of the speaker's attitude emerges after the understanding of the speaker's belief and the understanding of the speaker's intent (teasing question). Additionally, for the speaker's belief and speaker's attitude questions, a greater proportion of children achieved perfect accuracy for ironic criticism than for ironic compliment. This indicates that ironic compliments are more difficult for children to comprehend than ironic criticisms and this result is in line with the findings of Hancock et al. (2000). According to Pexman and Glenwright, a possible explanation could be that ironic criticisms occur more frequently than ironic compliments.

Harris and Pexman (2003) aimed to test the Tinge Hypothesis (Dews et al., 1995) in two experiments by examining five- to six- and seven- to eight-year-old English-speaking children's abilities to detect and interpret the aggressive and humorous intent of speakers who made ironic criticisms, literal criticisms, ironic compliments, and literal compliments. Eight puppet shows were used in both experiments. To assess children's judgments of aggression and humor, three questions were asked. The first question was the speaker belief question (e.g., "When Bob said You are a great gardener, did Bob think that Sam was a good gardener or a bad gardener?") to see the participants' positive or negative evaluation of the final utterance. In the second question, children were asked to rate the aggression intended by the final ironic statement using the Mean/Nice Scale (e.g., "Now point to one of the faces to show how mean or nice Bob was trying to be when he said You are a great gardener"). In the last question, the Funny/Serious Scale was used to show whether the children were able to evaluate the humorous intent of the speaker. In Experiment 1, ironic and literal criticism were compared whereas Experiment 2 includes ironic and literal compliments comparatively. The results of the experiments showed that while children in both age groups had the same degree of difficulty comprehending the meaning of ironic compliments, children in the seven to eight age group were better able to understand the meaning of ironic criticisms than those in the five to six age group. The findings of speaker belief questions demonstrated that ironic criticisms were perceived as less aggressive than literal criticisms by children in Experiment 1. Additionally, the results in Experiment 2 showed that children perceived ironic compliments as less nice than literal compliments. Overall, it was concluded that these results support the Tinge Hypothesis which suggests that the positive literal meaning of an ironic criticism tinges the perceived meaning to be less negative. One other

finding of the study is that both literal and ironic statement types were regarded as equally serious, with the exception of the older children's perceptions of ironic compliments, which they judged to be mildly funny. Interestingly, children who understood the ironic speaker's intention to be more or less aggressive were still unable to infer the speaker's intention to be funnier. Therefore, they concluded that children do not generally recognize the humor function of ironic criticisms and ironic complements until they are eight years old the appreciation of humor behind the ironic statements continues to develop through middle childhood.

Pexman et. al. (2006) conducted two experiments to investigate whether information about a speaker's personality traits would influence children's comprehension of verbal irony. In Experiment 1, five-to six-year-old English-speaking children were presented with prerecorded puppet stories including four personality trait stories and four ironic-literal stories independently. To assess children's use of trait information each child was introduced to two nice characters and two mean characters. After the stories, four different questions were asked for each story type. The results of Experiment 1 demonstrated that five- to six-year-old children were able to successfully use information about personality traits because they could make inferences about desires and foresee the behaviors of story characters. However, the ability to accurately understand the beliefs and intentions of speakers who made ironic criticisms was rare. Experiment 2 examined the ability of five- to eight-year-old English-speaking children to make inferences about the mental states of the speakers. Data were collected by asking four different questions after four ironic–literal stories. Additionally, in the stories, two stories were given with congruent information (nice trait–literal compliment, mean trait–ironic criticism) and two stories with incongruent information (nice trait–ironic criticism, mean trait–literal compliment). The findings of Experiment 2 revealed that between the ages of five and eight, there is a significant improvement in the ability to identify the speaker's belief and intent when making ironic criticisms because comprehension rates were higher for the seven-and eight-year-olds than for the five- and six-year-olds. Even though the younger participants in Experiment 2 were still learning about verbal irony and thus demonstrated less accurate comprehension of ironic remarks, they still relied on information about the speaker's personality traits to the same extent as the older participants. Therefore, it was concluded that children's interpretations of ironic remarks were modulated by speaker personality traits and older children were more efficient than younger children at coordinating cues to verbal irony.

Aguert et al. (2017) tested forty six-year-old children and forty ten-year-old children, all of whom were native speakers of French, in comprehension tasks to assess the role of hyperbole. The children were presented with twelve short animated cartoons and asked the speaker's belief and the speaker's intent questions. Teasing and real emojis were used to assess the speaker's intention. The results indicated that there is a significant age effect of hyperbole on irony comprehension in children, as exaggeration decreased irony comprehension in six-year-old children but supported it in ten-year-old children. It was concluded that 6-year-old children are just beginning to understand the difference between what is said and what is implied, and they assess that the speaker's intention is to tease, not to actually say something. Therefore, they give priority to either the utterance or the context rather than considering the communication situation as a whole. On the other hand, 10-year-old children are able to consider it as a whole and benefit from hyperbole as adults do. Clearly, the effects of hyperbole during childhood change, primarily because strategies for dealing with irony change from a drastic choice between utterance and context to an integration of the two in terms of the ironic intent of the speaker.

Climie and Pexman (2008) aimed to investigate the verbal irony interpretation of five-to eight-year-old children and a control group of adults. All participants were presented with twelve short puppet shows that ended in an ironic criticism, a literal criticism, an ironic compliment, or a literal compliment, including ironic and literal utterances. Prior to the puppet shows, speaker puppets were described as funny or serious in the first two sentences as a cue to intent. Also, for some puppets, no trait information was provided. The evaluation of speaker intent was conducted using a pair of tiny stuffed animals and a square box with a removable lid. The stuffed animals took the form of a fuzzy duck grinning and scowling and a shark scowling and baring its sharp teeth. In order for participants to demonstrate their evaluations of the speaker's intentions, they were first asked, "Was X like the shark or the duck?" and instructed to place either the shark or the duck inside the box. Second, the belief question posed by the speaker. Also, to evaluate the participant's response to the speaker's attempt at humor using a funny/serious scale, the following speaker humor question was posed. When it came to questions about speaker intent, literal criticisms, and ironic criticisms were judged more accurately than ironic compliments, according to an analysis of adult responses. The most significant effect this statement type had was that ironic criticisms were interpreted as humorous more frequently than literal compliments. There was also a primary effect of speaker trait, with humorous speakers' statements being interpreted as humorous a greater percentage of the time than serious speakers'

statements. In addition, participants in more trials perceived the statements made by "funny" speakers as intended to be humorous, whereas participants in fewer trials believed the statements made by "serious" speakers. Children's adult evaluations of ironic criticism were more accurate than those of ironic compliments. Ironic compliments and criticism were more difficult for children to correctly evaluate because the appropriate response is the opposite of what the literal meaning implies. The ages of the children had a significant effect on the accuracy of their ironic criticisms, with older children able to make more precise speaker belief judgments. Additionally, although understanding a speaker's belief in response to an ironic compliment was challenging for children of both age groups, those between the ages of seven and eight were beginning to demonstrate some level of proficiency. In the study that analyzed humor ratings for ironic criticisms, the personality of the speaker was identified as a significant factor. In other words, ironic criticisms made by serious speakers were judged to be humorous in a smaller proportion of trials than those made by humorous speakers or those with no trait information. Therefore, children's perceptions of humor were affected by the speaker's personality, but this effect was limited to ironic criticisms. When the speaker is described as being serious, it is less likely that children will comprehend the humor. The same pattern was observed in the adult participants' assessments. They came to the conclusion, in light of these findings, that children were less accurate than adults when it came to determining the intent of the speaker. Even very young children who are just beginning to comprehend verbal irony are capable of combining different cues to construct their own interpretations of ironic language and give early consideration to how irony is intended to be understood, according to the findings of this study.

Pexman and Gleenwright (2010) analyzed the development of children’s appreciation for the distinction between ironic remarks directed at targets (sarcasm) and ironic remarks not directed at specific targets. 71 five-to-six-year-olds and 71 nine-to-ten-year-olds were presented with nine puppet show scenarios. Each statement type (non-literal criticisms, literal criticisms, and literal compliments) was presented with a different topic condition (target's performance, possession, or situation). After each puppet show, participants were asked four questions including a speaker belief question, a speaker attitude question by using a Nice/Mean scale, an identification question (e.g. ‘Which of these puppets acts most like you – Dave or Mike?), and an identification justification question (‘Why? ’). The findings showed that five- to six-year-olds begin to infer speaker belief for sarcastic and ironic criticisms, but they do not distinguish them. In contrast, 9- to 10-year-olds can distinguish sarcasm from irony since they rated sarcastic speaker attitude as meaner although they

could infer speaker belief just as accurately for sarcastic as for ironic criticisms. Additionally, their perceptions of the speaker's attitude and their identification responses reflect an implicit sensitivity to the distinction between 'sarcasm' and 'irony' even though they may not know the terms. Therefore, it was found that nine-to 10-year-olds use a target's personal stake in a situation to distinguish between sarcastic and ironic remarks. Children age 9 to 10 monitor the involvement of different parties in a situation and infer how non-literal criticism will affect them. Nine- to ten-year-olds considered character feelings when rating the speaker's attitude, and their ability to empathize with target characters helped them distinguish sarcasm from irony. On the other hand, five-to six-year-olds appreciate characters' feelings but not the speaker's intent for non-literal language. The combined results of the two age groups revealed that children become aware of the distinction between sarcasm and irony between the ages of six and nine, but they are not able to distinguish the pragmatic purposes of these speech acts until later in middle childhood.

Dews et. al. (1996) investigates the verbal irony comprehension skills of five- and six-year-old children. In the study, children were read different types of ironic sentences, and their comprehension levels were measured. Additionally, the study also examined how children's irony comprehension skills are related to other environmental factors. The results of the study show that five- and six-year-old children have difficulty understanding verbal irony, particularly in distinguishing between the literal and implied meanings of ironic sentences. Moreover, the study also found that children have limited abilities in using ironic sentences for different purposes. Furthermore, the study also demonstrates that environmental factors, such as social experiences and vocabulary, can have an impact on children's irony comprehension skills. Overall, this study highlights the challenges that five- and six-year-old children face in developing verbal irony comprehension skills. It also emphasizes the importance of social experiences and vocabulary in supporting children's irony comprehension skills (Dews et. al.,1996).

Katsos and Bishop (2011) provide insights into the development of pragmatic skills of five- and six-year-old children in language. This study is designed to understand children's pragmatic abilities and provides an important database for understanding how language skills develop in children. In the study, children's pragmatic skills were measured through their reaction times. Specifically, the study measured children's tolerance levels in comprehension, which is related to how children fill in missing information in a sentence. In the study, the children were presented with a series of sentences that

contained implicatures. The sentences were either standard or non-standard in terms of their pragmatic content. The children were then asked to judge the informativeness of the sentences and to indicate whether they thought the sentences were true or false. The children's reaction times were measured using a computer keyboard. They were instructed to press the "True" key if they thought the sentence was true and the "False" key if they thought the sentence was false. The results of the study showed that individual differences in language development are associated with differences in pragmatic skills. Children's pragmatic skills, along with other environmental factors, play an important role in language development. This study is an important data source for language development and highlights the importance of pragmatic skills in the development of children's language abilities (Katsos & Bishop, 2011).

Akimoto et. al. (2013) also investigated the reaction times of children. The researchers used reaction times to measure children's ability to understand irony. The study was conducted on children aged eight and eleven. The children were presented with a series of stories with ironic statements at the end, and they were asked if they understood the statements and what they meant. Their reaction times were also recorded as they responded. The study involved presenting the children with a series of stories containing ironic statements. The children were then asked to read the statements and indicate whether they understood the meaning of the statement and what they thought about it. They were also asked to rate their emotional response to the statement.The children's reaction times were measured using a computer keyboard. They were instructed to press a key as soon as they understood the ironic statement. The researchers recorded the time it took for the children to respond, which provided an indication of their understanding of the ironic statement. The results of the study showed that there was a relationship between children's ability to understand irony and their social conceptual knowledge levels. Additionally, the study demonstrated that children's emotional responses also played a role in their ability to understand irony. The reaction times of the children were found to be important in determining these results (Akimoto et. al., 2013).

2.3. THEORY OF MIND AND VERBAL IRONY

Theory of Mind (ToM) is the capacity to predict and comprehend one's own and others' behavior based on mental states such as desires and beliefs (Perner & Wimmer, 1985; Wimmer & Perner, 1983). ToM has been used interchangeably with terms such as "perspective-taking," "social

cognition," "metacognition," and "folk psychology" (Astington and Baird 2005; Flavell et al. 2002). Additionally, it has been described in general terms as ‘‘a conceptual system that underlies our folk psychology with which we impute mental states to others and ourselves’’ (Perner and Lang 2000, p. 150) and ‘‘an intentional stance that characterizes human social interaction’’ (Astington 2003, p. 14).

The concept of the Theory of Mind is often used to describe the ability of children and adults to understand the mental states of others. Individuals rely on various cues, such as facial expressions, gestures, tone of voice, or body language, to understand what others are thinking, feeling, or wanting. Theory of Mind is a term used to describe the process by which individuals interpret these cues and develop an understanding of others' mental states (Wellman, 1990). Many researchers argue that the Theory of Mind is an essential skill for individuals to succeed in social interaction, forming the basis of various social skills, including empathy, understanding others' intentions, communication, and conflict resolution. Theory of Mind is generally considered a significant milestone in children's cognitive development. It is thought that children typically develop this skill around 4-5 years old, although this process may be longer or shorter. However, some studies have shown that children with autism spectrum disorders may have less developed Theory of Mind skills. Research on the Theory of Mind has generated many different theories about how this skill is developed. For example, one theory argues that children have a natural inclination to learn how to understand others’ mental states. Another theory suggests that this skill needs to be learned, and children's experiences in social interactions play an essential role in this learning process. Research on the Theory of Mind has shown that learning this skill depends on many different factors. For example, children's social environments, their parents’ level of education, language skills, and cultural differences are among the factors that play a role in the development of Theory of Mind skills.

Irony is a sophisticated pragmatic process that involves social-cognitive skills as the theory of mind (Angeleri & Airenti, 2014; Kreuz & Caucci, 2007; Pexman, 2008; Zajczkowska & Abbot-Smith, 2020). Theory of mind ability is crucial to recognize irony since it refers to psychological abilities theoretically associated with irony comprehension and it is a fundamental component of pragmatic competence. In fact, irony comprehension has been described as an advanced form of the theory of mind reasoning (Filippova & Astington, 2008). In order to understand ironic remarks, it is generally accepted that the listener must infer the speaker's intentions and beliefs about what he or she is saying (Colston & Gibbs, 2002; Sperber & Wilson, 1995; Winner & Leekam, 1991). According to Perner

and Wimmer (1985), there are two levels of belief attribution that play an important role in children's understanding of social interactions and emerge at different stages of development. The first level consists of first-order beliefs, which refer to what children think about actual events and the representation of another person's thoughts about the real world. The first-order beliefs appear in typically developing children around the fourth year of age. The second level is second-order beliefs which appear a few years after children develop first-order Theory of Mind skills and involve what children think about other people's thoughts. There is evidence that verbal irony comprehension is related to second-order mental state inferencing ability in terms of cognitive processes that underlie the developmental progression (Happé, 1993; Sullivan et al., 1995; Winner, Brownell, Happé, Blum, & Pincus, 1998). Winner and Leekam (see also Sullivan, Winner, and Hopfield, 1995) suggested that the listener must be aware of both the speaker's actual beliefs and the beliefs the speaker wants the listener to have. These inferences concern both second-order beliefs and intentions as well as first-order beliefs. For the listener to understand verbal irony, the speaker's actual beliefs and the listener's intended perceptions about the utterance must be reconciled with the listener's representation of the utterance itself. The detection of a nonliteral utterance may be a first-order stage of the underlying reasoning process, distinct from and necessary for second-order inferences regarding the speaker's pragmatic intent. Second-order inferences are important because they assess the speaker's belief regarding an attributed concept or utterance. Several studies (Creusere, 1999; Happé, 1993, 1995; Sullivan et al., 1995; Winner, Brownell, Happé, Blum, & Pincus, 1998; Winner & Leekam, 1991) suggest that a second-order theory of mind ability is associated with children's and adults' comprehension of irony and sarcasm. Additionally, numerous studies have found that children who are able to demonstrate the second-order theory of mind reasoning also tend to perform well on irony comprehension tasks (e.g., understanding what speakers mean by ironic statements like "You sure are a great scorer! "), indicating that second-order theory of mind is crucial to irony appreciation (Filippova & Astington, 2008; Hayashi & Ban, 2020; Massaro, Valle, & Marchetti, 2013).

The addressee must recognize the speaker's true beliefs and their shared beliefs regarding the utterance (see also Isaacs&Clark, 1990). Children’s understanding of speaker’s beliefs precedes their appreciation of the speaker intentions (Ackerman, 1983; Glenwright & Pexman, 2010; Hancock et al., 2000; Pexman & Glenwright, 2007; Sullivan, Winner, & Hopfield, 1995), which is consistent with the developmental pattern that first-order mental state reasoning develops more quickly than second-order reasoning (Perner & Wimmer, 1985).

The child's increasing ability to interpret irony has been attributed to alterations in the child's theory of mind (Sullivan et al., 1995; Winner & Leekam, 1991; Happe, 1993; Winner & Leekam, 1991; Happe, 1993). Their language skills and theory of mind abilities are typically intertwined (Ebert, 2020; Milligan, Astington, & Dack, 2007), making it difficult to disentangle their respective effects. Therefore, children's language skills and theory of mind abilities may have a bidirectional relationship. For example, children's language skills enable them to participate in social situations and conversations about the mental states of others. Similarly, children's theory of mind skills may facilitate the acquisition of more complex language (Malle, 2002). Evidence from various sources indicates that children's capacity for first- and second-order belief attributions may be a constraint on their understanding of irony.

According to Astington (1994), in order to be considered to have the ability of a child's theory of mind, he must have various mental representations. These are, in order: First, it is expected to have the ability to distinguish between appearance and reality. The child needs to be able to distinguish between the appearance of things and their state of affairs which are independent of experience. Children need to mentally represent something a certain way in order for it to look a certain way. Thus, it should reflect the first-order representation of children. The second is the ability to recognize representative differences. There are two facies to this skill: Not only should children be aware that other people's mental representations are different from their own, but children should also have the ability to recognize that others will express the same object, situation, and event differently. Another front is to recognize representational difference not only to recognize that others will express things differently but also to recognize that others' representations of reality are sometimes better and more adequate than our own. The third is the ability to recognize the change of representation. As children acquire new knowledge, they represent things in their minds in different ways. Children constantly update their representation of the world through every conviction they acquire. However, just because they acquire this skill does not mean that they change their representation. Children have to represent in their minds the representations they have learned before and realize that the new representations are different from the old ones. The fourth is the ability to separate representative activity from representative presence. In this skill, children realize that convictions and desires are not just things that are formed in the mind, but that the representations produced by the mind are related to the world through various paths. In relation to this, it can be said that; children's minds actively move, give meaning to events and situations, analyze them, and then review and edit these interpretations.

Research on theory of mind (ToM) examines children's ability to explain the behavior of others by reasoning about their mental states. Researchers have focused on the acquisition of mental-state concepts such as desire, belief, and intention by preschoolers over the past two decades. When children can recognize that the beliefs and intentions of others may differ from their own, it is said that they have a theory of mind. Because it requires listeners to represent the speaker's beliefs and intentions, irony comprehension is a social–cognitive ability that depends on advanced ToM abilities (Nilsen et. al., 2011) Research examining the development of this skill provides insight into social–communicative deficits associated with clinical populations who show impairment in advanced ToM skills, such as autism spectrum disorder (Kaland, Callesen, Moller-Nielsen, Mortensen, & Smith, 2008). It has been demonstrated that understanding irony necessitates a greater level of Theory of Mind capacity (Creusere, 2000; Dews et al., 1996; Happé, 1993; Harris & Pexman, 2003; McDonald, 2000) due to the fact that individuals with poor Theory of Mind ability have a difficult time comprehending irony. Recent brain imaging studies have revealed that the regions in the brain associated with the Theory of Mind also mediate our understanding of irony (Shibata, Toyomura, Itoh, & Abe, 2010; Uchiyama et al., 2006; Wakusawa et al., 2007). Some research suggested that children develop the ability to attribute first-order mental states between the ages of four and five, but are unable to attribute second-order belief states until the ages of six to eight (Perner & Wimmer, 1985; Sullivan, Winner & Hopfield, 1995; Winner & Leekam, 1991).

Perner (1991) provides a comprehensive examination of the representational theory of mind, which includes the concept of first-order belief. Perner argues that a first-order belief is a basic understanding of the world that an individual form through perceptual experiences and is used to make predictions and guide behavior. According to Perner, first-order beliefs are essential for cognitive development, as they provide the foundation for higher-level cognitive processes such as reasoning, problem-solving, and decision-making. Perner's work emphasizes the importance of understanding the role of first-order beliefs in the development of the Theory of Mind. He argues that the ability to form first-order beliefs is necessary for individuals to develop an understanding of others' mental states, as well as their own mental states. Without a basic understanding of how the world works, individuals are unable to make accurate predictions about others' behavior or reason about the mental states of others. Perner's work has been influential in shaping the study of the Theory of Mind, particularly in the area of cognitive development. Researchers have used Perner's theory to investigate the development of first-order beliefs in children and the impact of these beliefs on the

development of higher-level cognitive processes. The concept of first-order belief has also been used to explore the development of social cognition and empathy, as individuals use their understanding of the world to empathize with others and form social bonds. Overall, Perner's work highlights the importance of first-order beliefs in cognitive development and their role in the development of the Theory of Mind. His research has contributed to our understanding of how individuals form a representation of the world and how this representation impacts their ability to understand the mental states of others (Perner, 1991).

First-order belief is a component of the Theory of Mind (ToM) that refers to an individual's ability to understand the beliefs, desires, and intentions of others. Specifically, first-order belief involves recognizing that individuals have beliefs about the world that may differ from one's own beliefs. It is the ability to understand that others may hold different beliefs, desires, or intentions based on their experiences or information they possess. This component is important in social interactions as it allows individuals to predict and understand the behaviors of others based on their beliefs, desires, and intentions. First-order belief is typically developed in early childhood, around the age of 3-4 years old (Baron-Cohen, Leslie, & Frith, 1985). Children's understanding of first-order beliefs is often tested using tasks such as the false belief task, which involves understanding that another person may hold a false belief about a situation. In this task, a child is presented with a scenario in which one character has information that another character does not have, leading to a false belief about the situation (Flavell, Green, Flavell, & Korfmacher, 1999). The child is then asked to predict how the character with the false belief will behave. First-order belief is a foundational component of ToM, and its development is linked to the development of other social and cognitive skills. The ability to understand first-order beliefs is a critical aspect of successful social interactions, and deficits in this ability have been linked to various disorders, including autism spectrum disorder.

Second-order belief, also known as higher-order belief, is a concept within the theory of mind framework that refers to an individual's ability to understand that another person holds a belief about a third person's mental state. In other words, it involves understanding that one person can have beliefs about another person's beliefs. For example, imagine that Mary believes that John thinks it will rain tomorrow. Mary has a second-order belief because she understands that John holds a belief (that it will rain tomorrow) about someone else's mental state (Mary's belief that he thinks it will rain). Second-order belief is a more complex level of theory of mind than first-order belief, which involves

understanding that someone has a belief about a state of affairs in the World (Wellman, 2014). Second-order belief involves not only understanding that someone has a belief, but also understanding that the belief is about another person's belief. Research has shown that the development of second-order belief is a gradual process, with children typically developing this ability around the age of 5 or 6. However, some individuals, such as those with autism spectrum disorders, may struggle with developing second-order belief understanding (Hughes, 2011).

Wellman, Cross, and Watson's (2001) meta-analysis of theory-of-mind (ToM) development aimed to provide a comprehensive summary of the research on children's understanding of false belief, a key aspect of second-order ToM. False belief refers to the ability to understand that someone can hold a belief that is false, even when the individual knows the true state of affairs. The study reviewed 178 studies from around the world that investigated false belief understanding in children aged two to sixteen years. The authors used a meta-analytic approach to analyze the data and investigate age-related changes in false belief understanding. The results revealed a developmental trend, with false belief understanding emerging in most children by age four and reaching a plateau by age six or seven. The study also found that there were no significant differences in false belief understanding between boys and girls, or between children from different cultural backgrounds. Wellman et al. (2001) concluded that the development of false belief understanding is a universal aspect of ToM development that follows a predictable trajectory across different cultures and genders. The findings of this meta-analysis have important implications for our understanding of how ToM develops and how children understand and interact with others (Wellman, Cross, & Watson, 2001).

The Speaker's Attitude Question (SAQ) is a measure of Theory of Mind that assesses an individual's ability to understand the attitudes and beliefs of a speaker based on their linguistic cues. It involves the ability to make inferences about the speaker's beliefs and attitudes, including their emotions, intentions, and desires, based on their choice of words, tone of voice, and other verbal and nonverbal cues (Astington & Baird, 2005). SAQ is often used in research studies to investigate how individuals with different developmental or neurological conditions, such as autism spectrum disorder, schizophrenia, or traumatic brain injury, process and understand social communication. SAQ typically involves presenting participants with a short vignette or story that describes a speaker's attitude about a certain situation or event. Research studies have shown that individuals with impaired Theory of Mind abilities, such as those with autism spectrum disorder, tend to perform worse on SAQ

tasks compared to typically developing individuals. However, SAQ is not a diagnostic tool for Theory of Mind deficits, and additional measures, such as the False Belief Task, may be needed to confirm a diagnosis (Wellman, Cross, & Watson, 2001).

Speaker's Meaning Question is a type of question used in Theory of Mind research to investigate children's ability to infer the intended meaning behind a speaker's utterance. It involves asking a child to interpret what a speaker means by what they say, rather than just the literal meaning of their words. For example, if a speaker says "I'm thirsty" while pointing at a glass of water, the Speaker's Meaning Question would ask the child to explain what the speaker really means, which is that they want a drink of water (Miller & Kamhi, 1998). Research on Speaker's Meaning Question has shown that children's ability to understand the indirect meaning in communication develops gradually over time. Young children may struggle with interpreting the intended meaning behind a speaker's words and may focus more on the literal meaning of what is said. As children get older, they become more skilled at taking into account context and social cues to infer the intended meaning of what is said. Studies have also shown that there are individual differences in children's ability to understand indirect meaning in communication, and that this ability is related to other aspects of Theory of Mind, such as false belief understanding and understanding of sarcasm and irony (Astington & Baird, 2005).

Speaker's Intent Question (SIQ) is a type of theory of mind (ToM) task that assesses the ability to infer the intentions behind a speaker's utterance. In a SIQ task, a participant is presented with a scenario in which a speaker says something, and the participant is asked to identify the speaker's intention in making the statement. The task typically involves a set of multiple-choice options representing different possible intentions, and the participant must select the option that they believe best reflects the speaker's intention. Research on SIQ tasks has shown that they are a reliable and valid measure of ToM ability, particularly in children. Studies have found that performance on SIQ tasks is related to language development, cognitive ability, and social competence. In addition, deficits in SIQ performance have been observed in individuals with autism spectrum disorder (ASD) and other developmental disorders. One influential theory of ToM development, proposed by Wellman and colleagues (2001), suggests that children's ToM abilities develop in a series of stages. According to this theory, children begin with a "desire psychology" stage in which they understand that people have desires that guide their behavior. They then progress to a "belief-desire psychology" stage in which they understand that people can hold false beliefs about the world. Finally, they reach

a "second-order belief-desire psychology" stage in which they understand that people can have beliefs about other people's beliefs. SIQ tasks have been used to test this theory, with results generally supporting the idea of a progression of ToM abilities. For example, one study found that children's performance on an SIQ task correlated with their performance on other ToM tasks, and that the relationship was stronger for older children (Bartsch & Wellman, 1989). Another study found that children's ability to correctly answer SIQ questions improved with age, consistent with the idea of a developmental progression (Astington & Baird, 2005). In conclusion, Speaker's Intent Question (SIQ) is a ToM task that measures the ability to infer the intentions behind a speaker's utterance. Research on SIQ tasks has shown that they are a reliable and valid measure of ToM ability, particularly in children. Studies have also supported the idea of a developmental progression in ToM abilities, with SIQ tasks playing a role in testing this theory.

Speaker's Belief Question (SBQ) is a subcomponent that has been studied within the Theory of Mind framework. SBQ is a cognitive process used to understand a speaker's belief or mental state. In this process, the listener relies on various cues to understand why the speaker used a certain expression and what they intended to convey. SBQ is an important skill to understand other people's intentions and is necessary to be successful in social interactions. Studies on SBQ within the Theory of Mind framework have shown that this skill is important in understanding and predicting other people's behavior.

2.3.1. Previous Studies on the Relationship between Irony and Theory of Mind

Irony is a complex form of communication that involves conveying meaning through the use of language that is opposite to or different from the intended meaning. Theory of mind is the ability to understand and attribute mental states to oneself and others, including beliefs, desires, and intentions. There is growing evidence that the ability to use and understand irony is closely linked to the theory of mind development. Several studies have investigated the relationship between irony and the theory of mind. For example, Filippova et al. (2019) conducted a study in which they measured children's ability to understand irony and their theory of mind skills. They found that children who had better theory of mind skills were more likely to understand irony, suggesting a link between the two abilities. Another study by Rundblad and Annaz (2010) examined the relationship between the ability to understand sarcasm (a form of verbal irony) and theory of mind in children with autism spectrum

disorder (ASD). The researchers found that children with ASD who had better theory of mind skills were also better at understanding sarcasm, indicating a link between these two abilities. In addition, some studies have investigated the neural basis of the relationship between irony and theory of mind. For example, Spotorno et al. (2018) used fMRI to measure brain activity in participants while they were processing ironic language. They found that brain regions associated with the theory of mind, such as the medial prefrontal cortex, were more active during the processing of ironic language compared to literal language. Overall, these studies suggest that there is a strong relationship between irony and theory of mind. The ability to use and understand irony requires an understanding of the speaker's intended meaning, which in turn requires the ability to attribute mental states to others. Improving theory of mind skills may therefore also improve the ability to use and understand irony.

Filippova & Astington (2008) aimed to investigate the relation between children's comprehension of discourse irony, language skills, and advanced ToM ability by using a battery of theory of mind tasks and elaborate stories. The participants in this study were five-, seven- and nine-year-olds and adults. However, using elaborate stories is a disadvantage because the participant must remember a great deal of information, such as names, situations, and actions to answer the questions, and remembering all of this requires a great deal of mental effort. So, it is unclear whether the demands of the task made it more difficult for children to recognize the mental state of others. On the other hand, there is an advantage in this study. Even though most irony-related experiments only include closed-ended questions, Filippova and Astington's experiment contains an open-ended question. They utilized a scoring system that assigned points based on the ToM level of the response. On a four-point scale, responses were coded, with higher scores indicating greater cognitive complexity. A score of 0 was given for irrelevant responses; a score of 1 was given for responses that reflect a simple surface-level justification; a score of 2 was given for responses that identify the speaker's first-order intention; a score of 3 was given for responses that identify the speaker's second-order intention; and a score of 4 was given for responses that identify an attitude. Responses mentioning the speaker's attitude received a full 4-point score, despite the absence of any indication that the speaker was ironic. The study's findings showed that although seven and nine-year-old children do not comprehend irony as well as adults do, they do better than five-year-old children. This research demonstrates a developmental pattern in the capacity to interpret ironic discourse. To comprehend a speaker's intention, a listener must comprehend the speaker's belief, which is the difference between the intended and expressed meaning of a statement. Moreover, these three aspects are required to comprehend the speaker's

attitude. In addition, they discovered a strong positive correlation between irony and ToM, since not only age and memory but also ToM and language ability influence children's comprehension of irony.

Filippova and Astington's findings were supported by the findings of Hancock et al. (2000). In contrast to Filippova and Astington (2008), Hancock et al. used brief videotaped narratives that ended with ironic criticisms, literal criticisms, ironic compliments, and literal compliments. Due to the fact that the participant must remember fewer facts, using brief video clips in the experiment requires less cognitive effort than an experiment with a long story. The first question was a first-order belief question (e.g. 'Did B really think that A was a good basketball player?'). The second question inquired whether or not the speaker was being mean or nice and participants were asked to respond by pointing to one of the two pictures: one of a happy, nice face and the other of a mean, angry face. Hancock et al. refer to this speaker's intent, which requires ToM reasoning of the second order. The last question was to test their understanding of the story context (e.g., 'Do you think that A was a good basketball player?'). Nonetheless, in this experiment, the ironic sentences contain the word 'really,' whereas the literal sentences do not. This may cause confusion in their experiment.

Hancock et. al.'s results show that participants found it simpler to detect the speaker's belief (38%) than to determine the speaker's intent (28%). This is consistent with the research by Filippova & Astington (2008), which showed that while young children can understand the non-literal meaning of an ironic statement, they are not yet able to identify irony. They suggested, based on the claims of Winner and Leekam (1991), that the speaker belief question indexes first-order reasoning about belief states, and the speaker intent (inference) question identify reasoning of the second order regarding the belief states of others. As a result, Hancock et al. came to the same conclusion Ackerman (1983) had: the interpretation of the speaker's pragmatic intent can be separated from the detection of nonliteral utterances. Therefore, the distinction between belief and intent judgments is obvious because they are based on various underlying processes.

Pexman & Glenwright (2007) investigated how six- to ten-year-old children develop the ability to understand verbal irony by using short prerecorded narratives puppet shows with four different endings: literal compliment, ironic compliment, ironic criticism, and literal criticism. To assess irony comprehension, participants were asked three questions, including a first-order belief question (as speaker belief question from Filippova & Astington (2008), and the first question from Hancock et

al. (2000), with two response options, a second-order attitude question (similar to the second question posed by Hancock et al.) with a 5-point scale asking the participant to indicate how nice or mean the speaker was, and the final question, asked with a 3-point scale, was a second-order question about how teasing the speaker was. The findings revealed that for the ironic criticism items, the speaker belief question received considerably more perfect accuracy responses than the speaker teasing question. Compared to the question about the speaker's attitude, a large number of participants had perfect accuracy for the ironic compliment items. Thus, they conclude that the developmental progression of ironic criticisms and ironic compliments differ. For ironic criticism, first, the speaker's beliefs will be comprehended. The understanding of the speaker's intent (teasing question) is followed by the speaker's attitude. Regarding ironic compliments, understanding the speaker's belief and intent (teasing question) emerge simultaneously, followed by understanding the speaker's attitude. Also, only about half of children between the ages of six and ten have perfect accuracy on irony comprehension questions. This demonstrates that although nine- and ten-year-olds can reason in second-order Theory of Mind, they do not have an adult-like understanding of irony.

Banasik (2013) tried to investigate the link between irony comprehension and Theory of Mind (ToM) by using both Reflection on Thinking Test (Białecka-Pikul, 2012), which is an original task consisting of nine different tasks to test the development of ToM and Irony Comprehension Task (Banasik & Bokus, 2013). The subjects were forty Polish-speaking children of three age groups (four-year-olds, five-year-olds, and six-year-olds). Twelve stories, six of which were ironic and six of which were literal, were recorded and then played to the children alongside illustrations. As a follow-up, a series of questions were posed to determine whether the message (ironic vs. literal) had been correctly comprehended. In addition, a pictorial Likert scale (emojis) was used to assess how humorous the narrative was and how pleasant the speaker was. Although there was no significant difference in Irony Comprehension Task, in Reflection on Thinking Test a significant difference was found in qualitative analysis for four-year-olds and five-year-olds, and in quantitative analysis, the results showed that the largest difference in means is between four-year-olds who did the lowest scores and six-year-olds which did the highest scores. The findings reveal that six-year-olds perform better than five-year-olds and five-year-olds perform better than four-year-olds. It is surprising that even four-year-old children could understand the intended meaning of an ironic comment. However, all age groups failed at explaining the reasons for the questions providing an explanation for the intentional use of irony since it is the most challenging task for them. The results indicate being able to speak better about mental

states is related to being better at understanding the implied meaning of an ironic utterance. Therefore, on some of the measures, a correlation between irony comprehension and Theory of Mind was found.

Banasik-Jemielniak et al. (2020) aimed to find relationships between parental irony usage and children's irony comprehension levels, as well as between parental irony attitudes and children's social skills such as Theory of Mind. The study included forty-six families from Warsaw, Poland, all with monolingual Polish-speaking students attending in grade two of elementary school. There were tasks completed by the children and questionnaires filled out by the parents that served as research tools. The Social Ambiguous Stories Task was utilized to gather information regarding children's social skills and higher-order Theory of Mind. Each of the two short stories in this collection featured three characters in a social situation that was creating problems. These were read aloud to children while simultaneously displaying images on a computer screen. The ability of children to comprehend mental states was measured with the help of this task. The following task was the Irony Comprehension Task. Three stories were recited in which a character made an ironic remark to a child. Simultaneously with the appearance of images on a computer monitor, virtual stimuli were provided. Following each story, the child responded to a series of questions regarding the ironic utterance, such as "Why do you think X said Y?" and "When X said Y, did they mean Y or Z?" (Banasik-Jemielniak et al. 2020: 4). Also, an Attitude Toward Irony (ATI) questionnaire was given to parents, and in it, instances of parents making ironic remarks to their children were described. Participants were required to select a response based on their likelihood of employing the given expression in the given situation. Using these techniques, the researchers aimed to establish relationships between parental irony usage and children's irony comprehension levels, as well as between parental irony attitudes and their children's social skills, such as ToM. The evaluation revealed that there are significant differences between the involved families. Contrary to the findings of Banasik's (2013) study, in which children with better mentalizing abilities obtained higher scores on the irony comprehension test, their findings reveal no differences in ToM between children who correctly understood irony and those who did not. On the other hand, it was discovered that children who were adept at understanding irony had parents with a more favorable attitude toward irony use and that these parents tended to make more ironic comments to their children.

In their study, Hale and Tager-Flusberg (2005) aimed to investigate the relationship between language and theory of mind, particularly in relation to the Speaker's Attitude Question. The study included

two groups of children: one group received training in linguistic markers of attitude, while the other group received training in non-attitude linguistic markers. The children were then assessed on their understanding of the Speaker's Attitude Question. The results showed that the children who received training in linguistic markers of attitude showed greater improvement in their understanding of the Speaker's Attitude Question compared to the other group. This suggests that language plays an important role in the development of the theory of mind, specifically in relation to understanding others' attitudes and beliefs. The study also highlights the potential of language training interventions to enhance children's theory of mind abilities. By targeting specific linguistic markers, such as attitude markers, educators and parents can help children develop a more nuanced understanding of others' mental states, which can have important implications for social interaction and communication. Overall, the study provides further evidence for the important role of language in the development of the theory of mind, particularly in relation to understanding others' attitudes and beliefs. It also underscores the potential for language training interventions to improve children's theory of mind abilities and suggests that such interventions may be particularly effective when targeting specific linguistic markers (Hale & Tager-Flusberg, 2005).

Apperly and Butterfill (2009) aimed to investigate whether humans have two distinct cognitive systems for tracking beliefs and belief-like states. They argue that while some researchers have proposed that belief tracking relies on a single domain-general mechanism, others suggest that there are two systems involved: a core system that can track beliefs and a more flexible system that can track belief-like states. To test this idea, the researchers conducted a series of experiments with human participants. In one experiment, they used a task called the "Sally-Anne" task, which is a classic test of theory of mind. In this task, participants are shown a story about two characters, Sally and Anne. Sally has a basket and Anne has a box. Sally puts a marble in her basket and then leaves the room. While Sally is gone, Anne takes the marble out of the basket and puts it in her box. When Sally returns, participants are asked where she will look for the marble. In this experiment, Apperly and Butterfill manipulated the types of justifications that participants received for Sally's behavior. In one condition, participants were told that Sally put the marble in the basket because that was where she wanted to keep it. In another condition, they were told that Sally put the marble in the basket because she thought it was the best place to hide it from Anne. Participants were then asked the classic Sally-Anne question about where Sally will look for the marble. The results of the experiment showed that participants were better at answering the question when they received a justification that emphasized

Sally's belief about the location of the marble (i.e., the hiding condition) than when they received a justification that emphasized Sally's desire to keep the marble in the basket. This suggests that participants were able to use the belief-like state of "thinking something is in a particular location" to answer the question and that this ability was influenced by the type of justification they received. Overall, the findings of this study support the idea that humans have two distinct cognitive systems for tracking beliefs and belief-like states. The authors suggest that the core system is responsible for tracking beliefs that involve mental representations of reality, while the flexible system is responsible for tracking belief-like states that involve mental representations of possibilities or counterfactuals (Apperly & Butterfill, 2009).

In their study, Keysar et al. investigated how people take each other's perspectives in conversations by manipulating the level of mutual knowledge between the speaker and listener. The Speaker's Meaning Question is relevant in this context because it refers to the listener's ability to infer the intended meaning behind the speaker's utterance, taking into account the context of the conversation and any shared knowledge between the two parties. Keysar et al. found that listeners were less likely to take the speaker's perspective into account when they assumed that they had the same knowledge as the speaker, compared to when they assumed that they had different knowledge. This suggests that mutual knowledge plays a crucial role in perspective-taking during conversations and that listeners need to be able to distinguish between what the speaker knows and what they themselves know in order to infer the intended meaning behind the speaker's utterance. Overall, the study by Keysar et al. highlights the importance of the Speaker's Meaning Question in understanding how people engage in effective communication by inferring each other's intended meanings (Keysar, Barr, Balin, & Brauner, 2000).

Schwenkmezger and Sarrazin (2007) conducted a study to measure participants' ability to understand the purpose of a conversation using different grammatical structures. The researchers found that participants were more likely to accurately predict a speaker's intention by using specific sentence structures. Another study by Carlson and Moses (2001) focused on the development of the understanding of the speaker’s intent. The researchers administered a series of tests to measure the comprehension of the speaker’s intent of children between the ages of four and six. The results showed that children's these skills varied depending on their age and developmental level. Specifically, older children and those with higher developmental levels were more likely to use

sophisticated strategies to understand a speaker's intention. In another study, Siegal and Beattie (1991) examined the effect of speaker's intent understanding on language development. The researchers found that this understanding played an important role in children's language development. In particular, the comprehension of the speaker's intent had a significant impact on understanding language structure, predicting word meanings, and understanding the functionality of language. All of these studies show that Speaker's Intent Question (SIQ) is an important subcomponent in Theory of Mind research. This skill is a crucial tool for understanding other people's intentions and being successful in social interactions. Additionally, the development of SIQ skills can vary based on age, developmental level, and language development. Therefore, it is important to develop SIQ skills and teach them early on for more successful social interactions.

In a study conducted by Heider and Simmel (1944), participants watched a short animation of geometric shapes moving around on a screen. Despite the lack of any explicit story or dialogue, participants reported perceiving the shapes as characters with emotions, motivations, and intentions. This study demonstrates that people automatically and unconsciously infer the mental states of others, even when those mental states are not explicitly communicated. Another study by Apperly and Butterfill (2009) investigated the neural mechanisms involved in SBQ. The researchers used functional magnetic resonance imaging (fMRI) to examine brain activity while participants watched short videos of people speaking. The results showed that the brain regions involved in processing information about other people's beliefs overlapped with regions involved in language processing, suggesting that language and social cognition are closely linked. SBQ has also been studied in the context of children's development. For example, Wellman and Liu (2004) investigated the development of SBQ in young children. They found that children as young as three years old are able to infer the beliefs of others, but this ability improves with age and experience. Additionally, children who have more social interactions with peers and adults tend to have better SBQ skills. Overall, these studies suggest that SBQ is an important component of Theory of Mind and plays a crucial role in social interactions. The ability to understand and predict the beliefs and intentions of others is essential for successful communication, cooperation, and socialization. Furthermore, the development of SBQ skills is a critical aspect of children's social and cognitive development. In conclusion, Speaker's Belief Question (SBQ) is a subcomponent within the Theory of Mind framework that is essential for understanding and predicting other people's mental states. SBQ has been studied in various contexts, including in the context of neural mechanisms, children's

development, and social interactions. The results of these studies demonstrate the importance of SBQ skills for successful social interactions and highlight the need for further research to better understand the underlying cognitive and neural mechanisms involved.

Sabbagh and Taylor's (2000) study aimed to investigate the neural correlates of theory-of-mind reasoning using event-related potentials (ERPs). The study involved sixteen adults who were presented with a series of visual stimuli that depicted social interactions between two cartoon characters. The participants were asked to make judgments about the characters' mental states based on the stimuli, which included false belief, true belief, and control conditions. The researchers found that false belief reasoning elicited larger negativity in the ERP waveform than true belief and control conditions. This negativity was observed in the frontocentral regions of the brain, which are thought to be involved in mental state reasoning. Additionally, the false belief condition elicited a larger P300 amplitude than the true belief and control conditions. The P300 is a positive deflection in the ERP waveform that is associated with cognitive processing and attention. The results of this study suggest that false belief reasoning is associated with specific neural processes that are distinct from those involved in true belief and control conditions. The study provides further evidence for the role of the prefrontal cortex in theory-of-mind reasoning and sheds light on the neural mechanisms underlying mental state attribution. Overall, Sabbagh and Taylor's (2000) study provides important insights into the neural correlates of theory-of-mind reasoning and highlights the usefulness of ERPs in investigating cognitive processes. However, the study's small sample size and the use of cartoon stimuli raise questions about the generalizability of the findings to real-world situations (Sabbagh & Taylor, 2000).

2.4. THEORETICAL BACKGROUND

This section presents theoretical background about two important models in irony processing.

2.4.1. Standard Pragmatic Model

The majority of research on irony comprehension has examined whether the literal interpretation of an ironic utterance must be initiated and completed before the ironic one. The standard model states that there are always two meanings in irony, first, what the speaker says and second, what is meant.

Thus, irony contains an implied meaning, which is naturally hidden. The standard pragmatic theory holds that understanding irony occurs in stages (Cutler, 1976; Dews & Winner, 1999; Giora et al., 2007). According to this model, context is not taken into account until much later in the processing, after a decision regarding the literal meaning has been made. As stated by the classic standard pragmatic model, an ironic utterance is always misunderstood for the first hearing as the literal meaning is processed first and context comes into play following lexical processes, thus allowing for contextually incompatible meanings to be involved at the initial access phase. After the initial literal stage, the hearer figures out the ironic meaning only during the second stage. Therefore, listeners or readers must first analyze the literal meanings of utterances before employing pragmatic information to infer what speakers intend to say. For instance, in the context of literal bias, Great job! would be initially interpreted literally by the recipient. Given contextual compatibility, no additional processes would be initiated. Likewise, in the context of ironic bias, Great job! would be interpreted literally first. In this case, however, context mismatch would necessitate additional processing. Great job! would be reinterpreted and contextually adjusted. In accordance with the standard pragmatic model, the initial phase of processing for both literal and nonliteral language consists of literal interpretation. In contrast to literal language, however, nonliteral language calls for additional (and more complex) inferential processes because of contextual misfit. Therefore, from a processing perspective, non-literal language should incur a higher processing cost than the same utterance when intended literally (Filik&Moxey, 2010).

Grice (1967,1989) adopts a two-stage model of irony which claims that an ironic utterance contains two distinct meanings and the literal meaning of a statement is rejected as soon as its ironic content is understood. Grice's theory of Conversational Implicature is the traditional view of how listeners interpret speakers' messages that differ from what speakers actually say (Grice, 1989). According to this view, the inferences required to understand a statement are derived from certain general principles or maxims of conversation that talk-exchange participants are expected to follow (Grice, 1975, 1989). Among these are the expectations that speakers will be informative, truthful, relevant, and clear. When an utterance appears to violate any of these maxims, listeners are expected to derive an appropriate conversational implicature about what the speaker intended to communicate given the assumption that he or she is attempting to be cooperative. However, it is not necessary to determine how a speaker's intended meaning differs from his or her literal statement in order to comprehend literal utterances. Therefore, according to the standard pragmatic view, indirect and figurative

language should always be more difficult to comprehend than roughly equivalent literal speech. In a broader sense, this traditional view assumes that understanding what speakers literally say requires access to semantic information, whereas understanding what speakers imply in context requires access to pragmatic information, which is more difficult to acquire than semantic knowledge.

Horn (1984) proposes a new taxonomy for pragmatic inferences that are made during communication. Horn's work is relevant to the development of the Standard Pragmatic Model as he provides a detailed analysis of the mechanisms underlying pragmatic interpretation. Horn argues that pragmatic inferences can be divided into two categories: Q-based implicatures and R-based implicatures. Q-based implicatures arise when a speaker provides incomplete or indirect information, requiring the listener to make an inference to fill in the gaps. R-based implicatures, on the other hand, involve the recognition of alternative meanings or implications that are conveyed indirectly through the choice of language or other contextual factors. The distinction between Q-based and R-based implicatures is significant for the Standard Pragmatic Model, as it highlights the different cognitive processes involved in pragmatic interpretation. The model emphasizes the role of the listener's knowledge and expectations in making inferences, and Horn's taxonomy provides a framework for understanding how these inferences are generated. Horn also discusses the idea of "conventional implicature," which refers to inferences that are generated based on shared knowledge and cultural norms. This concept is relevant to the Standard Pragmatic Model, which emphasizes the role of context and shared knowledge in the interpretation of language. Overall, Horn's article provides a useful framework for understanding the cognitive mechanisms involved in pragmatic interpretation, which is a central tenet of the Standard Pragmatic Model. By distinguishing between Q-based and R-based implicatures, and highlighting the role of shared knowledge and cultural norms, Horn's work provides a valuable contribution to the development of pragmatic theory (Horn, 1984).

Several empirical studies have investigated the processing of ironic versus non-ironic statements to test the predictions of these accounts. For instance, Giora, Fein, and Schwartz (1998). In the study, participants were asked to read statements one line at a time on a computer screen that, depending on the context, could be taken literally or ironically. The statement ‘’You are just in time.’’ has the following applications, both ironically and literally:

Anna was a great student, but she was absent-minded. One day when I was well through my lecture, she suddenly showed up in the classroom. I said to her, ‘‘You are just in time’’. (ironic statement)

Anna was a great student and very responsible. One day she called to tell me she did not know when she would enter the classroom. However, just as I was starting, she entered the classroom. I said to her ‘‘You are just in time.’’ (literal statement)

Following delays of 150 and 1000 milliseconds, reaction times to probe words associated with the literal interpretation were faster than those associated with the ironic interpretation. This difference disappeared at 2000 milliseconds, indicating that the ironic interpretation and literal interpretation became available relatively late. Giora et al. report additional evidence of delayed processing for ironic statements, with longer reading times for target sentences presented in irony-biased contexts as compared to literal-biased contexts. This indicates that processing irony-biased contexts requires more cognitive effort than literal-biased contexts. Therefore, they concluded that understanding irony requires consideration of some aspects of its literal meaning. This result is consistent with the standard pragmatic model.

2.4.2. Direct Access Model

The Direct Access Model proposed by Gibbs (1994) poses a challenge to the Standard Pragmatic Model by rejecting a strong version of the literal-first model assumed by Grice (1975) according to which the literal interpretation of the utterance as a whole is computed before the nonliteral interpretation is attempted. Therefore, Gibbs (1986) claims that comprehension of irony is a one-stage process, where pragmatic knowledge is activated directly when the receiver unravels what the ironically loaded content means. The Direct Access Model suggests that some ironic utterances are processed via direct access to the intended meaning, implying that activating the propositional meaning is unnecessary for irony comprehension in these cases because contextual information interacts with the lexicon in the early stage of comprehension (see e.g. Gibbs, 1986). Indeed, Gibbs’ (1994) direct access model rejects only the ‘literal first’ postulate of the standard pragmatic model and does not count as problematic evidence regarding the processing of incompatible nonliteral meanings in literally biasing contexts. However, a consistent view of the strength of context as primarily affecting comprehension should have identical predictions regardless of contextual bias.

The literal context should only lead to literal interpretations that make sense in the literal context, and the nonliteral context should only lead to nonliteral interpretations that make sense in the nonliteral context. Contextual information is significant as it affects the utterance's initial processing, enabling the direct activation of meanings that are appropriate for the context. Additionally, it shows the speaker's view of the situation.The fundamental premise of this model is that if the context supports an ironic interpretation of the statement, the initial processing of both literal and figurative language involves the same underlying mechanisms. Rarely is the social context that exists at any given moment (i.e., the speaker's and listener's common ground) restrictive enough for listeners to know with certainty what speakers intend to say and say before they say it. This means that ‘‘understanding irony does not necessarily require special cognitive processes beyond those used to comprehend literal speech” (Gibbs, 1994, p. 437). Therefore, in an ironically biased and rich context, an ironic interpretation of a statement can be derived without first processing all possible semantic meanings of the utterance. Consequently, understanding irony does not necessitate more processing time than nonironic utterances and is not particularly difficult. To comprehend irony, literal and figurative meanings must be activated concurrently.

The results of many psycholinguistic experiments have shown the traditional, Gricean view to be incorrect as a psychological theory (see Gibbs, 1994; Glucksberg, 1998). Numerous reading-time and phrase classification studies demonstrate that listeners/readers can often understand the figurative interpretations of metaphors, irony/sarcasm, idioms, proverbs, and indirect speech acts without having to first analyze and reject their literal meanings when these expressions are seen in realistic social contexts. People can read figurative utterances (i.e., You’re a fine friend meaning ‘‘You’re a bad friend’’) as quickly as, sometimes even more quickly, than literal uses of the same expressions in different contexts, or equivalent non-figurative expressions. These experimental findings demonstrate that the traditional view of indirect and figurative language as always requiring additional cognitive effort to be understood has little psychological validity.

Gibbs (1986) examined the processing time required to read and comprehend ironic, nonironic, literal, and acknowledgment statements by presenting participants with paragraphs concluding with one of these statement types. In the study, the stories were in positive and negative context conditions. Both ironic and nonironic statements were presented in the negative context condition. In contrast, ironic statements were used literally, and acknowledgment statements were presented in the positive context

condition. The results demonstrated that ironic statements were processed faster than nonironic statements, but similarly to literal statements, indicating that literal meaning does not need to be processed before ironic meaning when statements are presented in realistic social contexts. Following Gibbs' direct access account, numerous studies demonstrated that processing certain types of ironic utterances does not take longer than processing literal statements (Dews & Winner, 1999; Giora, 2003; Glucksberg, 2001; Schwoebel, Dews, Winner, & Srinivas, 2000; Schwoebel, Dews, Winner, & Srinivas, 2000).

2.4.3. Previous Studies on the Standard Pragmatic and Direct Access Models

Garmendia (2007) studied the concept of irony from a pragmatic perspective and argued that irony is a complex linguistic phenomenon that involves both the speaker's intention and the listener's interpretation and that it serves various communicative functions depending on the context in which it is used. The article begins by providing a brief overview of the different types of irony and the various ways in which scholars have attempted to define and analyze irony. Garmendia then introduces the concept of "ironic pretense," which she defines as the act of "making as if to say" something that one does not actually mean. According to Garmendia, this act of pretense is a crucial aspect of irony, as it allows the speaker to convey a message that is different from, and often opposite to, the literal meaning of their words. Garmendia then goes on to discuss the pragmatic functions of irony, arguing that irony can serve as a means of expressing criticism, humor, empathy, and other communicative intentions. She explores the ways in which irony can be used to perform various social and interpersonal functions, such as establishing solidarity, marking distance, and negotiating power relations. Throughout the article, Garmendia draws on examples of irony from literature, politics, and everyday discourse to illustrate her points. She also engages with the work of various scholars in the fields of linguistics, pragmatics, and literary theory to provide a comprehensive and nuanced analysis of irony. In the article, the author discusses both the Standard Pragmatic Model (SPM) and the Direct Access Model (DAM) in relation to the comprehension of irony. The standard pragmatic model emphasizes the role of context and the speaker's intentions in understanding irony, while the DAM emphasizes the automatic and immediate processing of language without necessarily considering the speaker's intentions. Moreover, Garmendia argues that both models have limitations in their ability to fully explain how individuals comprehend irony. Instead, she proposes a pragmatic approach that takes into account both context and cognitive processes in understanding irony. This approach emphasizes the importance of the listener's background knowledge, expectations, and attentional

resources in comprehending irony. To support this approach, Garmendia presents the results of a study that examined the comprehension of irony in Spanish speakers. The study found that while context was important in understanding irony, cognitive processes such as attentional control and working memory capacity also played a significant role. Overall, Garmendia suggests that a pragmatic approach to irony, which takes into account both context and cognitive processes, provides a more complete understanding of how individuals comprehend ironic language (Garmendia, 2007).

Banasik-Jemielniak&Bokus (2019) investigated the development of irony comprehension in preschool-aged children who speak Polish as their native language. The authors begin by discussing the importance of studying children's understanding of irony, as it is a complex linguistic and social phenomenon that is crucial for communication and social interaction. They also note that previous research on irony comprehension has primarily focused on English-speaking children, making it important to study children who speak other languages to better understand cross-linguistic differences and similarities. The study consisted of two experiments. In the first experiment, the authors presented 40 preschool-aged children with a series of stories that contained ironic statements and measured their comprehension of the irony using a forced-choice task. The results showed that the children were able to comprehend irony at a level above chance, although their performance was influenced by the type of irony presented (sarcasm vs. hyperbole). In the second experiment, the authors investigated the relationship between children's comprehension of irony and their theory of mind abilities (the ability to understand that others have thoughts, beliefs, and intentions that may differ from one's own). They presented the same group of children with a battery of theory of mind tasks and found that there was a positive correlation between the theory of mind abilities and irony comprehension. Overall, the authors conclude that Polish-speaking preschoolers are able to comprehend irony and that their performance is influenced by the type of irony presented. They also suggest that theory of mind abilities play an important role in children's comprehension of irony. This study provides valuable insights into the development of irony comprehension in children who speak Polish and highlights the need for further research on cross-linguistic differences and similarities in the comprehension of irony. Also, the article refers to the standard pragmatic model and emphasizes that the meaning of language involves more than the simple meanings of words, and the context of language usage is also important for understanding meaning. This model emphasizes the pragmatic dimension of language and attempts to explain how speakers use language elements and how listeners understand them. In the study, researchers investigated the ability of Polish-speaking preschool

children to understand irony within the framework of the standard pragmatic model. In this study, children were told stories containing ironic statements, and their ability to understand these statements was tested. The results showed that the standard pragmatic model was an effective tool for explaining children's ability to understand ironic statements. This article refers to the standard pragmatic model that emphasizes the pragmatic dimension of language, supporting the idea that the meaning of language involves more than the simple meanings of words, and conducted a research based on this model to understand how children comprehend irony (Jemielniak & Bokus, 2019).

Akkök and Uzun (2018) investigated how Turkish speakers process metaphors in their native language. The study uses eye-tracking technology to explore the timing and nature of metaphor processing in Turkish, which has not been extensively studied before. The authors first introduce the concept of metaphor and explain how it works in language. They then review previous research on metaphor processing, highlighting the need for more studies in languages other than English. Next, they describe the design of their eye-tracking study, which involved presenting participants with sentences containing either a metaphorical or literal expression while monitoring their eye movements. The results of the study show that metaphorical expressions elicited longer fixation times and more regressions (backward eye movements) than literal expressions, suggesting that they require more cognitive effort to process. The authors also found that certain types of metaphors, such as those involving body parts or spatial relations, were processed more quickly than others. In the article, the authors investigate how Turkish speakers process metaphors using eye-tracking methodology. They specifically examine the two competing models of metaphor processing: the standard pragmatic model and the Direct Access Model (DAM). The standard pragmatic model proposes that metaphor comprehension involves a complex interplay between context, world knowledge, and the listener's cognitive processes. In contrast, the DAM suggests that metaphorical language is processed in a similar manner to literal language, without the need for additional cognitive processing. Akkök and Uzun's study found support for the standard pragmatic model in Turkish speakers. They found that participants took longer to read sentences containing metaphors compared to literal sentences and that the processing of metaphors was influenced by the context in which they were presented. These results suggest that the comprehension of metaphors in Turkish involves additional cognitive processing beyond the processing of literal language. Overall, the study provides evidence that the standard pragmatic model of metaphor processing applies to Turkish, and supports the idea that the

processing of figurative language involves complex interactions between cognitive processes and contextual information (Akkök & Uzun, 2018).

Attardo (2000) studied the nature of irony and argued that irony is a form of communication that is characterized by the use of relevantly inappropriate language. Attardo begins by discussing the traditional definition of irony as a form of communication that involves saying one thing while meaning another. He argues, however, that this definition is too narrow and fails to capture the full range of ironic utterances. Instead, Attardo proposes a broader definition of irony as a form of communication that involves relevantly inappropriate language. According to Attardo, ironic language is inappropriate because it violates the norms of communication that govern everyday conversation. However, this inappropriate language is also relevant because it serves a communicative purpose, such as to express criticism or to create humor. Attardo argues that the use of relevantly inappropriate language is what distinguishes irony from other forms of figurative language, such as metaphor or hyperbole. The article also discusses the cognitive and pragmatic processes involved in understanding irony. Attardo suggests that the comprehension of irony involves both the recognition of relevantly inappropriate language and the ability to infer the intended meaning based on the context in which the utterance is made. Overall, "Irony as Relevant Inappropriateness" is an influential article that offers a new perspective on the nature of irony and provides insights into how we process and understand this complex form of communication (Attardo, 2000).

Ivanko and Penny M. Pexman (2003) examined the relationship between contextual incongruity and irony processing in language comprehension. The authors suggest that a key aspect of irony comprehension involves the integration of contextual information with linguistic cues. The study uses eye-tracking technology to investigate the processing of ironic sentences and how contextual incongruity affects this process. The results of the study suggest that the comprehension of irony is facilitated by contextual cues that signal the incongruity between the situation and the speaker's intended meaning. Specifically, the authors found that readers spend more time processing ironic sentences when the context is congruent with the speaker's intended meaning than when the context is incongruent. Overall, the study provides important insights into the cognitive processes involved in irony comprehension and highlights the importance of contextual information in this process (Ivanko & Pexman, 2003).

Carston (2004) explored the relationship between explicatures and implicatures in pragmatic interpretation. In his study, she discussed how explicatures, which are derived through the decoding of linguistic meaning, and implicatures, which are inferred through pragmatic reasoning, contribute to the overall meaning of an utterance. She proposes that these two components work together in what she terms "truth-conditional pragmatics," which involves both the truth-conditional content of an utterance and the pragmatic inferences that can be drawn from it. In the article, Carston also discusses the role of context in pragmatic interpretation, arguing that context plays a crucial role in determining the meaning of an utterance. She introduces the concept of the "contextual effect," which refers to the impact of context on the interpretation of an utterance. Throughout the article, Carston's work is situated within the framework of the Standard Pragmatic Model, which emphasizes the importance of context and reasoning in pragmatic interpretation. She argues that the Standard Pragmatic Model provides a useful framework for understanding the interplay between explicatures and implicatures in pragmatic interpretation. Overall, Carston's article provides a detailed analysis of the relationship between explicatures and implicatures in pragmatic interpretation, as well as the role of context and reasoning in this process. Her work is situated within the Standard Pragmatic Model, highlighting the importance of this theoretical framework in understanding pragmatic interpretation (Carston, 2004).

Sperber and Wilson (1981) discuss the use of irony in language and the distinction between using a term and mentioning it. The paper is considered a cornerstone in the development of the Standard Pragmatic Model of language comprehension and use. The authors begin by distinguishing between two types of meaning: explicature and implicature. Explicature refers to the literal meaning of a sentence, while implicature refers to the implied meaning that arises from the context in which the sentence is used. Irony, according to Sperber and Wilson, is a case of implicature, where the intended meaning is the opposite of the literal meaning. The paper argues that irony is a particularly complex form of implicature because it involves a use-mention distinction. That is, in using irony, the speaker mentions one thing but uses it to mean another. For example, if someone says "what a beautiful day" during a rainstorm, they are mentioning the phrase "what a beautiful day" but using it to imply the opposite. The authors suggest that the use-mention distinction is crucial for understanding how irony works. They argue that, when a speaker uses irony, they are not only communicating the opposite of what they say, but they are also communicating that they are aware of the fact that what they are saying is the opposite of what they mean. In other words, the use-mention distinction allows the speaker to signal their intention to the listener. Overall, "Irony and the Use-Mention Distinction" is

an important contribution to the study of pragmatics and the role of context in language comprehension. It emphasizes the importance of implicature and the use-mention distinction in understanding the complexity of irony and its effects on communication (Sperber & Wilson, 1981).

Hyönä et. al. (2002) aimed to investigate the role of eye movements in detecting spelling errors during reading. They tested two competing models of visual word recognition, the Dual-Route Cascaded Model and the Direct Access Model, to determine which model better accounts for the error detection process. The Direct Access Model proposes that visual word recognition involves accessing orthographic representations directly from the visual input, without the need for phonological mediation. According to this model, errors in spelling should be detected very quickly because the incorrect spelling does not match the orthographic representation of the correct word. The authors conducted two experiments in which participants read text passages and were asked to detect any spelling errors that appeared in the text. They measured participants' eye movements during reading to determine whether error detection was influenced by fixations on the misspelled word. The results showed that participants detected errors faster when their eyes fixated on the error during reading, providing evidence for the Direct Access Model of visual word recognition. The authors suggest that this finding supports the idea that orthographic representations are accessed directly from the visual input, without the need for phonological mediation. Overall, the study provides support for the Direct Access Model and highlights the importance of eye movements in the process of spelling error detection during reading (Hyönä, Niemi, & Dahlström, 2002).

Rayner et. al. (2000) studied the implications of eye movements during reading for document design, focusing on how readers process text and what factors affect their reading speed and comprehension. The authors begin by discussing the Direct Access Model of reading, which posits that readers can recognize words directly through their orthographic representation, rather than relying on a phonological decoding process. According to this model, once a reader has learned a word, they can recognize it automatically without having to sound it out. The authors suggest that this model can explain the phenomenon of "word skipping" during reading, where readers sometimes skip over words they are already familiar with. The article presents several experiments that investigate different factors affecting reading speed and comprehension. For example, the authors found that readers tend to spend more time looking at words that are difficult to pronounce, suggesting that phonological decoding can still play a role in word recognition. They also found that readers spend

more time looking at words that are semantically ambiguous, suggesting that readers engage in some degree of semantic processing while reading. Overall, the article highlights the importance of understanding how readers process text in order to design documents that are optimized for reading. By taking into account factors such as font size, line spacing, and text layout, document designers can make it easier for readers to comprehend and retain the information presented to them. Additionally, the article demonstrates how the Direct Access Model can provide insights into the cognitive processes underlying reading and how these processes can be influenced by various factors (Rayner, Juhasz, & Pollatsek, 2000).

Kutas and Hillyard (1980) investigated the neural basis of sentence processing and semantic incongruity. The article presents a series of experiments using event-related brain potentials (ERPs) to examine the neural responses to semantic incongruities in sentences. In one of the experiments, participants read sentences that were either semantically congruous (e.g., "The girl drank the lemonade.") or incongruous (e.g., "The girl drank the table."). The results showed that the ERP waveforms for the two types of sentences differed significantly, indicating that the brain processes semantic incongruity during sentence comprehension. The authors discuss their findings in relation to the Direct Access Model, which proposes that word recognition occurs via a direct pathway from the visual input to the mental lexicon, without the need for prior context. They argue that the ERP results support the Direct Access Model, as the brain appears to process semantic incongruity rapidly and automatically during sentence processing. Overall, Kutas and Hillyard's article provides evidence for the role of the Direct Access Model in sentence processing and highlights the usefulness of ERPs for studying language comprehension (Kutas & Hillyard, 1980).

CHAPTER 3

METHODOLOGY

In this section, the participants, materials, data collection tools, and data collection procedure of both pilot and current studies are presented.

3.1. PILOT STUDY

The primary goal of the pilot study was to test the comprehensibility of the stories and the questions, the appropriateness of the data collection tools and procedure, and the feasibility of the experiment.

3.1.1. Participants

The participants of the pilot study were fifteen native speakers of Turkish, nine of them were female and six of them were male. Of them, five were five-year-old children (ranged in age from sixty-five to sixty-nine months, M= 67, SD= 1.41), five were six-year-old children (ranged in age from seventy-six to eighty months, M= 78.2, SD= 1.32), and five were adults. Adult participants' ages ranged between eighteen and twenty-four (M =28, SD = 1.89).

3.1.2. Materials

The participants listened to twelve audio-recorded stories. Of these stories, six of them conclude with an ironic utterance, while the remaining six stories conclude with a literal utterance. After the participants listened to the stories, five questions, including Speaker's Attitude Question, Speker's Attitude Justification Question, Speaker's Meaning Question, Speaker's Intent Question, and Speaker's Belief Question, were asked.

3.1.3. Data Collection Tool

In this study, OpenSesame, which is a free download program and an experiment builder used in social sciences, was used to collect data.

3.1.4. Data Collection Procedure

The pilot study took place in different settings in that children were tested at a private school, and the adult group was tested at a university. The subjects were tested individually in a single session lasting about 20 minutes in a separate quiet room or an empty classroom. In the company of the researcher, the children participants were asked questions by their teachers in order to collect natural data and prevent the children's shyness in the presence of a stranger. The adult participants were asked questions by the researcher. In the pilot study, twelve stories (six ironic, six literal) were presented. The data collection procedure was the same as in the main study. At the end of the pilot study, adult participants were interviewed about their positive or negative experiences with the procedure. Additionally, they were questioned about the clarity of the stories' intonations and whether they contained any ambiguities.

3.1.5. Findings

The correct responses and reaction times of both the subjects in the control group and the children's group were collected and analyzed using descriptive statistics. It was found that control subjects provided more accurate responses and had faster reaction times than the children. Also, children gave more accurate answers for the literal stories than the ironic stories. Additionally, it was observed in the 6 pilot studies that children were distracted when they reached the last two stories and they started to have longer reaction times and less accurate answers because of moving too much and playing with things. Consequently, they started to give irrelevant answers to the questions. Because children have short attention spans, it was too long for them to listen to twelve stories and answer questions about them. Therefore, the number of the stories was reduced to ten stories, and the remaining four participants (two of them were five-year-olds and two of them were six-year-olds) performed better without losing their attention. Based on the findings from the pilot study, the number of stories for all age groups was reduced to ten. Also, in the interviews, adult participants gave no negative feedback about the study.

3.2. THE PRESENT STUDY

This section includes detailed information about participants, materials, data collection tools, data collection procedures, and data analysis.

3.2.1. Participants

All participants in this study were from Turkish-speaking families in the city of Ankara, Turkey. The participants aged five- and six-years were sixty typically developing children aged five and six years. Also, adult subjects participated in the study as a control group. The demographical information about the participant groups is given as follows based on their genders and ages:

Table 1. Demographic information about subjects

		5-year-olds		**6-year-olds**		**Control Group**	
		N	%	N	%	N	%
Gender	Female	9	30	19	63.3	14	46.7
	Male	21	70	11	36.7	16	53.3
	Total	30	100	30	100	30	100
Age	Median	65.00(min.) 70.00 (max.)		77.00 (min.) 82.00 (max.)		20.00 (min.) 37.00 (max.)	
	Mean Age	68.37		79.47		28.33	

Notes: * N: Number; Min: Minimum, Max: Maximum

* The control group's ages were calculated in years, while the children's ages were calculated in months.

All children were recruited from kindergarden and first grade from a school in Ankara. The participation of the children was confirmed by their parents and the related permissions were taken from the school which the children were attending. After receiving parents' written consent, the children were asked verbally whether they wanted to participate and those who agreed were included in the groups. Also, children whose parents said they suspected language or any developmental difficulties were not invited to attend testing.

Adult participants consist of university students and teachers who work in the private school where the children participants were recruited from. However, the teachers who participated in the study

were not the same as the teachers of the children participants. The teachers who participated in the study did not witness the experiment or hear any of the stories beforehand. Before the experiment, they gave their written consent. Additionally, for all participants, ethical approval was obtained from Hacettepe University ethics committee, and for the students and the teachers, official permission was received from the Ministry of National Education.

3.2.2. Materials

This section presents the materials used in the experiment which are stories and questions. Each of them is explained in terms of their linguistic features.

3.2.2.1. Stories

In this study, audio recordings of ten narrated stories were used. The stories were pre-recorded to ensure that the intonation was maintained across all participants. These stories are made up of ironic and literal stories. The number of stories based on their content is as follows: five of them are ironic while the remaining of them are literal.

In the ironic stories, only ironic criticisms were used because ironic criticism is believed to be the simplest type of irony (Demorest et al., 1983; Kumon-Nakamura et al., 1995; Hancock et al., 2000; Pexman & Glenwright, 2007). In the literal stories, both literal criticisms and literal compliments were used to prevent participants from conditioning themselves to constantly hear negative sentences. In this study, each story ended with a sentence that has either an ironic meaning or a literal meaning. Among them, there were five ironic and five literal sentences.

The stories were analyzed according to their morphological and syntactic complexity. Turkish uses agglutination, which means that words are formed by adding multiple morphemes (the smallest meaningful units of language) to a base or root. These morphemes can convey grammatical information like tense, negation, and possession. Additionally, the basic word order of Turkish is subject–object–verb (SOV). However, different word orders (such as SVO, OVS, etc.) can be used. In this study, the information about the vocabulary and word length, character dyads (who says the utterance to whom), and context of the stories were also described.

The following part includes the description of first the ironic stories and then of the literal stories.

Ironic Story 1

Ceyda ıspanağı hiç sevmiyordu. Okulda ıspanak çıkınca hiç yemiyordu. O gün okulda öğlen yemeğinde ıspanak vardı. Bunu gören Ceyda arkadaşına dönerek:
‘’ Ooo! en sevdiğim yemek’’ dedi.

Ceyda didn't like spinach at all. She never ate spinach when it was served at school. That day there was spinach for lunch at school. Seeing this, Ceyda turned to her friend and said:
"Ooo! My favorite food!".

Adapted from Banasik (2013)

The given story consists of simple and common words with no complex morphological features. The sentences are in the past tense, and they include nouns, verbs, adverbs, pronouns, adverbial phrases and prepositional phrases, and an interjection. There are no irregular verb forms, no complex inflections, and no technical or specialized vocabulary. The story consists of twenty-six words and forty-eight morphemes. So, the average morpheme per word in this story is approximately 1.84 morphemes per word. Therefore, the sentence has low morphological complexity.

The syntactic complexity of the story is low because the story primarily uses simple sentences with predominantly follows the Subject-Object-Verb (SOV) word order. For example, the sentence "Ceyda ıspanağı hiç sevmiyordu" has a clear SOV structure: Ceyda (subject) + ıspanağı (object) + hiç (adverb) + sevmiyordu (verb). The story also features direct speech, as in "Ooo en sevdiğim yemek’’ dedi." The verb "dedi" (said) is used to introduce the dialogue, which is a common way to express direct speech in Turkish.

The vocabulary used in the story is simple and every day, making it accessible to a wide range of Turkish speakers. The story includes basic nouns like "ıspanak" (spinach), okul (school), and "arkadaş" (friend), verbs like "sevmek" (to like) and "yemek" (to eat), and adverbs like "hiç" (not at

all). In the given story, the shortest words have one character (O) and two characters (en), while the longest words have 10 characters (sevmiyordu, arkadaşına). There is a mix of shorter and longer words, with most words ranging between 4 to 8 characters in length. The average word length of this story is approximately 5.65 characters per word (excluding spaces and punctuation). This variation in word length is common in natural language and contributes to the overall readability and rhythm of the story.

This story is relatively easy to comprehend for children who are native Turkish speakers or have a good understanding of the Turkish language. The story is short and straightforward, featuring the main character (Ceyda) and her dislike for spinach. The language used is not complex, and the narrative is focused on a relatable topic: disliking a particular food and reacting to it ironically. However, it is important to note that the ease of comprehension can vary depending on the child's age, language proficiency, and familiarity with the cultural context. Younger children or those who are still learning Turkish might need some help with certain words or concepts.

In this story, there is a child-child character dyad consisting of two friends. This dyad represents the social interaction between Ceyda and her friend in response to the situation (spinach being served for lunch). When Ceyda sees the spinach, she turns to her friend and makes an ironic comment about it being her favorite meal. This interaction between Ceyda and her friend adds a social aspect to the story, illustrating how children communicate their feelings and opinions with their peers. The friend's character is not developed further in the story, as the narrative is primarily focused on Ceyda's dislike of spinach. Nevertheless, the presence of the friend serves as a narrative device to reveal Ceyda's feelings about spinach and adds an element of dialogue to the story. This character dyad helps make the story more relatable and engaging for young readers, as it reflects the everyday social interactions that children experience with their friends.

The story takes place in a school setting, specifically during lunchtime, which is a familiar environment for children. This context makes the narrative relatable and easily understood by young readers. Overall, the context of the story revolves around a relatable childhood experience, set in a familiar environment, and includes an element of social interaction. These factors contribute to making the story engaging and easy to understand.

Ironic story 2

Tarık ve Begüm'ün amcası onlara bir kutu çikolata almıştı. Begüm banyo yaparken Tarık çikolataları yedi. Son bir çikolata kalmıştı ve Tarık Begüm odaya girerken o son çikolatayı da açıp yedi. Bunu gören Begüm:
‘’Ne kadar da düşüncelisin!’’ dedi.

Tarik and Begum's uncle bought them a box of chocolates. Tarik ate the chocolates while Begum took a bath. There was only one chocolate left and Tarik opened the last one and ate it as Begum entered the room. Begum saw this and said:
"How thoughtful of you!

The story has a low level of morphological complexity. Most of the words in the story are simple and consist of one or two morphemes. The sentences are in the past tense, and they include nouns, verbs, adverbs, adjectives, pronouns, a number, and a conjunction word. There are no irregular verb forms, no complex inflections, and no technical or specialized vocabulary. The story consists of thirty-eight words and sixty-one morphemes. So, the average morpheme per word in this story is approximately 1.60 morphemes per word. Therefore, the sentence has low morphological complexity.

The sentences in the story are also relatively simple which predominantly follow the Subject-Object-Verb (SOV) word order. The most syntactically complex sentence is "Son bir çikolata kalmıştı ve Tarık Begüm odaya girerken o son çikolatayı da açıp yedi," which features a compound sentence structure, joining two independent clauses with the conjunction "ve" (and).

The story's vocabulary is simple and accessible to a wide range of readers. It includes everyday words such as "amca" (uncle), "kutu" (box), "çikolata" (chocolate), "banyo" (bath), and "odaya" (to the room). The vocabulary is suitable for a story aimed at children or language learners, as it is easy to understand and relate to the characters and events. In the given story, the shortest words have one character (o) and 2 characters (ve, Ne, da), while the longest words have twelve characters (çikolataları, düşüncelisin). There is a mix of shorter and longer words, with most words ranging between four to eight characters in length. The average word length of this story is approximately 5.13 characters per word (excluding spaces and punctuation).

In this story, there is a child-child character dyad because Begüm says the utterance to Tarık. These two characters are siblings. This dyad represents the sibling relationship and the dynamics that come with it, such as sharing and competition. In the story, Tarık eats the chocolates without leaving any for Begüm, which is an example of sibling behavior that children can relate to. These character dyads contribute to the story's dynamics and provide context to the events that unfold. The relationships between the characters help create a relatable and engaging narrative for the readers.

The context of the story revolves around a family setting and a shared experience between siblings. The story presents an everyday situation that readers, especially children, can relate to. Overall, the context of the story is centered around family relationships, particularly sibling dynamics, and everyday activities. This makes the narrative relatable and enjoyable for readers, as it reflects common experiences that many people can understand and identify with.

Ironic Story 3

Selin bir gün okul çıkışında annesiyle birlikte eve gidiyordu. Çok yorulmuşlardı ve çabucak eve gitmek istiyorlardı. Birden yağmur yağmaya başladı. O sırada otobüsü gördüler ve koşmaya başladılar. Fakat otobüsün kapısı kapanmıştı. Selin'in annesi:
‘’Bugün ne kadar şanslıyız!’’ dedi.

One day Selin was going home with her mother after school. They were very tired and wanted to go home quickly. Suddenly it started to rain. Then they saw the bus and started to run. But the bus door was closed. Selin's mom said:
"How lucky we are today!’’.

Adapted from Banasik(2013)

The story has a medium level of morphological complexity. Most of the words in the story are simple and consist of one or two morphemes. There are a few examples of more complex words, such as "çıkışında", "çabucak’’, and "kapanmıştı". The story consists of thirty-eight words and seventy-nine morphemes. So, the average morpheme per word in this story is approximately 2.07 morphemes per

word. The sentences are in the past tense, and they include nouns, verbs, adverbs, pronouns, adjectives, conjunctions, and prepositions.

The story has a relatively low level of syntactic complexity. Most of the sentences in the story are simple, consisting of a subject-object-verb (SOV) structure. There are a few examples of slightly more complex sentences, such as "O sırada otobüsü gördüler ve koşmaya başladılar" (meaning "At that moment, they saw the bus and started running"). However, these complex structures are used sparingly, and the overall sentence structure is straightforward and easy to follow. The simplicity of the syntax makes the story easy to read and understand for a wide range of readers, including children and non-native speakers of Turkish.

The vocabulary used in the story is simple and accessible to a wide range of readers. It includes everyday words such as ‘’otobüs’’ (bus), ‘’yağmur’’(rain). ‘’gitmek’’ (to go), ‘’başlamak’’ (to start). The length of the words is also relatively short, with most consisting of one or two syllables. The length of the words used in the story is generally short, with most consisting of one or two syllables. There are a few longer words, such as "çıkışında" and "çabucak," but these are used sparingly and do not significantly increase the overall word length of the story. The average length of words in this story is approximately 6.13 characters per word (excluding spaces and punctuation).

In this story, there is an adult-child character dyad because the story features two characters, Selin and her mother, and Selin’s mother is saying the utterance to her.

The context of the story portrays a common everyday situation where Selin and her mother face an unfortunate turn of events (the rain and missing the bus) and react to it with a touch of humor and irony.

Ironic Story 4

Ayşe Fatih’ten bir bardak vişne suyu istemişti. Fatih vişne suyunu verdi fakat Ayşe vişne suyunu masaya koyduktan sonra vişne suyu devrildi ve masa örtüsünde kocaman bir leke oluştu. Bunu gören Fatih:

‘’Aferin sana!’’ dedi.

Ayşe asked Fatih for a glass of cherry juice. Fatih gave her the cherry juice, but after Ayşe put the cherry juice on the table, it tipped over and there was a big stain on the tablecloth. Fatih saw this and said:
"Well done!".

Adapted from Banasik(2013)

The morphological complexity of the story is also relatively low, with most of the words consisting of one or two morphemes. In the story, the sentences are in the past tense, and various elements of a sentence can be observed, including nouns, pronouns, adjectives, verbs, adverbs, conjunctions, numerals, and interjections. The story consists of thirty-four words and fifty-five morphemes. So, the average morpheme per word in this story is approximately 1.61 morphemes per word.

The syntactic complexity of the story is relatively low. The sentences are simple and straightforward, with a subject-object-verb (SOV) structure. There are a few examples of more complex sentences, such as "Ayşe vişne suyunu masaya koyduktan sonra vişne suyu devrildi ve masa örtüsünde kocaman bir leke oluştu" (meaning "After Ayşe put the cherry juice on the table, the cherry juice spilled and a big stain formed on the tablecloth"). This sentence includes a subordinate clause (koyduktan sonra) which makes it slightly more complex than the other sentences in the story. However, overall, the story has a simple sentence structure, making it easy to understand for a wide range of readers, including children and non-native speakers of Turkish. The simplicity of the sentences also contributes to the story's accessibility and readability. In addition to the simple sentence structure, the story is also written in the past tense, which creates a clear narrative structure and allows the reader to follow the events of the story in a logical and sequential manner. The use of the past tense is also relatively straightforward, which further contributes to the story's simplicity and ease of understanding. Overall, the syntactic complexity of the story is relatively low, which makes it accessible and easy to understand for a wide range of readers, including children and non-native speakers of Turkish.

The vocabulary used in the story is simple and easy to understand, with common words and phrases that are likely to be familiar to most readers such as ‘’vişne suyu’’ (cherry juice), ‘’masa’’ (table), ‘’vermek’’ (to give), ‘’koymak’’ (to put). However, there are some words that are not common such as ‘’devrilmek’’ (topple over), ‘’leke’’ (stain), and ‘’masa örtüsü’’ (tablecloth). The majority of the words used in the story consist of one or two syllables, and there are no particularly long or complex words. The average length of words in this story is approximately 5.29 characters per word (excluding spaces and punctuation).

In the story, there is child-child character dyads because Fatih is saying the utterance to Ayşe. Ayşe asks for a glass of cherry juice from Fatih, who gives it to her. Ayşe accidentally spills the cherry juice on the tablecloth, and Fatih responds positively to the situation by saying "Aferin sana!" ("Well done!"). The dyad between Ayşe and Fatih is brief, but it is important for understanding the story's simple narrative structure.

The context of the story is a simple and relatable scenario that many readers can likely identify with because people often use humor or sarcasm to deal with such situations. The story takes place in a household setting, with two characters, Ayşe and Fatih, interacting in a typical way.

Ironic Story 5

Yerli malı haftası için herkesten yiyecek bir şeyler getirmesi istenmişti. Seda fındıklı kek yapacaktı. Keki yaparken yanlışlıkla şeker yerine tuz koydu ama bunu fark etmedi. Ertesi gün arkadaşı Caner’e: ‘’Harika bir kek yaptım. Benim fındıklı kekim meşhurdur.’’ dedi.
Caner keki tattığı gibi tükürdü ve şöyle dedi:
‘’Gerçekten de harika bir kek olmuş!’’.

Everyone was asked to bring something to eat for the local food week. Seda was going to make a hazelnut cake. While making the cake, she accidentally put salt instead of sugar, but she didn't realize it. The next day she told her friend Caner:
"I made a great cake, my hazelnut cake is famous’’.
Caner tasted the cake, spit it out, and said:
"It really is a wonderful cake!".

The morphological complexity of the story is low. The words used in the story are generally simple and consist of one or two morphemes. However, there are some words that have words that have three morphemes such as ‘’yanlışlıkla’’ (accidentally), ‘’yapacaktı’’ (was going to do), ‘’getirmesi’’ (bringing) etc. The story consists of fifty-two words and ninety-four morphemes. So, the average morpheme per word in this story is approximately 1.80 morphemes per word.

The syntactic complexity of the story is low to medium. The sentences are in the past tense, and they include nouns, verbs, adverbs, adjectives, pronouns, conjunctions, and prepositions. The sentences used in the story are generally simple and straightforward, with a subject-object-verb (SOV) structure. However, there are a few examples of more complex sentence structures in the story. For example, the sentence "Keki yaparken yanlışlıkla şeker yerine tuz koydu ama bunu farketmedi" (meaning "While making the cake, she accidentally used salt instead of sugar, but she didn't notice it") includes a subordinate clause (keki yaparken) and a conjunction (ama) that make the sentence slightly more complex than the other sentences in the story. Also, there is a passive sentence.

The vocabulary used in the story is simple and accessible to a wide range of readers. It includes everyday words such as ‘’yiyecek’’ (food), ‘’kek’’ (cake), ‘’şeker’’ (sugar), ‘’salt’’ (tuz), ‘’fark etmek’’ (realize), ‘’tükürmek’’ (to spit out) etc. The average length of words in this story is approximately 5.5 characters per word (excluding spaces and punctuation).

In this story, there is a child-child character dyad consisting of two friends. The story focuses on two characters, Seda and Caner. The dyad between Seda and Caner is brief and important for understanding the story's simple narrative structure.

The context of the story is centered around a "domestic product week", during which individuals are asked to bring food items made with domestic products. Seda plans to make a hazelnut cake for the occasion but accidentally uses salt instead of sugar while making the cake. The next day, she tells her friend Caner that she made a great cake, but he quickly realizes that it's terrible and gives a reaction by using irony.

Literal Story 1

Öğretmeni Selim’e on beş satırlık bir şiir ezberlemesini söylemişti. Selim o gün şiiri ezberledi ve arkadaşı Berk’e okumaya başladı fakat iki satır sonra şiiri unuttu. O sırada Berk:
‘’Hafızan gerçekten çok zayıfmış.’’ dedi.

His teacher told Selim to memorize a fifteen-line poem. Selim memorized the poem that day and started to read it to his friend Berk, but after two lines he forgot the poem. At that time Berk said: "Your memory is really poor".

Adapted from Banasik(2013)

The morphological complexity of the story is low. The morphemes used in the story are mostly simple and consist of one or two morphemes, with a few more complex words. The story consists of thirty-two words and fifty-three morphemes. So, the average morpheme per word in this story is approximately 1.65 morphemes per word. Overall, the morphemes used in the story are relatively simple, which makes it easy to comprehend for a wide range of readers.

The sentences are in the past tense, and they include nouns, verbs, adverbs, adjectives, pronouns, and conjunctions. Overall, the syntactic complexity of the story is relatively low because the sentences are short and straightforward, consisting of simple subject-object-verb (SOV) constructions. However, The first sentence is a complex sentence that contains a subordinate clause: "Öğretmeni Selim’e on beş satırlık bir şiiri ezberlemesini söylemişti." (meaning "Selim's teacher had told him to memorize a poem of fifteen lines.") This sentence includes the subject "öğretmeni" (teacher) and the dative pronoun "Selim'e" (to Selim), followed by the direct object "on beş satırlık bir şiiri" (a poem of fifteen lines), the verb "ezberlemesini" (to memorize), and ‘’söylemişti’’ (had told) with the past tense suffix "-mişti". The following sentences are simple sentences that describe what happens after Selim memorizes the poem. Overall, the syntactic complexity of the story is relatively low, which makes it accessible and easy to understand for a wide range of readers.

The vocabulary used in the story is relatively simple and easy to understand. The story mainly includes common words, such as "öğretmen" (teacher), "şiir" (poem), "ezberlemek" (to memorize), "okumak" (to recite), and "unutmak" (to forget). The story also includes only a few less common words which are "satırlık" (lines of a poem). The average length of words in this story is approximately 5.5 characters per word (excluding spaces and punctuation).

In this story, there is a child-child character dyad consisting of two friends because Berk is saying the utterance to his friend, Selim. Selim is the protagonist of the story and is assigned by his teacher to memorize a poem. Berk is Selim's friend who comments on his weak memory.

The context of the story takes place in a school setting, where Selim is a student and his teacher assigns him the task of memorizing a poem. The social context of the story revolves around the relationship between Selim and Berk. When Berk comments on Selim's weak memory, it is clear that he does so in a teasing manner, but says this literally, which suggests an informal relationship between the two characters.

Literal Story 2

Ceyda ve annesi ormanda yürüyüş yapmaya gittiler. Hava güneşli ve çok güzeldi. Ormanda yürürlerken Ceyda’nın annesi:
‘’Ormanda yürümek için ne güzel bir gün!’’ dedi.

Ceyda and her mother went for a walk in the forest. The weather was sunny and beautiful. As they were walking in the forest, Ceyda's mother said:
"What a beautiful day for a walk in the forest!

Adapted from Banasik(2013)

The story has a relatively low morphological complexity as it contains simple sentences and uses basic grammatical structures. The sentences are in the past tense, and they include nouns, verbs, adverbs, adjectives, pronouns, conjunctions, and prepositions. The only morphologically complex

word is ‘’yürürlerken’’(as they walked). The story consists of twenty-four words and forty-three morphemes. So, the average morpheme per word in this story is approximately 1.79 morphemes per word. The story has a simple and easy-to-understand vocabulary suitable for beginner language learners. It contains basic words such as "yürüyüş" (walk), "hava" (weather), "güneşli" (sunny), "çok" (very), "güzeldi" (beautiful), "ormanda" (in the forest), "annesi" (mother), and "Ceyda" (a name). The average word length in the story is approximately 5.5 characters per word. The longest word is "yürüyüş" (walk), with eight characters, and the shortest words are "ve" (and) and "ne" (what), with only two characters.

The syntactic complexity of the story is relatively low. The sentences are short and straightforward, consisting of simple subject-object-verb (SOV) constructions. The longest sentence is only fifteen words long, and there are no complex or compound sentences. Additionally, the story follows a chronological order and does not contain any complex subordination or coordination. There are no embedded clauses or relative pronouns, and the verb tense is consistent throughout the story.

In this story, there is an adult-child character dyad consisting of a mother and a daughter. The story features two main characters, Ceyda and her mother. They are portrayed as a positive dyad, as they are spending time together and enjoying each other's company while walking in the forest.

The story is set in a forest, and the main characters, Ceyda and her mother are taking a walk in the woods on a sunny and beautiful day. The context is one of leisure and enjoyment, as they are not engaged in any specific activity other than walking and enjoying the natural surroundings. The context of the story is relevant to the language learner in that it provides a simple and familiar setting that can help them practice vocabulary related to nature and basic actions. Overall, the context of the story is uncomplicated and easy to understand, making it an appropriate text for beginner language learners.

Literal Story 3

Nilgün ve Mehmet legolarla oynuyorlardı. Oyunları bitince legoları toplayıp kutulara koymaya başladılar fakat bu sırada Mehmet diğer oyuncaklarla oynamaya başladı. Bunu fark eden Nilgün, Mehmet’e:

‘’Bana hiç yardım etmiyorsun.’’ dedi.

Nilgün and Mehmet were playing with Legos. When they finished playing, they started to collect the Legos and put them in the box, but Tarık started to play with other toys. Nilgün noticed this and said to Mehmet:

"You are not helping me at all."

Adapted from Banasik(2013)

The story contains a low to medium level of morphological complexity. The sentences are in the past tense, and they include nouns, verbs, adverbs, pronouns, and conjunctions. The story includes a mix of simple and complex words. For example, the words "legolarla" (with legos), "koymaya" (to put in), and "oynuyorlardı" (they were playing) contain more than two morphemes. The story consists of thirty words and fifty-eight morphemes. So, the average morpheme per word in this story is approximately 1.93 morphemes per word.

The story has a moderate level of syntactic complexity, featuring compound subjects, compound and complex sentences, subordinate clauses, contrastive conjunctions, participle clauses, and direct speech. For example, the main clause in the second sentence is a compound one, containing two coordinated verbs: "toplayıp" (collecting) and "koymaya başladılar" (they started to put away). Also, the second sentence has a contrastive conjunction "fakat" (but) that introduces an additional, contrasting clause: "bu sırada Tarık diğer oyuncaklarla oynamaya başladı" (meanwhile, Tarık started playing with other toys).

The vocabulary used in the story is simple and easy to understand, featuring common Turkish words such as "lego" (Lego), "kutu" (box), "oynamak" (to play), "yardım etmek" (to help), "oyuncak" (toy), "fark etmek" (to notice), and "sırada" (at the same time). The average length of words in this story is approximately 6.36 characters per word (excluding spaces and punctuation).

In this story, there is a child-child character dyad. The story features two main characters, Nilgün and Mehmet, who are playing with legos and cleaning up afterward.

The context of the story portrays a common everyday situation. The story emphasizes the importance of cooperation and working together to complete a task, as Nilgün asks Mehmet for help with the cleanup.

Literal Story 4

Berk dinazorlarla ilgili kitapları çok seviyordu. Bir gün arkadaşı Tuna ona dinazor türleriyle ilgili bir kitap alıp hediye etti. Bunu gören Berk: ‘’Harika bir hediye bu!’’ dedi.

Berk loved books about dinosaurs. One day his friend Tuna bought him a book about dinosaur species as a gift. Berk saw this and said:

"This is a great gift!’’

Adapted from Banasik(2013)

The story consists of simple and common words with no complex morphological features. There is only one word ‘’türleriyle’’ which consists of four morphemes. The sentences are in the past tense, and they include nouns, verbs, adverbs, and pronouns. There is no technical or specialized vocabulary. The story consists of twenty-seven words and forty-five morphemes. So, the average morpheme per word in this story is approximately 1.66 morphemes per word. Therefore, the sentence has low morphological complexity.

In terms of syntactic complexity, the story is also relatively simple, featuring a straightforward chronological order and simple sentences. The sentences mostly consist of subject-object-verb (SOV) constructions. There are a few prepositional phrases and adjectival phrases, such as "dinazorlarla ilgili kitaplar" (books related to dinosaurs) and "dinazor türleriyle ilgili bir kitap" (a book about dinosaur species), but these do not significantly increase the complexity of the sentences.

The vocabulary used in the story is simple and easy to understand, featuring common Turkish words such as "dinazor" (dinosaur), "kitap" (book), "sevmek" (to love), "arkadaş" (friend), "hediye etmek" (to give a gift), and "harika" (great). The longest word is "dinazorlarla" (with dinosaurs), with eleven

characters, while the shortest words are "bir" (a/an) and "bu" (this). The average length of words in this story is approximately 5.29 characters per word (excluding spaces and punctuation).

In this story, there is a child-child character dyad consisting of two friends. The story features two main characters, Berk and Tuna. Berk is portrayed as a character who loves books about dinosaurs, and Tuna is depicted as his friend who gives him a book about dinosaur species as a gift.

The context of the story is centered around a love for dinosaurs and the act of giving a gift. The story's protagonist, Berk, is depicted as a character who has a passion for learning about dinosaurs through books. His friend Tuna recognizes this and gives him a book about dinosaur species as a gift, which Berk appreciates and describes as a "great gift". The story highlights the importance of friendship, generosity, and appreciation of the interests of others. The context is straightforward and easy to understand, making it appropriate for beginner language learners and children.

Literal Story 5

Ceyda ve Tuana bebeklikten beri çok yakın arkadaşlardı. Bir gün birlikte alışveriş yapmaya gittiler. Tuana üstüne tam olan, çok güzel, parlak, pembe bir elbise denedi. Bunu gören Ceyda:

‘’ Üzerinde harika durdu. Sana çok yakıştı.’’ dedi.

Ceyda and Tuana had been best friends since they were babies. One day they went shopping together. Tuana tried on a beautiful bright pink dress that fit her perfectly. Seeing this, Ceyda said:

" It looks great on you. It suits you very well.’’

The morphological complexity of the story is relatively low, consisting mostly one or two syllables. The majority of the words used in the story are simple and easy to understand. The story consists of thirty-six words and fifty-seven morphemes. So, the average morpheme per word in this story is approximately 1.58 morphemes per word.

The syntactic complexity of the story is also relatively low. The sentences are straightforward and easy to follow, with simple subject-object-verb (SOV) constructions being the most common

grammatical structure used in Turkish. There are a few adjectival phrases, such as "çok güzel" (very beautiful) and "çok yakın arkadaş" (close friend), but these phrases do not significantly increase the complexity of the sentences. The story follows a straightforward chronological order, with each sentence building on the previous one to create a coherent narrative. The tense is consistent throughout the story, with most of the sentences in the past tense and they include nouns, verbs, adverbs, adjectives, and pronouns.

The vocabulary used in the story is simple and easy to understand, featuring common Turkish words such as "arkadaş" (friend), "bebeklik" (infancy), "alışveriş" (shopping), "üst" (top), "elbise" (dress), "yakışmak" (to suit), "harika" (great), and "parlak" (bright, shiny). The average word length in the story is approximately 5.22 characters per word. The longest word is "bebeklikten" (since infancy), with eleven characters, while the shortest word is "bir" (a/an).

In this story, there is a child-child character dyad consisting of two friends. The story features two main characters, Ceyda and Tuana, who have been close friends since infancy.

The context of the story is focused on the strong friendship between Ceyda and Tuana. The story depicts the two friends going on a shopping trip together and Tuana trying on a beautiful pink dress that fits her perfectly. The setting of the story is a shopping mall or a store, where Ceyda and Tuana are looking for clothes. The story highlights the importance of friendship and the joy of spending time with loved ones. It also emphasizes the value of giving compliments and supporting others, which are important qualities in any strong friendship. The story features simple and common Turkish words, which are appropriate for children and beginners who are still developing their language skills.

3.2.2.2. Questions

The stories were followed by two optional close-ended questions and three open-ended questions. Speaker Meaning question, Speaker Belief question, and Speaker Attitude question are first-order ToM questions. The other two questions are about the second-order ToM; Speaker Intention question and Justification question.

Speaker Attitude question gives information about the participant's ability to understand the attitude of the speaker. In every communication, people convey an attitude toward a person and it indicates their view of the situation. Therefore, to understand the speaker's attitude is significant for irony understanding. In this study, teasing and real are the two options for the speaker's attitude. Participants were asked to click one of the emojis to show the speaker's attitude. This question is based Speaker/Teasing Question of Pexman (2007). Although Pexman used Teasing/Real scale with three options, the participants in this study were presented only with teasing and real emojis. This is because this study also measures the participants' reaction times. The aim was to prevent hesitation-related delays when participants encounter three different emojis.

Justification question (*''How do you know that?''*) is about the justification for the speaker's attitude. It was asked to gain a deeper understanding of how the participant perceived the speaker's attitude. Since speaker attitude is a closed-ended question that reveals only whether or not the participant answered the question correctly, adding an open-ended justification question provides us with greater insight into the participant's reasoning. Also, this question was based on the justification question asked in the study of Filippova&Astington (2008). Although they asked the justification question following the close-ended second-order intention question, it was asked after the speaker attitude question in this study.

Speaker Meaning question (*''What do you think (speaker) meant?''*), was based on the questions in the studies of Loukusa & Leinonen (2008) and Banasik (2013). This question assessed the child's ability to detect the meaning of the speaker's final statement. The question is whether or not the speaker intended what (s)he said. In other words, whether or not the statement should be taken literally.

Speaker Intent question *(''Why did (speaker) say that?''*) evaluates whether the participant is able to understand the intent behind the statement. In their studies, Capelli et al. (1990), Banasik (2013), and Szücs and Babarczy asked the same question.

Speaker Belief question *(''When Selin's mother said "How lucky we are today!" do you think she really meant that they are lucky or that they are unlucky?'')* was the last question in this study. Responses to the speaker belief question revealed whether participants correctly identified the

speaker's beliefs regarding the final utterance in each story. Similarly, Aguert et al. (2017) used speaker belief question in their study to evaluate whether or not the speaker is being literal or nonliteral when speaking.

3.2.3. Data Collection Tool

Data were gathered by using OpenSesame which is a free download program and experiment builder used in social sciences. In the program, a wide range of experiments can be created, including psychophysical experiments, speeded response time tasks, eye-tracking studies, and questionnaires (Mathôt et. al.,2012). For complex tasks, which cannot be performed through the graphical user interface, OpenSesame supports Python scripting (Van Rossum & Drake, 2011). Thanks to Phyton scripting, the experiment was designed step by step. The stories and the emojis that were used in the study were added to the program. Additionally, some buttons such as ‘’Başla’’ (‘’Start’’), Hikayeyi Başlat (‘’Start the Story’’), and Bitti (‘’Finished’’) were created. Also, some codes have been written for the program to measure the participants’ clicking response times.

3.2.4. Data Collection Procedure

The participants were tested individually in a single session lasting about 20 minutes in a separate quiet room or an empty classroom. The participants listened to ten stories including five ironic and five literal stories. The order of the literal and ironic stories was one ironic story, two literal stories, one ironic story, one literal story, two ironic stories, one literal story, one ironic story, one literal story, two ironic stories, one literal story, one ironic story, and one literal story. This was done to prevent the participant from becoming conditioned to one genre by listening to the same genre one after the other. The children participants were asked questions by their teachers in company with the researcher to obtain the natural data and to avoid the shyness of the children because of the interaction with a person they do not know. The adult participants were asked questions by the researcher. All sessions were videotaped.

Before testing commenced, all participants were told to listen to the stories twice and answer the questions afterward. Additionally, prior to listening to the stories, photos of teasing and real emojis were presented with descriptions to the participants and they were asked to click on one of the teasing

or real emojis as soon as they understood the meaning of the sentence they heard at the end of each story. The time was controlled with millisecond-level accuracy.

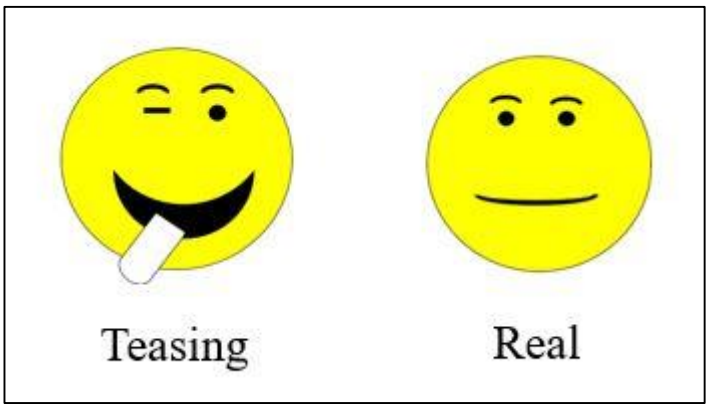

Figure 1. Emojis used in both experiments to assess the speaker's attitude.

In the study, the participants clicked ''Başla'' (''Start'') button when they felt ready. Each participant listened to ten stories (five literal, five ironic) and each recording was listened to twice automatically. A practice story was employed prior to presenting each set of ten stories to illustrate the procedure. After they listened to each story, four questions were posed. The procedure was identical for each subject and no corrective feedback was given.

3.2.5. Data Analysis

The research sessions were videotaped and the participants' answers were later transcribed and analyzed. After correct-incorrect scoring, the participants' incorrect answers were separated into six categories. This analysis was adapted from the study of Loukusa & Leinonen (2008). The incorrect explanation categories are as follows:

Literal: The participant's answer demonstrates that he or she interpreted the ironic utterance based on the linguistic meaning of words.

Opposite Meaning: The participant's answer demonstrates that he or she understood the opposite meaning of the literal sentence.

No idea: The participant responds with “I don’t know’’, ‘’I forgot’’, ‘’I don’t remember’’ or gives no answer.

Inadequate: The participants respond inadequately to the question. When asked “How do you know that?” the participant answers, for example, “I know because of the story”.

Incorrect Focus: The participant's answer is inaccurate and cannot be accepted as correct because it does not accurately address the question's focus. Although the child is unable to answer the question accurately, the response makes no use of context-inappropriate material. In comparison to the other categories, the incorrect responses in this category are the closest to the correct responses.

Meaningless: Although the answer given by the participant is related to the story, the sentences with a complex structure in terms of subject, predicate, verb, and conjunctions do not conform to the grammatical structures of that language. It is not clear what the participant means.

Irrelevant: There is nothing in the response that the researcher could relate to the context of the question.

When determining the parametric/non-parametric nature of the data, two distinct analyses were employed: the Kolmogorov-Smirnov Test and the Shapiro-Wilk Test (see Appendix 1), because the Kolmogorov-Smirnov Test has been criticized as an obsolete method of assessing normality (Marusteri & Bacarea, 2010). After reaching the results, non-parametric tests such as Wilcoxon signed-rank test and Mann-Whitney U test were used in the statistical analysis of the study. In addition, descriptive statistics were used since the study is descriptive in nature.

CHAPTER 4

FINDINGS AND DISCUSSION

As stated previously, the aims of this study are to investigate the accuracy rate of comprehension and processing times for ironic and literal utterances in five- and six-year-old Turkish-speaking children, as well as their comprehension ability in answering first-order and second-order Theory of Mind questions. This study also attempts to determine if morphological and syntactic complexities, vocabulary, character dyads, and story context have an effect on children's comprehension. This research aims to identify and compare the mistakes made by children when attempting to provide explanations for open-ended questions in order to determine the reasons for misinterpreting ironic and literal utterances. In addition, the aim of this study is to compare the children's responses to ironic and literal stories in terms of their total number of correct responses, responses to questions, incorrect explanations, and reaction times. This section presents an analysis of the findings obtained through these experiments.

The following section presents the discussion of the findings. It is organized according to the research questions of the study.

4.1. TOTAL SCORES OF THE CHILDREN AND THE CONTROL GROUP

The experiment in this study was conducted in both the children group and the control group. However, it is important to note that the control group participated in this study to show the comprehensibility of the stories and the questions and the reliability of the procedure. It was expected that the control group of adults would show better performance than the children group.

Table 2. Descriptive statistics on the total scores of the children and the control group

		Mean	**Min.**	**Max.**	**Std.**
Ironic stories	Children	16.18	4.00	25.00	5.09
	Control	24.43	23.00	25.00	.72
Literal Stories	Children	19.36	6.00	25.00	4.31
	Control	24.30	20.00	25.00	1.23

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As can be seen in Table 2. in the ironic stories. the minimum score for the correct answers of the children group is 4.00 and the minimum score of the control group is 23.00. respectively. The maximum score for the correct answers of both the children group the and control group is 25.00. As for the mean scores and standard deviation. the scores for both groups are as follows: children: M = 16.18. SD =5.09 and control: M = 24.43. SD = .72. respectively.

In the literal stories. the minimum scores for the correct answers of the children group is 6.00 and the minimum scores of the control group is 20.00. respectively. The maximum scores for the correct answers of both the children group and the control group is 25.00. Additionally. the mean scores and standard deviation. the scores for both groups are as follows: children: M = 19.36. SD = 4.31 and control: M = 24.30. SD = 1.23. respectively. The fact that the standard deviation of the control group for both ironic stories and literal stories is lower than the child group shows that the values of the control group are closer to each other. That is. compared to the child group. the data are distributed closer to the mean.

To compare these two groups for both ironic and literal stories. a Mann-Whitney U test and Wilcoxon signed-rank test were conducted (for detailed information, see Appendix 2). As anticipated, all results, including the total scores of the correct answers, the correct answers for each story and the questions. and reaction times demonstrate that there is a statistically significant difference between children and the control group since the control group can comprehend ironic and literal stories and answers the questions accordingly better and show faster reaction times than the children group.

4.2. PERFORMANCES OF THE CHILDREN IN IRONIC STORIES

To investigate the children's performances in ironic stories, the total scores of their correct answers given to all first-order-belief and second-order belief questions were given. Therefore, descriptive statistics of the total scores for the correct answers of the children on each ironic story. including the minimum. maximum and mean scores and standard deviation. are given in Table 3.

Table 3. Descriptive statistics of the total scores of the children on each ironic story

	N	**Min.**	**Max.**	**Mean**	**Std. Deviation**
Ironic Story 1	60	.00	5.00	2.86	1.40
Ironic Story 2	60	.00	5.00	3.00	1.43
Ironic Story 3	60	.00	5.00	3.11	1.71
Ironic Story 4	60	1.00	5.00	3.53	1.29
Ironic Story 5	60	.00	5.00	3.66	1.36

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As can be seen in Table 3, the minimum scores of the children group on the ironic stories is .00 except for Ironic Story 4. The minimum score in the fourth ironic story is 1.00. The maximum scores of the correct answers on all ironic stories is 5.00. As for mean scores and standard deviation. the scores for all ironic stories are as follows: Ironic Story 1: M = 2.86. SD = 1.40. Ironic Story 2: M = 3.00. SD = 1.43. Ironic Story 3: M = 3.11. SD = 1.71. Ironic Story 4: M = 3.53. SD = 1.29. and Ironic Story 5: M = 3.66. SD = 1.36. Standard deviation illustrates that the distribution of the fourth ironic story's data is closer to the mean than that of the other ironic stories. This story is followed by the fifth story. the first story. the second story. and the third story. respectively. with data distributions closer to the mean in each case. It appears that the correct answers to the stories are similarly distributed between the stories.

First of all, it is important to note that the word orders in all the stories are the same because they all show subject-object-verb (SOV) structure. Furthermore, the vocabulary used in all stories is simple and accessible to a wide range of readers. These are the words that children are expected to understand easily such as chocolate, dinosaur, rain, cherry juice, etc.

The findings of the mean scores demonstrate that children could perform better in the fifth ironic story than in the other stories. Ironic Story 5 consists of fifty-two words and ninety-four morphemes and the average morpheme per word in this story is 1.80 morphemes per word. So, the morphological complexity of this story can be considered as low. Also, the length of words in this story is approximately 5.5 characters per word. Additionally, there is a child-child character dyad.

After the fifth story, the children answered the fourth story's questions most accurately. This story consists of thirty-four words and fifty-five morphemes and the average morpheme is 1.61 per word. Therefore, the morphological complexity of this story can be considered as low. Additionally, the length of words in this story is approximately 5.29 characters per word. and there is a child-child character dyad.

The story in which the children correctly answered the questions after the fourth story was the third story. Ironic Story 3 consists of thirty-eight words and seventy-nine morphemes and the average morpheme per word in this story is 2.07 morpehemes per word. So, the morphological complexity of this story can be considered as medium. Additionally, the length of words in this story is approximately 6.13 characters per word and there is an adult-child character dyad.

After the third story, the second story was the one in which the children answered the questions correctly. This story includes thirty-eight words and sixty-one morpehemes and the average morpheme is 1.60 per word. So, the morphological complexity of this story can be considered as low. In addition to this, the length of words in this story is approximately 5.13 characters per word and there is a child-child character dyad.

The findings reveal that the questions of the first story had the lowest correct answer rate. This story consists of twenty-six words and forty-three morpehemes and the average morpheme is 1.84 per word.

Therefore, the morphological complexity of this story can be considered as low. Also, the length of words is approximately 5.65 characters per word. and there is a child-child character dyad.

Considering these results, it can be said that the morphological complexity and word length do not affect the comprehension rate because the fifth story's morphological complexity and word length are not the lowest of all stories. The stories with the lowest morphological complexity and shortest word length are the second story, fourth story, fifth story, first story, and third story, respectively. However, this is not the order in which children provided the most accurate responses to the stories. It was also observed that the length or shortness of the story did not affect the accuracy of the responses to the questions because the shortest story was the first story and the longest story was the fourth story. Additionally, only the third story has adult-child dyad but it does not have the highest or lowest number of correct answers. Therefore, it can be concluded that character dyads do not affect the comprehension of the ironic stories.

Additionally, the mean scores demonstrate that the children showed an increasing performance between the first ironic story and the last ironic story. This may be due to the fact that children get accustomed to ironic stories. In other words, they may have had difficulty detecting irony in the first story, but as the experiment progressed, they may have become more adept at recognizing irony. The context of the stories may also affect children's rate of comprehension and the correctness of their responses.

After the descriptive analysis of the correct answers, the incorrect answers to the open-ended questions were obtained and the children's incorrect explanations were divided into six categories. The types of incorrect explanations of the children for the questions ironic stories are presented below in the bar chart.

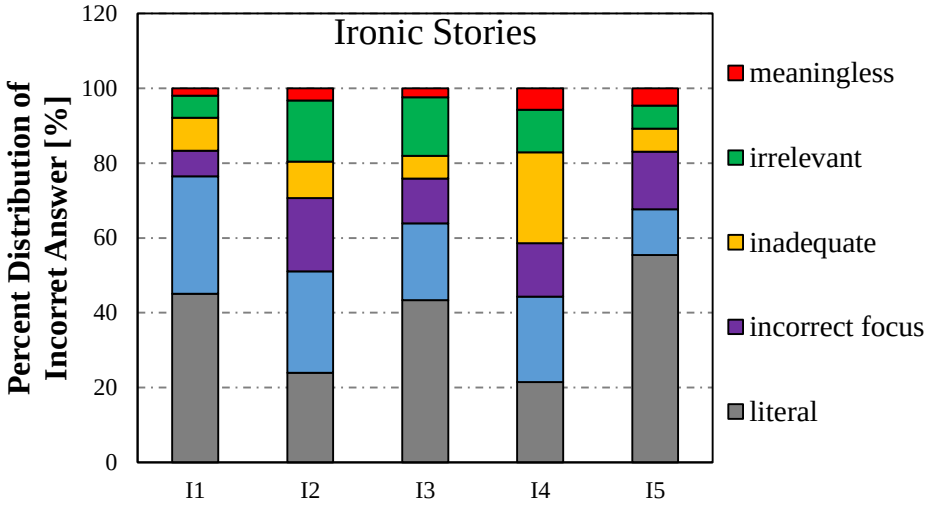

Figure 2. Distribution of children's incorrect explanations for the question in ironic stories

It can be seen from Figure 2 that literal interpretation is the major mistake of children participants in the first ironic story because approximately 45% of false explanations are literal. The second major mistake in this story is classified as ‘’no idea’’. These are the answers to which children responded, "I don't know" or "I forgot." Moreover, this category contains no responses. Among the incorrect answers, approximately 31.3% of them showed that children had no idea. Another common incorrect answer category in this story is ‘’inadequate’’ because approximately 8.8% of the false answers were inadequate. This finding demonstrated that children responded to some questions inadequately such as when asked “What did Selin's mother mean?’’, the participant answered, “She meant something bad.” Also, 6.8% of the false answers are in the ‘’incorrect focus’’ category. In these explanations, the participants failed to address the question's central focus, so the explanations remained inaccurate despite the absence of context-inappropriate use. To illustrate, to the question ‘’What did Fatih mean?’’, the participant gave the answer ‘’ He said, well done’’. Also, nearly 5.8% of the answers are irrelevant and 1.9% are meaningless. The findings from the first ironic story reveal the challenges children face when attempting to comprehend and explain irony. The data reveal that the main reason for children giving incorrect answers is their tendency to interpret the ironic utterance literally because the literal interpretation of ironic statements is the most common mistake made by children participants. This indicates that children may have difficulty identifying the nonliteral meaning of ironic language. As evidenced by the high percentage of "no idea" responses, the second major mistake of children is their inability to comprehend or explain ironic statements. This suggests that children may have difficulty understanding the intended meaning of ironic statements, possibly as a

result of their cognitive development or limited exposure to irony. Inadequate explanations are another common category of incorrect explanations. This demonstrates that children occasionally struggle to provide an adequate explanation for ironic statements. The "incorrect focus" category highlights the fact that children do not always address the irony's central point. This can result in inaccurate explanations even when the context is not misinterpreted. A smaller proportion of responses fall into the "irrelevant" and "meaningless" categories, indicating that while some children may provide irrelevant or nonsensical explanations, these issues are less prevalent than those previously mentioned.

In the second ironic story, the major mistake made by the children participants is that they responded to the questions with "I don't know" or "I forgot" or did not respond at all, as approximately 27.1% of their responses fall under the category "no idea." Approximately 23.9% of incorrect explanations fall under the category "literal," the second most common category of incorrect explanations. 19.5% of the incorrect explanations fall under the category "incorrect focus," indicating that this is a common category. Next, the frequency of incorrect responses is "irrelevant," with approximate 16.3%. In addition, roughly 9.7% of the incorrect responses are "inadequate" and 3.2% are "meaningless". These findings from the second ironic story offer valuable insights into the challenges children face when interpreting irony. The results show that the primary issue for children is their inability to comprehend or explain the ironic utterance, as indicated by the high percentage of "no idea" responses. This suggests that children may struggle to identify or understand the deeper meaning behind ironic statements, which could be attributed to their cognitive development or limited exposure to irony. The second major challenge for children is the tendency to interpret the ironic utterance literally. This indicates that children might have difficulty grasping the underlying sarcastic or humorous intent behind the ironic statements, possibly due to their reliance on the literal meaning of words and phrases. Another common issue is the "incorrect focus" category, where children fail to address the central point of irony in their explanations. This might occur because children might not be able to pinpoint the key elements of the ironic statement that needs to be addressed in their explanation. Additionally, the "irrelevant" category highlights that some children may lose focus or become confused when attempting to explain the irony, leading them to provide answers unrelated to the question or story. This could be a result of distraction or misunderstanding. Furthermore, the "inadequate" and "meaningless" categories represent a smaller portion of the incorrect answers,

indicating that while some children find it difficult to provide complete and accurate explanations, these issues are less prevalent compared to the other challenges discussed.

The data from the responses to the questions in Ironic Story 3 indicate that the most common mistake made by children participants is the literal interpretation of ironic statements, accounting for approximately 43.3% of incorrect responses. This suggests that children may have difficulty understanding the nonliteral meaning of ironic language. The second major challenge for children is their inability to comprehend or explain an ironic statement, as evidenced by the approximately 20.4% of "no idea" responses. This suggests that children may have trouble understanding the intended meaning of ironic statements, possibly as a result of their cognitive development or limited exposure to irony. The "irrelevant" category, which accounts for approximately 15.6% of incorrect explanations, indicates that some children may lose concentration or become confused when attempting to explain irony, leading them to provide responses unrelated to the question or story. This may have occurred due to distraction or misunderstanding. The "incorrect focus" category, which accounts for approximately 12 percent of incorrect explanations, demonstrates that children occasionally miss the irony's central point. This can result in inaccurate explanations even when the context is not misinterpreted. Approximately 6.0% and 2.4% of the incorrect responses fall into the "inadequate" and "meaningless" categories, respectively. This demonstrates that, while some children may struggle to provide complete and accurate explanations or provide nonsensical explanations, these difficulties are less prevalent than the other difficulties discussed. In conclusion, the primary reason for the children's incorrect responses in the third ironic story is their tendency to take ironic expressions literally. This suggests that children may have difficulty grasping the non-literal meaning of ironic language, which may be a result of their cognitive development or limited exposure to irony. The other incorrect answer types, including "no idea," "irrelevant," "incorrect focus," "inadequate," and "meaningless," contribute to the overall difficulties children face when interpreting irony, but are less common than the literal interpretation.

In Ironic Story 4, the most common mistake in incorrect explanations is "inadequate" explanations, making up approximately 24.2% of wrong answers. This implies that children might have difficulties offering a comprehensive explanation of ironic statements, indicating that they may not entirely grasp the intended meaning or lack the capability to express it effectively. The second significant hurdle for children is their incapability to comprehend or explain ironic utterances, as shown by the "no idea"

responses, accounting for about 22.8% of the answers. This underscores that children might face challenges in understanding the intended meaning of ironic statements, potentially due to their cognitive development or limited exposure to irony. The literal interpretation of ironic statements is another noteworthy issue, constituting approximately 21.4% of incorrect explanations. This finding suggests that children might find it challenging to identify the non-literal meaning behind the ironic utterance. The "incorrect focus" category, comprising approximately 14.2% of incorrect explanations, reveals that children occasionally fail to concentrate on the main point of the irony. This can result in explanations that stay inaccurate even if the context is not misused. A smaller fraction of the incorrect answers fall into the "irrelevant" and "meaningless" categories, with approximately 11.4% and 5.7% respectively. This demonstrates that while some children might offer unrelated or illogical explanations, these issues are less prevalent compared to the other challenges mentioned. Therefore, it can be said that the main reason for children providing incorrect answers in the fourth ironic story cannot be pinpointed to a single issue, as the distribution of incorrect answer types is more balanced compared to the previous stories. In this case, the main challenges children face when interpreting irony include inadequate explanations, lack of comprehension or understanding of the ironic utterance, and literal interpretation of ironic statements.

The literal interpretation of ironic statements, which accounts for approximately 55.3% of incorrect explanations, is the most significant issue in the fifth ironic story. This suggests that children may have difficulty discerning the non-literal meaning of ironic language, possibly as a result of their cognitive development or limited exposure to irony. The "incorrect focus" category, which accounts for approximately 15.3% of incorrect explanations, demonstrates that children sometimes fail to address the irony's central point. This can result in inaccurate explanations even when the context is not misinterpreted. The responses of "no idea," which account for approximately 12.3% of the responses, suggest that children may have difficulty understanding the intended meaning of ironic statements. Approximately 6.1%, 6.1%, and 4.6% of the incorrect responses fall into the categories of "inadequate," "irrelevant," and "meaningless," respectively. Although these issues are less prevalent than the others discussed, they still merit consideration because they contribute to the overall difficulty children have with irony interpretation. In conclusion, the primary cause of the children's incorrect answers in the fifth ironic story is the literal interpretation of ironic statements. This finding suggests that children may have difficulty understanding the figurative meanings of ironic language.

In conclusion, there is a relationship between the children's performances and the major mistakes of incorrect explanations in the ironic stories. As children's performance improves across the stories, the distribution and frequency of the major mistakes in incorrect explanations also evolve. By examining the major mistakes made by children in each story, it can be identified that the challenges they face when interpreting irony and gain insights into how their understanding of irony has improved over time. When children struggle with specific aspects of irony interpretation, it affects their overall performance in the stories. For example, in Ironic Story 1, the primary issue was the literal interpretation of ironic statements, which indicates that children had difficulty grasping the non-literal meaning behind the expressions. This challenge contributed to their lower performance in the first story. As the children encountered more instances of ironic language, their performance improved, and the major mistakes in their incorrect explanations shifted. For example, in Ironic Story 2, the major mistake was the children responding with "I don't know" or "I forgot," which suggests a difficulty in comprehending or explaining the ironic utterance. However, their performance improved in subsequent stories, indicating that they became more adept at recognizing and understanding ironic language. Over time, the children's improved performance across the stories reflects their growing understanding of irony and their ability to address the major mistakes that contributed to incorrect explanations. As children become more skilled at interpreting ironic expressions, the prevalence of these mistakes decreases, and their overall performance in the stories improves. To sum up, there is a relationship between the children's performances and the major mistakes of incorrect explanations in the ironic stories. The evolution of these major mistakes can provide valuable insights into the challenges faced by children when interpreting irony and how their understanding of irony improves as they encounter more examples of ironic language.

After the descriptive analysis of the correct answers given to each ironic story, children’s correct answers given to each question in ironic stories were given and discussed in terms of their Theory of Mind abilities. Descriptive statistics of the children’s total scores of the correct answers on each question in ironic stories. including the minimum. maximum and mean scores and standard deviation. are given in Table 4.

Table 4. Descriptive statistics of the children's total scores on each question in ironic stories

Test item	N	Min.	Max.	Mean	Std. Deviation
Speaker's Attitude Question	60	.00	5.00	4.03	1.30
Speaker's Attitude Justification Question	60	.00	5.00	2.91	1.70
Speaker's Meaning Question	60	.00	5.00	2.38	1.61
Speaker's Intent Question	60	.00	5.00	2.83	1.42
Speaker's Belief Question	60	.00	5.00	4.01	1.21

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As can be seen in Table 4, the minimum scores of the children group on all the questions is .00 and the maximum score of the children group on all the questions is 5.00. As for mean scores and standard deviation. the scores for all the questions are as follows: Speaker's Attitude Question: M = 4.03. SD = 1.30. Speaker's Attitude Justification Question: M = 2.91. SD = 1.70. Speaker's Meaning Question: M = 2.38. SD = 1.61. Speaker's Intent Question: M = 2.83. SD = 1.42. and Ironic Speaker's Belief Question: M = 4.01. SD = 1.21. Standard deviation illustrates that the distribution of the correct answers for the Speaker's Belief Question data is closer to the mean than that of the other questions. This question is followed by the Speaker's Attitude Question. Speaker's Intent Question. Speaker's Meaning Question and Speaker's Attitude Justification Question.

The mean scores indicate that the children correctly answered the Speaker's Attitude Question and the Speaker's Belief Question. These are the only optional questions presented to study participants. In other words, the questions are closed-ended. They are both first-order ToM questions. The Speaker Attitude Question measures a participant's ability to comprehend the speaker's attitude, whereas the Speaker's Belief Question measures a participant's ability to comprehend that another person may hold a different belief than their own. It can be said that children could comprehend both the speaker's attitudes and beliefs in ironic stories.

After these questions, the children showed a successful performance in answering Speaker's Attitude Justification Questions. This is a second-order ToM question and it is asked to gain a deeper understanding of how the participant perceived the attitude of the speaker. Since speaker attitude is a closed-ended and optional, adding an open-ended justification question provides greater insight into the participant's reasoning. It can therefore be concluded that their performance in this question is lower than in the closed-ended questions and that they are unable to successfully justify their speaker's attitude evaluations.

According to the mean scores, the performance of the children in answering questions about the Speaker's Intent ranks fourth. This is a second-order ToM question that assesses the participant's ability to comprehend the statement's intent. The mean score of this question's answers is 2.83. This demonstrates that children cannot answer Speaker's Intent Questions as well as they can answer closed-ended questions and cannot provide explanations because they find it difficult to comprehend the intent behind the ironic utterances.

Speaker's Meaning Question was the question to which children provided the fewest accurate responses. This is a second-order ToM question that assesses the participant's ability to comprehend the meaning of the speaker's ironic utterance. This indicates that children cannot answer Speaker's Meaning Questions as well as they can answer closed-ended questions and cannot provide explanations because they have difficulty understanding the meaning behind ironic statements.

Overall, the findings of the answers given to the questions in the ironic stories demonstrate that children find it easier to answer close-ended questions than open-ended questions. Their performances in the open-ended questions do not show any effect on whether the question is the first-order ToM questions or the second-order ToM questions. It can be said that it is difficult for 5- and 6-year-old Turkish-speaking children to respond to questions regarding the meaning and intent of an ironic utterance and to provide justifications requiring explanations. It is found that children could answer close-ended questions and failed to answer open-ended questions. To understand the main reason for their inability to provide explanations for the open-ended questions, their incorrect explanations for these questions were obtained and divided into six categories. The types of incorrect explanations of the children for the open-ended questions in the ironic stories are presented below in the bar chart.

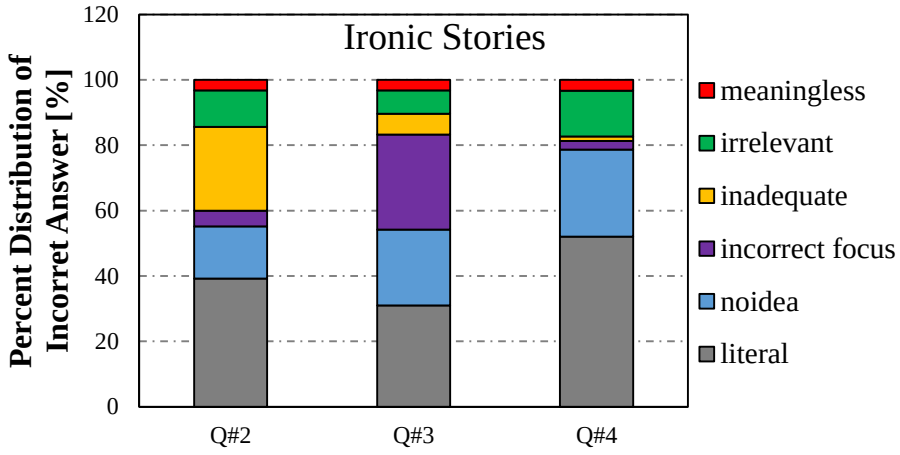

Figure 3. Distribution of children's incorrect explanations for open-ended questions in ironic stories

As can be seen in Figure 3, the results of the answers given to the Speaker's Attitude Question Justification reveal various types of incorrect responses and their respective percentages in the sample. These findings are important to understand the common pitfalls and potential misunderstandings when it comes to interpreting and justifying a speaker's attitude. Incorrect Focus is the most common type of incorrect explanation with a percentage of 48%, where participants provided answers that were close to being correct but failed to address the specific focus of the question. It suggests that the participants may have a general understanding of the context but struggle to pinpoint the relevant aspects. The second most common incorrect response involved participants interpreting ironic utterances based on the literal meaning of the words, rather than understanding the underlying irony. 39.2% of the incorrect explanations were in the category of ''literal''. This implies that some participants may have difficulty grasping non-literal language or identifying context cues that signal irony. In addition, 25.6% of the responses were deemed inadequate as they did not provide enough information or used vague phrases like "because of the story" without elaborating. This may indicate that participants either did not understand the question or lacked the ability to articulate their thoughts properly.

Some participants expressed that they did not know, forgot, or didn't remember the answer, or provided no answer at all. So, 16% of the incorrect explanations are in the ''no idea'' category. This might be due to a lack of comprehension or a reluctance to guess when unsure. Also, among the incorrect explanations, 11.2% of them are irrelevant. These responses could not be connected to the

context of the question, indicating that the participants may have been confused or did not understand the question at all.

The least common type of incorrect response involved answers with complex sentence structures that did not conform to the grammatical rules of the language, making it unclear what the participant meant. These are the ‘’meaningless’’ explanations and 3.2% of the incorrect explanations fall into this category. This suggests that some participants might have language or communication difficulties or they might get confused. The prevalence of ‘’incorrect focus’’ as the most frequent error suggests children occasionally fail to concentrate on the main point of the irony. Moreover, the prevalence of ‘’literal’’ interpretation of ironic utterances suggests that many children struggle to interpret non-literal language, such as irony or sarcasm. Additionally, ‘’inadequate’’, ‘’no idea’’, ‘’irrelevant’’, and ‘’meaningless’’ responses represent a spectrum of difficulties, ranging from the inability to articulate ideas to providing irrelevant or grammatically incorrect responses. Although less prevalent than ‘’incorrect focus’’ and ‘’literal’’ mistakes, these mistakes highlight additional obstacles that participants must overcome. The findings presented for the incorrect explanations given to the Speaker's Meaning Question reveal the types of difficulties participants experience when attempting to understand the intended meaning behind a speaker's words.

In the Speaker’s Meaning Question, the most common mistake involves participants interpreting the speaker's meaning based on the literal language, rather than recognizing the intended non-literal meaning or context. 30.9% of the incorrect explanations are in the ‘’literal’’ category. This suggests that a significant number of participants have difficulty grasping non-literal language or identifying contextual cues that signal the intended meaning. A close second, ‘’incorrect focus’’ mistakes indicate that participants may understand the general context but struggle to address the specific focus of the question, resulting in a response that is not accurate or relevant. 29% of the incorrect explanations fall into this category. In addition to this, a considerable portion of participants expressed uncertainty or provided no answer, indicating a potential lack of comprehension or reluctance to guess when they are unsure about the speaker's intended meaning. So, 23.2% of the answers are in the ‘’no idea’’ category. Among the incorrect answers, 7% of them are ‘’irrelevant’’. These responses were unrelated to the context of the question, suggesting that the participants might be confused or did not understand the question at all. Also, 6.4% of the incorrect explanations are inadequate. Participants provided

answers that lacked sufficient information or failed to elaborate on their thoughts, possibly due to a lack of understanding or difficulty articulating their ideas.

‘’Meaningless’’ is the least common mistake involving answers with complex sentence structures that did not adhere to the grammatical rules of the language, making it unclear what the participant meant. This suggests that a small percentage of participants might face language or communication difficulties. 3.2% of the answers are meaningless. In conclusion, the major reasons for incorrect explanations in the Speaker's Meaning Question can be attributed to difficulties in understanding non-literal language and accurately addressing the focus of the question. The prominence of ‘’literal’’ and ‘’incorrect focus’’ mistakes highlights the challenges that individuals face in grasping the intended meaning behind a speaker's words, as well as identifying and articulating the most relevant aspects of the given context.

The findings for the incorrect explanations given to the Speaker's Intent Question reveal a range of challenges that participants face when trying to interpret the speaker's underlying intentions. A notable 52% of the incorrect explanations are literal interpretations, indicating that many individuals have difficulty looking beyond the literal language to understand the true intent of the speaker. This points to a struggle in grasping non-literal language and recognizing contextual cues that convey the speaker's intentions. Furthermore, 26.6% of the incorrect explanations showed uncertainty or the participants provided no answer at all with ‘’no idea’’ responses. This sizable portion implies that participants might lack comprehension or are reluctant to guess when unsure about the speaker's intentions. A significant 14% of the incorrect explanations were irrelevant responses, which were unrelated to the context of the question. This suggests that a considerable number of participants may be confused or misunderstood the question altogether. The remaining categories, such as Meaningless (3.3%), Incorrect Focus (2.6%), and Inadequate (1.3&), constitute relatively smaller percentages of the total incorrect explanations. These mistakes reveal other challenges that participants face, such as forming grammatically and contextually coherent sentences, addressing the specific focus of the question, or providing insufficient information in their responses.

In conclusion, the major mistakes of incorrect explanations in the Speaker's Intent Question are predominantly ‘’literal’’ interpretations and ‘’no idea’’ responses. The high occurrence of literal mistakes indicates that many individuals struggle to understand non-literal language and grasp the

underlying intentions of the speaker. This suggests that participants might have difficulty recognizing contextual cues that reveal the speaker's intent. The substantial proportion of ‘’no idea’’ responses highlights the challenges some individuals face in comprehending the speaker's intent or expressing their uncertainty when they are unsure about it.

After giving a descriptive analysis of the children’s performances in each story and each question type, the study focused on the reaction times of the children. After the children listened to the story twice, they were asked to click one of the emojis (teasing emoji and real emoji) to show their understanding of the speaker’s attitude. Their reaction times were recorded and analyzed. Descriptive statistics of the total scores for the reaction times of the children on each ironic story. including the minimum. maximum and mean scores and standard deviation. are given in Table 5.

Table 5. Descriptive statistics of the reaction times of the children on each ironic story

Test item	N	Min.	Max.	Mean	Std. Deviation
Ironic Story 1	60	5.98	10.43	6.76	4.74
Ironic Story 2	60	1.86	16.20	6.11	3.13
Ironic Story 3	60	0.93	17.46	6.19	4.02
Ironic Story 4	60	1.65	19.77	5.07	3.16
Ironic Story 5	60	0.68	16.46	4.50	2.83

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As shown in Table 5, the minimum reaction time for the Ironic Story 1 for the children's group is 5.98 seconds and the maximum is 10.43 seconds. As for the mean score and standard deviation. the scores of the reaction time of this story are as follows: M = 6.76. SD = 4.74. Also. the minimum reaction time for the Ironic Story 2 of the children group is 1.86 seconds. and the maximum response time is 16.20 seconds. Regarding the mean score and standard deviation. the reaction time scores for this story are as follows: M = 6.11. SD = 3.13. Additionally. Ironic Story 3 has a minimum reaction time

of 0.93 seconds and a maximum reaction time of 17.46 seconds for the children group. The average score and standard deviation for this story's reaction time are as follows: M = 6.19. SD = 4.02. In Ironic Story 4. the minimum reaction time is 1.65 seconds and the maximum reaction time is 19.77 seconds. As for the mean score and standard deviation. the scores of the reaction time of this story are as follows: M = 5.07. SD = 3.16. Considering the reaction time to the Ironic Story 5, it can be seen that the minimum reaction time is 0.685 seconds and the maximum reaction time is 16.46 seconds. Regarding the mean score and standard deviation. the reaction time scores for this story are as follows: M = 4.50. SD = 2.83. Standard deviation illustrates that the distribution of the data of reaction times for the Ironic Story 5 is closer to the mean than that of the other stories.

The mean scores of the reaction times demonstrate that the fifth story elicited the fastest response from children. In addition, when the minimum reaction time was analyzed, the fastest response was given after listening to this story. Therefore, it can be said that children had fewer processing difficulties and responded faster to the fifth story compared to the others. The average number of morphemes per word in the fifth ironic story is 1.80, containing fifty-two words and ninety-four morphemes. The morphological complexity of this story is therefore low. Moreover, the average word length in this narrative is approximately 5.5 characters. In addition, a child-child character dyad exists.

After the fifth story, the fourth story elicited the fastest reaction time from the children. This story contains thirty-four words and fifty-five morphemes, with an average of 1.61 morphemes per word. This story's morphological complexity is therefore considered to be low. In addition, the average word length in this story is approximately 5.29 characters. There is also a child-child character dyad.

Following the fastest reaction times of the fourth story, children clicked on the emojis the quickest to evaluate the speaker's attitude after listening to the second story. This story includes thirty-eight words and sixty-one morphemes, with an average of 1.60 morphemes per word. Therefore, it can be said that the morphological complexity of this story is low. In addition, the average number of characters per word in this narrative is 5.13, and there is a a child-child character dyad.

The third ironic story is the one for which children spend the fourth fastest reaction time. This story is also the second story with the minimum response time, which includes the lowest response time after the minimum response time of the fifth story. Ironic story three contains thirty-eight words and

seventy-nine morphemes, and the average number of morphemes per word in this story is 2.07. This story's morphological complexity is therefore considered to be medium. In addition, there are approximately 6.13 characters per word and an adult-child character dyad in this story.

In the first story, children required the longest reaction time to click an emoji. This story contains twenty-six words and forty-eight morphemes, with an average of 1.84 morphemes per word. This story's morphological complexity is therefore considered to be low. Additionally, the average word length in this story is approximately 5.65 characters. There is also a child-child character dyad.

These results are comparable to the results of the correct answers provided by the children in each ironic story. The fifth story was the one that the children comprehended best, for which they provided the most correct responses and demonstrated the fastest reaction time. Also, the story that follows the fifth story is the fourth story in both results. However, there is a difference between the order of the correct answers based on the stories and the order of the reaction times.

In the ranking based on the correct answers given by the children to the stories, it was observed that the children performed better in the third story than in the second story, despite spending less time reacting in the second story. The children performed the worst and had the most difficulty with the first story, according to both the data on correct responses and reaction times. Also, it is essential to recognize that the word orders in all the stories are identical because they all exhibit subject-object-verb (SOV) structures. In addition, the vocabulary employed in each story is simple and accessible to a broad range of readers, including chocolate, spinach, rain, and cherry juice, among others. The only possible explanation for the difference in their reaction times is that the stories' contexts are different.

4.3. PERFORMANCES OF THE CHILDREN IN LITERAL STORIES

To examine the children's performance with literal stories, the sum of their correct responses to all first- and second-order belief questions was provided. Table 6 provides descriptive statistics of the children's total scores for correct responses to each literal story, including the minimum, maximum, mean, and standard deviation.

Table 6. Descriptive statistics of the total scores of the children on each literal story

	N	Min.	Max.	Mean	Std. Deviation
Literal Story 1	60	1.00	5.00	2.81	1.22
Literal Story 2	60	1.00	5.00	4.15	1.03
Literal Story 3	60	.00	5.00	4.00	1.32
Literal Story 4	60	1.00	5.00	4.32	1.04
Literal Story 5	60	.00	5.00	4.18	1.51

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As can be seen in Table 6, the minimum scores of the children group on the literal stories is .00 in the third story and the fifth story. On the other hand. in the first story. the second story. and the fourth story demonstrates the minimum score of .00. The maximum scores of the correct answers on all literal stories are 5.00. As for mean scores and standard deviation. the scores for all literal stories are as follows: Literal Story 1: M = 2.81. SD = 1.22. Literal Story 2: M = 4.15. SD = 1.03. Literal Story 3: M = 4.00. SD = 1.32. Literal Story 4: M = 4.32. SD = 1.04. and Literal Story 5: M = 4.18. SD = 1.51. Standard deviation illustrates that the distribution of the second ironic story's data is closer to the mean than that of the other ironic stories. This story is followed by the fourth story. the first story. the third story. and the fifth story. respectively. with data distributions closer to the mean in each case.

The subject-object-verb (SOV) structure is present in each of the stories, so it is essential to note that the word orders are identical. Moreover, the vocabulary employed in each story is simple and accessible to a broad audience of readers. Such words include poem, forest, Lego, box, gift, and dress, among others.

The results of the mean scores indicate that children performed better on the fourth literal story than on the others. This story consists of twenty-seven words and forty-five morphemes, with an average of 1.66 morphemes per word. This story's morphological complexity is therefore considered to be

low. Also, the average word length in this story is approximately 5.29 characters. In addition, there is a child-child character dyad.

After the fourth story, the children responded most accurately to the fifth story's questions. This story contains thirty-six words and fifty-seven morphemes, with an average of 1.58 morphemes per word. This story's morphological complexity is therefore considered to be low. In addition, the average word length in this story is approximately 5.22 characters. There is also a child-child character dyad.

The mean scores reveal that the second story was the one for which the children correctly answered the questions after the fifth story. The second ironic story contains twenty-four words and forty-three morphemes, and the average number of morphemes per word is 1.79. The morphological complexity of this story is therefore low. In addition, the average word length in this narrative is approximately 5.5 characters, and there is a child-child character dyad.

Following the second story, the third story elicited the most accurate responses from the children. This story contains thirty words and fifty-eight morphemes, with an average of 1.93 morphemes per word. The morphological complexity of this story is therefore low to moderate. Additionally, the story contains moderate syntactic complexity. In addition, the average word length in this story is 6.36 characters, and there is an adult-child character dyad.

The first story's questions had the lowest number of correctly answered responses, according to the findings. This story contains thirty-two words and fifty-three morphemes, with 1.65 morphemes per word on average. Consequently, this story's morphological complexity can be considered to be low. Additionally, approximately 5.5 characters are used in per word in this story there is a child-child character dyad.

The findings reveal that morphological complexity and word length have no effect on the rate of comprehension because the fourth story has neither the lowest morphological complexity nor the shortest word length. The fifth story, first story, fourth story, second story, and first story have the lowest morphological complexity and shortest word length, respectively. However, children did not provide the most accurate responses to the stories in this order. It was also observed that the length

or shortness of the story did not affect the accuracy of the responses to the questions, as the second story was the shortest and the fifth story was the longest. Additionally, four of the stories feature child-child dyads and only one, the third story, features an adult-child dyad. The number of correct responses is neither highest nor lowest for the third story. Therefore, character dyads have no effect on the comprehension of ironic stories.

The mean scores indicate that the context of the stories is the only possible explanation for the different comprehension rates and correctness of the children's responses to literal stories.

The incorrect explanations in the literal stories are shown in the following Figure:

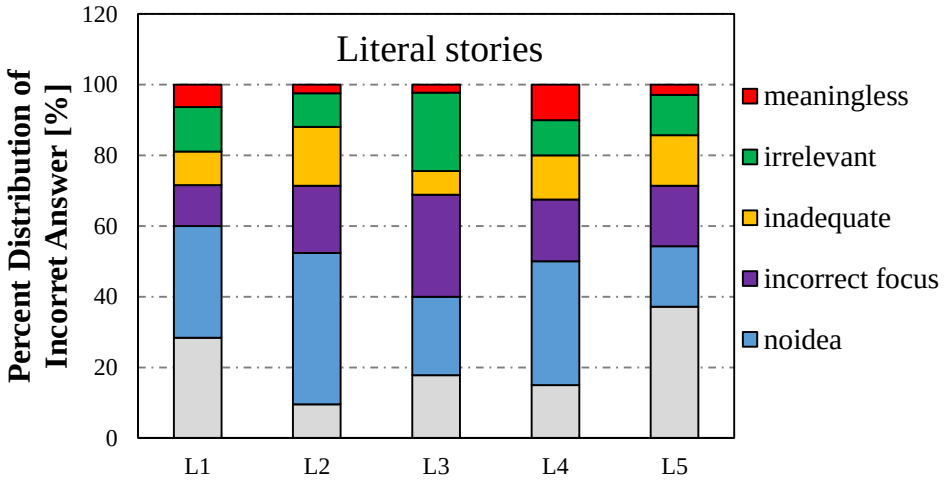

Figure 4. Distribution of children's incorrect explanations for the question in literal stories

As can be seen in Figure 4, in Literal Story 1, the most common issue is the inability to comprehend or explain the story, as evidenced by the "no idea" category, which makes up approximately 31.5% of incorrect explanations. This may indicate that children struggle to understand the storyline or the main points of the story, which could be attributed to factors such as cognitive development, limited exposure to certain story themes, or the complexity of the text. The second most common challenge is providing explanations with the opposite meaning of the actual story, representing approximately 28.4% of incorrect explanations. This suggests that children might have difficulty grasping the intended message or meaning of the story, possibly due to misinterpretation or confusion regarding

the storyline. Irrelevant explanations make up approximately 12.6% of incorrect responses, indicating that some children have difficulty maintaining focus on the main points of the story or may become confused while attempting to explain the story. This could result from distraction, misunderstanding, or a lack of familiarity with the story's theme or context. Approximately 11.5% of incorrect explanations fall under the "incorrect focus" category, suggesting that children might struggle to pinpoint the key elements of the story that need to be addressed in their explanations. This could be due to a lack of understanding of the central theme or an inability to effectively synthesize the story's main points. Inadequate explanations account for about 9.4% of incorrect responses, demonstrating that some children have difficulty providing complete and accurate explanations for the story. This could be a result of limited vocabulary, insufficient understanding of the story, or the inability to effectively articulate their thoughts. Finally, approximately 6.3% of the incorrect explanations are classified as "meaningless." This suggests that a smaller portion of children might provide nonsensical or unrelated explanations, possibly due to confusion or a lack of understanding of the story's main points. In conclusion, the main reasons for children's inability to understand Literal Story 1 and provide correct explanations can be attributed to a combination of factors. First, a significant number of children struggle with comprehension or difficulty in explaining the story, as demonstrated by the high percentage of "no idea" responses. Second, children might have difficulty grasping the intended message or meaning of the story, as evidenced by a substantial proportion of responses with the opposite meaning. Other contributing factors include providing irrelevant or incorrect focus explanations, indicating challenges with maintaining focus on the main points, or synthesizing key elements of the story.

In Literal Story 2, children's inability to comprehend or explain the story is the most common issue, as evidenced by the "no idea" category, which accounts for approximately 42.8% of incorrect explanations. This may indicate that children have difficulty understanding the plot or the main points of the story, which may be due to cognitive development, limited exposure to certain story themes, or the complexity of the text. 19% of incorrect explanations fall under the "incorrect focus" category, indicating that children may have difficulty identifying the story's key elements that must be addressed in their explanations. This may be due to a lack of comprehension of the story's central theme or an inability to effectively synthesize the narrator's main points. About 16.6% of incorrect responses contain inadequate explanations, indicating that some children struggle to provide complete and accurate explanations for the story. This could be due to a limited vocabulary, a lack of

comprehension of the story, or an inability to articulate their thoughts effectively. In approximately 9.5% of incorrect explanations, children provide explanations with the opposite meaning of the actual story. This indicates that children may have difficulty grasping the story's intended message or meaning, possibly due to misinterpretation or confusion regarding the plot. Approximately 9.5% of incorrect responses contain irrelevant explanations, indicating that some children have difficulty maintaining focus on the story's main points or may become confused while attempting to explain the story. This could be due to distraction, misunderstanding, or unfamiliarity with the theme or context of the story. Finally, only 2.3% of the incorrect explanations are labeled as "meaningless," which suggests that a smaller proportion of children may offer meaningless or unrelated explanations, possibly as a result of confusion or a failure to grasp the main ideas of the story. Consequently, a combination of factors is responsible for children's inability to comprehend Literal Story 2 and provide accurate explanations. As evidenced by the high percentage of "no idea" responses, the most significant issue is the difficulty with comprehension or the difficulty in explaining the story. Children's inability to identify the story's central elements due to a lack of focus in their explanations, as well as their inability to provide adequate explanations, indicate that they may struggle to articulate their thoughts completely and accurately.

Examining the children's responses to Literal Story 3 reveals numerous difficulties they face when attempting to comprehend and provide accurate explanations of the story. The primary challenge children face is having an "incorrect focus," which accounts for approximately 28.8% of incorrect explanations. This may indicate that children have difficulty identifying the essential story elements that should be addressed in their explanations. This issue could be the result of a limited grasp of the story's central theme or an inability to effectively process the story's key concepts. The "no idea" category accounts for approximately 22.2% of all incorrect explanations and represents the second most common difficulty. This suggests that children may find it challenging to comprehend the narrative or the essential elements of the story. This difficulty may be caused by cognitive development, exposure to specific story themes, or the complexity of the text. Equally prevalent is the category "irrelevant," which accounts for approximately 22.2% of the incorrect responses. This demonstrates that some children may have difficulty concentrating on the story's central themes or become disoriented when attempting to explain the plot. Possible causes include distraction, misunderstanding, or unfamiliarity with the story's context or theme. Approximately 17.7% of incorrect explanations are provided by children who provide the "opposite meaning" to the actual

story. This could suggest that children may have difficulty understanding the story's intended message or significance, possibly due to misinterpretation or confusion regarding the plot. Additionally, about 6.6% of the incorrect responses contained "inadequate" explanations, indicating that some children struggle to provide complete and accurate explanations of the story. Possible underlying causes for this issue include a limited vocabulary, insufficient comprehension of the story, or difficulty effectively articulating their thoughts. Also, approximately 2.2% of the incorrect explanations are categorized as "meaningless." This suggests that a few children may provide illogical or unrelated explanations, possibly due to confusion or an inability to comprehend the story's main ideas. In conclusion, the primary challenges children face in understanding Literal Story 3 and providing accurate explanations stem from issues such as not being able to accurately address the question's focus, providing irrelevant explanations, misinterpreting the story's intended message, offering incomplete explanations, and giving meaningless responses.

In Literal Story 4, the analysis of incorrect explanations provided by children reveals a number of obstacles they face when attempting to comprehend and accurately explain the story. The "no idea" category represents the most frequent difficulty, accounting for 35% of incorrect responses. This indicates that children may have difficulty comprehending the story's central theme or essential elements, possibly due to cognitive development or the text's complexity. The "incorrect focus" category is the second most frequent error, accounting for approximately 17.5% of all incorrect responses. As defined previously, an incorrect focus response occurs when a child's response does not accurately address the central focus of the question. Although these responses are incorrect, they do not contain any content that is inappropriate to the context, indicating that the child may have a basic understanding of the topic but struggles to focus on the specific aspect of the story that the question is addressing. The explanations with the "opposite meaning" of the actual story account for approximately 15% of incorrect explanations. This may indicate that they have difficulty discerning the intended message or significance of the story, possibly as a result of misinterpretation or confusion surrounding the plot. Moreover, the "inadequate" category, which comprises approximately 12.5% of incorrect responses, suggests that some children may have difficulty providing complete and accurate descriptions of the story. This may be the result of a lack of comprehension or an inability to articulate their thoughts clearly. Additionally, 10% of the incorrect responses fall under the "irrelevant" and "meaningless" categories, respectively. This implies that children may occasionally lose concentration or become confused when attempting to explain the story, resulting in responses that

are irrelevant to the question or nonsensical. This may be due to distraction or a misunderstanding of the story's central ideas. Therefore, a combination of factors accounts for children's inability to comprehend Literal Story 2 and provide accurate explanations. As indicated by the high percentage of "no idea" responses, the most significant issue is either the difficulty with comprehension or the difficulty in relating the story. The children's inability to accurately address the question's focus and their inability to explain the meaning of the sentences in the story suggest that they may struggle to comprehend certain expressions.

The data from the responses to the questions in Literal Story 5 shows that there were a significant number of incorrect responses from the children participants. Among the incorrect responses, the most common mistake made by the children was providing an explanation with an "opposite meaning," accounting for approximately 37.1% of the incorrect answers. This suggests that some children interpreted the literal meaning of the story in the opposite direction and failed to recognize the intended meaning. The second most common category of incorrect explanations was "no idea," accounting for approximately 17.1% of the responses. This indicates that some children were unable to comprehend or explain the literal meaning of the story. Also, the category "incorrect focus" accounted for approximately 17.1% of incorrect answers, demonstrating that some children failed to address the central point of the question and provided answers that were inaccurate and could not be accepted as correct. Although the child's response made no use of context-inappropriate material, it was still deemed inaccurate as it did not accurately address the question's focus. Additionally, approximately 14.2% of the incorrect answers were categorized as "inadequate," indicating that some children provided incomplete or insufficient explanations for the literal meaning of the story. Moreover, the "irrelevant" category accounted for approximately 11.4% of the incorrect answers, indicating that some children lost focus or became confused when attempting to explain the literal meaning of the story, leading them to provide answers unrelated to the question or story. Lastly, approximately 2.8% of the incorrect answers were categorized as "meaningless," indicating that some children provided responses that were nonsensical or lacked meaning. In conclusion, the data from Literal Story 5 indicate that the majority of the children had difficulty providing accurate explanations for the literal meaning of the story. The most common categories of incorrect explanations were providing an "opposite meaning" and having "no idea" of the literal meaning of the story. The other categories of incorrect explanations, including "incorrect focus," "inadequate," "irrelevant," and

"meaningless," contributed to the overall difficulties children faced when interpreting the literal meaning of the story.

After a descriptive analysis of the correct answers given to each ironic story, the correct answers given by children to each question in ironic stories were presented and discussed in terms of their Theory of Mind skills. Table 6 provides descriptive statistics regarding the children's total scores for correct answers to each question in ironic stories, including minimum, maximum, mean, and standard deviation.

Table 7. Descriptive statistics of the children's total scores on each question in literal stories

Test Item	N	Min.	Max.	Mean	Std. Deviation
Speaker's Attitude Question	60	1.00	5.00	4.10	.98
Speaker's Justification Question	60	.00	5.00	3.23	1.55
Speaker's Meaning Question	60	.00	5.00	3.31	1.45
Speaker's Intent Question	60	1.00	5.00	4.16	.97
Speaker's Belief Question	60	1.00	5.00	4.55	.79

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As can be seen in Table 7, the minimum score of the children group on the Speaker's Attitude Question. Speaker's Intent Question. and Speaker's Belief Question is .00. Also. the maximum scores of the children group on all the questions is 5.00. As for mean scores and standard deviation, the scores for all the questions are as follows: Speaker's Attitude Question: M = 4.10. SD = .98, Speaker's Attitude Justification Question: M = 3.23. SD = 1.55, Speaker's Meaning Question: M = 3.31. SD = 1.45. Speaker's Intent Question: M = 4.16. SD = .97, and Speaker's Belief Question: M = 4.55. SD

= .79. Standard deviation illustrates that the distribution of the correct answers for the Speaker's Belief Question data is closer to the mean than that of the other questions. This question is followed by the Speaker's Intent Question. Speaker's Attitude Question. Speaker's Meaning Question and Speaker's Attitude Justification Question.

The mean scores show that children provided the most accurate responses to the Speaker's Belief question. The Speaker's Belief Question assesses a participant's ability to recognize that another person may hold a belief that differs from their own. This is a closed, optional question. Speaker's Intent was the second question in which the children performed the best. This question is open-ended and demonstrates that the respondent comprehends the speaker's intended meaning. Speaker's Belief is a first-order Theory of Mind question, whereas Speaker's Intent is a second-order Theory of Mind question.

The children then demonstrated a third successful performance in responding to Speaker's Attitude Questions. This is a first-order ToM question with a closed (optional) response format. It evaluates a participant's capacity to understand the speaker's attitude.

Following their performances in the Speaker's Attitude Question, according to the correct answers of the children, the fourth question is the Speaker's Attitude Justification Question. This is a second-order Theory of Mind question designed to gain a deeper understanding of how the participant perceived the speaker's attitude. Since speaker attitude is a closed-ended question that reveals only whether or not the participant correctly answered the question, adding an open-ended justification question reveals more about the participant's reasoning. Therefore, it can be concluded they are unable to adequately justify their speaker's attitude evaluations.

The Speaker's Meaning Question elicited the fewest accurate responses from the children. This is a second-order ToM question that evaluates the participant's comprehension of the ironic utterance of the speaker. This suggests that children are unable to provide explanations because they struggle to comprehend the meaning of literal statements.

In conclusion, the answers to the questions in the literal stories indicate that children can respond to both open-ended and closed-ended questions. In addition, whether the question evaluates first-order ToM or second-order ToM has no influence on their performance when answering questions about literal stories. Therefore, it is not difficult for them to comprehend the speaker's belief and to explain the speaker's intent when they listen to literal stories. Similar to the outcomes of ironic stories, when they clarify the speaker's meaning, they perform the worst.

Following this analysis, in order to determine the primary cause of their incorrect answers to the open-ended questions, their incorrect explanations to these questions were collected and categorized into six groups. The types of children's incorrect responses to the ironic open-ended questions are presented in the bar chart below.

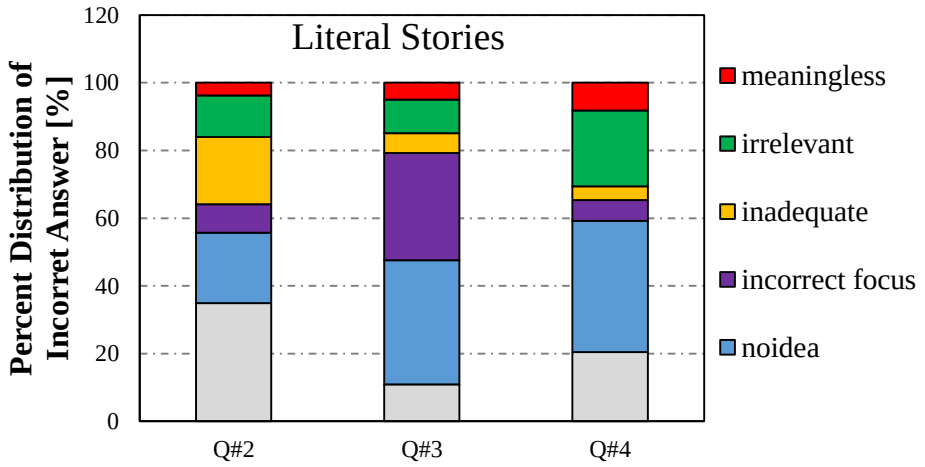

Figure 5. Distribution of children's incorrect explanations for open-ended questions in literal stories

As can be seen in Figure 5, the data from the responses to the Speaker's Attitude Justification Question indicate that there were a significant number of incorrect responses from the children participants. Among the incorrect explanations, the most common mistake made by the children was providing an explanation with an "opposite meaning," accounting for approximately 34.9% of the incorrect answers. This suggests that some children interpreted the speaker's attitude in the opposite direction and failed to recognize the intended meaning. The second most common category of incorrect explanations was "no idea," accounting for approximately 20.7% of the responses. This indicates that some children were unable to comprehend or explain the speaker's attitude. Also, approximately

19.8% of the incorrect answers were categorized as "inadequate," indicating that some children provided incomplete or insufficient explanations for the speaker's attitude. Additionally, the "irrelevant" category accounted for approximately 12.2% of the incorrect answers, indicating that some children lost focus or became confused when attempting to explain the speaker's attitude, leading them to provide answers unrelated to the question or story. Moreover, approximately 8.4% of the incorrect answers were categorized as "incorrect focus," demonstrating that some children failed to address the specific focus of the question and provided answers that were inaccurate and could not be accepted as correct. Although the child's response made no use of context-inappropriate material, it was still deemed inaccurate as it did not accurately address the question's focus. Lastly, approximately 3.7% of the incorrect answers were categorized as "meaningless," indicating that some children provided responses that were nonsensical or lacked meaning.

Consequently, the data from the Speaker's Attitude Justification Question indicate that the majority of the children had difficulty providing accurate explanations for the speaker's attitude. The most common categories of incorrect explanations were providing an "opposite meaning" and having "no idea" about the speaker's attitude. The other categories of incorrect explanations, including "inadequate," "irrelevant," "incorrect focus," and "meaningless," contributed to the overall difficulties children faced when justifying the speaker's attitude.

The results of the Speaker's Meaning Question indicate that children encountered numerous difficulties when attempting to provide accurate explanations of the speaker's intended meaning. Approximately 36.6% of the incorrect explanations were categorized as "no idea," indicating that many children had difficulty comprehending or interpreting the speaker's intended meaning. Another prevalent issue was "incorrect focus," with approximately 31.6% of explanations failing to address the question's specific focus. This suggests that some children had difficulty identifying the most significant aspect of the speaker's intended meaning, resulting in incorrect explanations. Approximately 10.8% of incorrect explanations demonstrated "opposite meaning," indicating that some children misunderstood the speaker's intended meaning, highlighting the possibility of misunderstandings. In addition, approximately 9.9 % of the incorrect explanations were "irrelevant" responses, indicating that some children were distracted or confused when attempting to explain the speaker's intended meaning. Approximately 5.9% of the incorrect explanations were deemed "inadequate," indicating that some children lacked the ability to fully articulate their thoughts or failed

to provide sufficient evidence to support their explanation. Approximately 4.9% of the incorrect explanations were categorized as "meaningless," indicating that some children may have had language or communication difficulties.

In conclusion, the Speaker's Meaning Question results highlight the various types of incorrect responses and their respective sample percentages. These findings suggest that many children struggle to comprehend and interpret the intended meaning of the speaker. Other issues such as providing "irrelevant," "inadequate," and "meaningless" responses may be caused by factors such as distraction, difficulty articulating thoughts, or language and communication difficulties.

According to the data from the Speaker's Intent Question, "no idea" was the most common incorrect response, accounting for approximately 38.7% of all incorrect responses. This suggests that many participants may have had difficulty comprehending the question or identifying the speaker's intended meaning. Approximately 22.4% of the responses fell into the category of "irrelevant," which was another common category of incorrect explanation. This indicates that some participants may have become confused or lost concentration while attempting to explain. Additionally, approximately 20.4% of incorrect responses were classified as "opposite meaning," wherein participants provide an explanation that is the opposite of what the speaker intended. This suggests that some participants had difficulty comprehending the speaker's words or identifying contextual cues that would have assisted them in determining the intended meaning. 8.1% of incorrect responses were deemed "meaningless," indicating that some participants may have had difficulty expressing themselves or misunderstood the question. Additionally, approximately 6.1% of incorrect responses were classified as "incorrect focus," meaning that participants failed to address the question's specific focus. This suggests that some participants may have had difficulty identifying the speaker's most important point. Lastly, only a small percentage of incorrect responses, about 4%, were deemed "inadequate" because they lacked sufficient evidence to support their explanation.

These findings illustrate the various difficulties participants encountered when attempting to identify and explain the speaker's intended meaning. The prevalence of "no idea" responses suggests that some participants had difficulty comprehending the speaker's words or identifying contextual clues that would have assisted them in determining the intended meaning. In addition, the high proportion of "irrelevant" responses suggests that some respondents may have become distracted or confused while

attempting to provide an explanation. Some participants may have had difficulty identifying contextual cues or comprehending the speaker's words, as suggested by the prevalence of responses with "opposite meaning." Lastly, the presence of "meaningless," "incorrect focus," and "inadequate" responses suggests that some participants may have had difficulty expressing their thoughts or identifying the speaker's most important point.

The findings from the data gathered in the Speaker's Intent Question suggest that children encounter several difficulties when trying to understand the meaning behind a speaker's words. The high proportion of "no idea" responses implies that some children struggle to grasp the speaker's intention, which might be due to their cognitive development or limited exposure to complex language. The appearance of "irrelevant" responses indicates that some children become distracted or confused while interpreting the speaker's meaning, resulting in irrelevant answers. The prevalence of "opposite meaning" responses suggests that some children misunderstand the speaker's intention and interpret it in the opposite way. This might be due to a lack of context or an inability to recognize sarcasm or irony. The "meaningless" and "inadequate" responses suggest that some children have difficulty expressing their thoughts effectively, or they may experience language or communication difficulties. The frequent occurrence of "incorrect focus" responses highlights that some children have a general understanding of the context but struggle to pinpoint and address the specific focus of the question and answer accordingly.

In conclusion, the data gathered from the Speaker's Intent Question indicate that children may experience various difficulties when attempting to comprehend and explain the intention behind a speaker's words, including difficulty in grasping the speaker's intention, becoming confused or distracted, misunderstanding the speaker's intention, struggling with language or communication, and difficulty in identifying the specific focus of the question.

After providing a descriptive analysis of the children's performance for each story and question type, the study centered on the children's reaction times. After the children had listened to the story twice, they were asked to select one of the emojis (teasing emoji or genuine emoji) to demonstrate their comprehension of the speaker's attitude. The reaction times of the participants were recorded and analyzed.

Descriptive statistics of the total scores for the reaction times of the children on each literal story. including the minimum. maximum and mean scores and standard deviation. are given in Table 8.

Table 8. Descriptive statistics of the reaction times of the children on each literal story

Test item	N	Min.	Max.	Mean	Std. Deviation
Literal Story 1	60	1.72	39.91	9.58	6.97
Literal Story 2	60	0.53	19.69	7.86	4.20
Literal Story 3	60	1.98	29.94	6.87	5.44
Literal Story 4	60	0.60	66.14	8.93	13.01
Literal Story 5	60	0.66	20.64	4.96	3.58

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As shown in Table 8, the minimum reaction time for the Literal story 1 for the children's group is 1.72 seconds and the maximum is 39.91 seconds. As for the mean score and standard deviation. the scores of the reaction time of this story are as follows: M = 9.58. SD = 6.97. Also. the minimum reaction time for Literal Story 2 of the children group is 0.53 seconds. and the maximum response time is 19.69 seconds. Regarding the mean score and standard deviation. the reaction time scores for this story are as follows: M = 7.86. SD = 4.20. Additionally. Literal story 3 has a minimum reaction time of 1.98 seconds and a maximum reaction time of 29.94 seconds for the children group. The average score and standard deviation for this story's reaction time are as follows: M = 6.87. SD = 5.44. In Literal Story 4. the minimum reaction time is 0.60 seconds and the maximum reaction time is 66.14 seconds. As for the mean score and standard deviation. the scores of the reaction time of this story are as follows: M = 8.93. SD = 13.01. Considering the reaction time to the Literal Story 5. it can be seen that the minimum reaction time is 0.66 seconds and the maximum reaction time is 20.64

seconds. Regarding the mean score and standard deviation. the reaction time scores for this story are as follows: M = 4.96. SD = 3.58. Standard deviation illustrates that the distribution of the data of reaction times for Literal Story 5 is closer to the mean than that of the other stories. following by the Literal Story 2. Literal Story 3. Literal Story 1 and Literal Story 4. The mean scores show that children provided the fastest reaction to the fifth story. Next. the third story. followed by the second story. the fourth story. and the first story.

According to the average reaction time scores, the fifth story elicited the quickest response from the children. Consequently, it can be concluded that children had fewer processing difficulties and responded more quickly to the fifth story than to the others. When the story is taken into account, the average number of morphemes per word in the fifth ironic story is 1.58. The story is composed of thirty-six words and fifty-seven morphemes. Consequently, this story's morphological complexity is low. In addition, the average length of a word in this text is approximately 5.22 characters. In addition, a child-child character dyad exists.

After the fifth story, the children's reaction time was the second fastest to the third story. This story contains thirty words and fifty-eight morphemes, with an average of 1.93 morphemes per word. The morphological complexity of this story is therefore categorized as low to moderate. In addition, the average word length in this narrative is 6.36 characters. Additionally, there is an adult-child character dyad.

Following the fastest reaction times of the fourth story, children clicked on the emojis the quickest to evaluate the speaker's attitude after listening to the second story, This story includes twenty-four words and fourty-three morphemes, with an average of 1.79 morphemes per word. Therefore, it can be said that the morphological complexity of this story is low. In addition, the average number of characters per word in this story is 5.5, and there is a child-child character dyad.

After having the third fastest reaction times to the second story, children clicked on emojis the quickest to assess the speaker's attitude after listening to the fourth story. This story is comprised of twenty-seven words and forty-five morphemes, with an average of 1.66 morphemes per word. Therefore, it can be stated that the morphological complexity of this story is low. In addition, the average number of characters per word in this story is 5.29, and there is a child-child character dyad.

The first story was the one in which children required the longest reaction time to click an emoji. This story contains thirty-two words and fifty-three morphemes, with an average of 1.65 morphemes per word. This story's morphological complexity is therefore considered to be low. Additionally, the average word length in this story is approximately 5.5 characters. There is also a child-child character dyad.

These findings indicate that there is no correlation between children's response times for clicking on emojis to demonstrate their comprehension of the speaker's attitude and the stories for which they provided the most accurate responses. However, the first literal story elicited the fewest correct responses and the longest reaction time from the children. Because the fourth story does not contain the least morphological complexity, these findings suggest that the story to which children responded with the quickest reaction time is unrelated to morphological complexity. The stories with the lowest morphological complexity are the fifth tale, the first tale, the fourth tale, the second tale, and the third tale, in that order. However, this is not the reaction time-based order of the performances. It was also observed that the length or shortness of the story had no effect on the reaction times, as the second story was the shortest and the fifth story was the longest. Additionally, it is essential to note that the subject-object-verb (SOV) structure is present in each of the stories and that the word orders are identical. In addition, the vocabulary used in each story is simple and accessible to a wide range of readers. Such words include, among others, poem, forest, Lego, box, gift, dress, etc. The only thing that could possibly account for the difference in their reaction times is that the stories' contexts are completely different.

4.4. COMPARISON OF THE IRONIC STORIES AND THE LITERAL STORIES

In this study, after analysing children’s performances in both ironic stories and literal stories separately, the performance of children in ironic and literal stories was analyzed. In this section of the study, the performance of children in ironic and literal stories will be compared in terms of story, question, and reaction time to determine which story type children perform better in. First of all, their total scores in both story types were analyzed to demonstrate their comprehension rate.

Descriptive statistics of the total scores of the children in both ironic and literal stories, including the minimum. maximum and mean scores and standard deviation are given in Table 9.

Table 9. Descriptive statistics of the total scores of the children group in both ironic and literal stories

Test Item	N	Min.	Max.	Mean	Std.
Ironic Stories	60	4.00	25.00	16.18	5.09
Literal Stories	60	6.00	25.00	19.36	4.31

Note: *Min; Minimum. Max; Maximum. Std; Standard Deviation

As can be seen in Table 9, in the ironic stories. the minimum score for the correct answers is 4.00 whereas in the literal stories. the minimum score for the correct answers is 6.00. respectively. The maximum score for the correct answers in both the ironic stories and the literal stories is 25.00. As for the mean scores and standard deviation. the scores for both story types are as follows: ironic stories: M = 16.18. SD =5.09 and literal stories: M = 19.36. SD = 4.31. respectively.

The fact that the standard deviation of the scores for the literal stories is lower than the ironic stories shows that the values of the answers for the literal stories are closer to each other compared to the answers for the ironic stories. This finding shows that children showed similar performances in answering the questions in literal stories.

The mean scores in Table 9 demonstrated that children performed better in answering the questions of the literal stories and gave fewer correct answers in ironic stories.

After giving the descriptive statistics of the children's scores in both stories, the Wilcoxon Signed Rank test was conducted to see whether there is a significant difference between their performances in the ironic stories and the literal stories. The results of the Wilcoxon Signed Rank test are given in Table 10.

Table 10. Results of the Wilcoxon Signed Rank on the children group's individual total scores in ironic and literal stories

		N	Mean Rank	Sum of Ranks	z	p
Ironic Stories	Negative Ranks	15	19.07	286.00	-4.061*	.000
Literal Stories	Positive Ranks	40	31.35	1254.00		
	Ties	5				

Notes: *Based on negative ranks.

As can be seen in Table 10, there is a statistically significant difference between the scores of the ironic stories and the literal stories performed by the children group (z=-4.061. p=.000). According to the results. it can be said that among the total of sixty children. Fifteen of them answered the questions in the ironic stories better than the questions in the literal stories. Additionally, forty children performed better answering the questions in the literal stories than the questions in the ironic stories and five children performed equally in both stories. Therefore. it can be said the children's accuracy performance in the literal stories is better than in the ironic stories.

The children's performances in each story were not compared because each story has its characteristics. For example, Ironic Story 1 and Literal Story 1 are not different versions of the same story. Therefore, only their performances in each question were analyzed.

Descriptive statistics of the total scores of the children's answers to the questions in both ironic and literal stories, including the minimum. maximum and mean scores and standard deviation are given in Table 11.

Table 11. Descriptive statistics of the total scores of the children group's answers to the questions in both ironic and literal stories

Test Item	**N**	**Min.**	**Max.**	**Mean**	**Std.**

Speaker's Attitude Questions in the Ironic Stories	60	.00	5.00	4.03	1.30
Speaker's Attitude Questions in the Literal Stories	60	1.00	5.00	4.10	.98
Speaker's Attitude Justification Questions in the Ironic Stories	60	.00	5.00	2.91	1.70
Speaker's Attitude Justification Questions in the Literal Stories	60	.00	5.00	3.23	1.55
Speaker's Meaning Questions in the Ironic Stories	60	.00	5.00	2.38	1.61
Speaker's Meaning Questions in the Literal Stories	60	.00	5.00	3.31	1.45
Speaker's Intent Questions in the Ironic Stories	60	.00	5.00	2.83	1.42
Speaker's Intent Questions in the Literal Stories	60	1.00	5.00	4.16	.97
Speaker's Belief Questions in the Ironic Stories	60	.00	5.00	4.01	1.21
Speaker's Belief Questions in the Literal Stories	60	1.00	5.00	4.55	.79

As can be seen in Table 11, the minimum scores of the children group on all the questions is .00 except for the speaker's attitude questions, speaker's intent questions, and the speaker's belief questions in the literal stories. Additionally, the maximum score of the children group on all the questions is 5.00.

As for mean scores and standard deviation. the scores for all the questions for ironic stories are as follows: Speaker's Attitude Questions in the Ironic Stories: M = 4.03. SD = 1.30, Speaker's Attitude Justification Question: M = 2.91. SD = 1.70, Speaker's Meaning Question: M = 2.38. SD = 1.61, Speaker's Intent Question: M = 2.83. SD = 1.42, and Ironic Speaker's Belief Question: M = 4.01. SD = 1.21. Standard deviation illustrates that the distribution of the correct answers for the Speaker's Belief Question data is closer to the mean than that of the other questions. This question is followed

by the Speaker's Attitude Question. Speaker's Intent Question. Speaker's Meaning Question and Speaker's Attitude Justification Question.

Moreover, the scores for all the questions in the literal stories are as follows: Speaker's Attitude Question: M = 4.10. SD = .98, Speaker's Attitude Justification Question: M = 3.23. SD = 1.55, Speaker's Meaning Question: M = 3.31. SD = 1.45. Speaker's Intent Question: M = 4.16. SD = .97, and Speaker's Belief Question: M = 4.55. SD = .79. Standard deviation illustrates that the distribution of the correct answers for the Speaker's Belief Question data is closer to the mean than that of the other questions. This question is followed by the Speaker's Intent Question. Speaker's Attitude Question. Speaker's Meaning Question and Speaker's Attitude Justification Question.

In order to see whether there is a significant difference between their performances in each question, a Wilcoxon Signed Rank test was conducted. The results of the Wilcoxon Signed Rank test are given in Table 12.

Table 12. Results of the Wilcoxon Signed Rank on the children group's individual total scores in ironic and literal stories

		N	Mean Rank	Sum of Ranks	z	p
Speaker's Attitude Questions in the Ironic Stories	Negative Ranks	20	17.77	355.50		
Speaker's Attitude Questions in the Literal Stories	Positive Ranks	18	21.42	385.50	-.226*	.822
	Ties	22				
	Total	60				
Speaker's Attitude Justification Questions in the Ironic Stories	Negative Ranks	17	18.47	314.00		
Speaker's Attitude Justification Questions in the Literal Stories	Positive Ranks	23	22.00	506.00	-1.313*	.189
	Ties	20				
	Total	60				
Speaker's Meaning Questions in the Ironic Stories	Negative Ranks	17	17.94	305.00	-3.686*	.000
Speaker's Meaning Questions in the Literal Stories	Positive Ranks	36	31.28	1126.00		
	Ties	7				
	Total	60				
Speaker's Intent Questions in the Ironic Stories	Negative Ranks	7	15.36	107.50		.000

Speaker's Intent Questions in the Literal Stories	Positive Ranks	42	26.61	1117.50	-5.086*	
	Ties	11				
	Total	60				
Speaker's Belief Questions in the Ironic Stories	Negative Ranks	10	15.05	150.50	-2.756	.000
Speaker's Belief Questions in the Literal Stories	Positive Ranks	25	19.18	479.50		
	Ties	25				
	Total	60				

Notes: *Based on negative ranks.

As can be seen in Table 12, the findings of the Speaker's Attitude Questions in the ironic stories and the literal stories indicate that 20 of the children gave more correct answers in the ironic stories than in the literal stories, eighteen of them gave more correct answers in the literal stories than in the ironic stories, and twenty-two of them performed equally in both stories. Additionally, there is no significant difference between their performances in the Speaker's Attitude Questions (p=.822). This question has a maximum score of 5, and the mean score for ironic stories is 4.03 and for literal stories, it is 4.10. Therefore, it can be said that children can comprehend the speaker's attitude regardless of the type of story.

In the Speaker's Attitude Justification Question, seventeen of the children gave more correct answers in the ironic stories than in the literal stories, twenty-three of them gave more correct answers in the literal stories than in the ironic stories, and twenty of them performed equally in both stories. Also, there is no significant difference between their performances in the Speaker's Attitude Justification Questions (p=.189). Since this question has a maximum score of 5, and the mean score for ironic stories is 2.91, and for literal stories, it is 3.23, it can be concluded that the children could not perform

well in giving justifications for their understanding of the speaker's attitude comprehend the speaker's attitude in both stories.

The Speaker's Meaning Questions' data indicate that seventeen children provided more correct answers to ironic stories, while thirty-six children provided more correct answers to literal stories. In addition, seven of the children performed equally in both stories. In addition to this, there is a significant difference between their performances in the Speaker's Meaning Questions (p=.000). As this question has a maximum score of 5, and the mean score for ironic stories is 2.38 and the mean score for literal stories is 3.38, it can be concluded that children performed better in answering the Speaker's Meaning Questions in the literal stories than the ironic stories.

In the Speaker's Intent Questions, only seven children provided more correct answers to ironic stories whereas fourty-two children provided more correct answers to literal stories. Also, eleven of the children performed equally in both stories. The Wilcoxon signed rank results demonstrate that there is a significant difference between their performances in the Speaker's Meaning Questions (p=.000). With a maximum score of 5, the mean score for ironic stories is 2.83 and the mean score for literal stories is 4.16. Therefore, it can be observed that the children are able to provide answers about the speaker's intent behind the literal utterance very well. However, they find it difficult to understand the speaker's intent in the ironic utterances.

According to the results of the Speaker's Belief Questions, ten children gave more accurate responses to ironic stories, while twenty-five children gave more accurate responses to literal stories. Moreover, twenty-five of the children performed similarly in both stories. In addition, there is a statistically significant difference in their responses to the Speaker's Belief Questions (p=.000). With a maximum score of 5, the mean score for ironic stories is 4.01, whereas the mean score for literal stories is 4.55. Therefore, it can be observed that children are able to provide responses regarding the speaker's belief behind the literal utterance. However, they find it difficult to understand the speaker's belief and give answers in ironic statements.

To sum up, the differences between the performances of the children show that whether the question is a close-ended or an open-ended question does not affect their performances when comparing their answers to ironic stories and the literal stories because there is no significant difference in the

speaker's attitude questions between the results of the ironic stories and the literal stories, whereas a significant difference was found in the speaker's belief questions.

Moreover, whether the question is a first-order ToM or second-order ToM does not affect the difference in their performances because Speaker Meaning Question, Speaker Belief Question, and Speaker Attitude Question are first-order ToM questions and there is only a significant difference in the Speaker's Meaning Questions. The other two questions are about the second-order ToM; Speaker's Intent Question and Speaker's Attitude Justification Question.

Although the children can perform almost equally well in the Speaker's Attitude Justification Question, they could comprehend and provide more correct answers for the Speaker's Intent Questions in literal stories than in ironic stories. Therefore, it can be said that, for children, understanding the speaker's attitude and explaining the reason why they thought the attitude was teasing or real is not more difficult in one type of story than the other. However, it is more difficult to understand and provide answers about the speaker's belief, speaker's meaning, and speaker's intent in the ironic stories because of the intended meaning behind the utterance. On the other hand, since they can understand the real meaning of the utterances in the literal stories, it is not as difficult as in the ironic stories for them to understand and answer the questions correctly.

Descriptive statistics of the total reaction times for the ironic stories and the literal stories, including maximum, minimum, mean, and standard deviation are given in Table 13.

Table 13. Descriptive statistics of total reaction times

		Min.	Max.	Mean	Std.
Children (N=60)	Ironic total	9.99	67.04	30,30	13.18
	Literal total	12.70	82.36	39.95	19.09

As can be seen in Table 13, in the ironic stories, the minimum score of the reaction times of the children group is 9.99 seconds and the minimum score of literal stories is 12.70 seconds, respectively. The maximum score for the reaction times of the ironic stories is 67.04 seconds and the maximum score for the literal stories is 82.36. As for the mean scores and standard deviation, the scores for story types are as follows: ironic stories: M = 30.30, SD =13.18, and literal stories: M = 39.95, SD = 19.09, respectively.

It can be seen from the table that children provided faster reaction times to click on the emojis after they listened to the ironic stories than the literal stories.

To see whether there is a significant difference between their performances in the literal stories and the ironic stories, Wilcoxon Signed Rank test was conducted. The results of the Wilcoxon Signed Rank test are given in Table 14.

Table 14. Results of the Wilcoxon Signed Rank on the children group's individual total scores of reaction times in ironic and literal stories

		N	Mean Rank	Sum of Ranks	z	p
Ironic Stories	Negative Ranks	18	23.33	420.00	-3.644*	.000
Literal Stories	Positive Ranks	42	33.57	1410.00		
	Ties	0				
	Total	60				

Notes: *Based on negative ranks.

As can be seen in Table 14, the results demonstrate that eighteen children spent less reaction time in the literal stories than in the ironic stories. Also, forty-two of the children had faster reaction times in the ironic stories than in the literal stories and there were no children who performed equally in these

stories. So, a statistically significant difference between the children's reaction times in literal stories and ironic stories was found (p=000). It can be concluded from the findings that children could process ironic utterances more than literal utterances and respond accordingly. Additionally, their correct responses to the speaker's attitude questions in the ironic stories and literal stories are similar since it can be seen in Table 12, no statistically significant difference was found between their performances. Therefore, it can be said that children did not click on the emojis faster in ironic stories than in literal stories due to the fact that they could not understand and responded quickly. On the contrary, they were able to understand the attitude of the speaker in both stories and responded faster in the ironic stories.

CHAPTER 5

CONCLUSION

This section summarizes the results of the study, answering the research questions (RQ) based on the findings discussed in Chapter 4. It also provides information regarding the relationship between the linguistic features of the stories and the children's performances in each story, the accuracy rate of the answers to the Theory of Mind questions, the children's incorrect explanations, and their reaction times.

5.1. RESULTS OF THE STUDY

As mentioned above, the aim of this study is to determine the accuracy rate of children in terms of their performances on ironic and literal stories by analyzing their performances in each story and comparing these stories based on their correct answers to each story and each question as well as their reaction times.

In order to achieve the goals of the study an experiment was carried out using literal and ironic stories. Based on the findings obtained from this experiment, the results of the study are given below answering the research questions.

RQ1: What is the accuracy rate of the comprehension of ironic utterances in Turkish-speaking children?

The performances of the children and the adults in terms of their correct answers and reaction times showed that there is a significant difference between these groups' performances.

The results of the mean scores of the correct answers provided by the children in ironic stories indicate that the children's performance improved between the first and last ironic stories. This may be because children become accustomed to ironic stories. They may have had trouble recognizing irony in the first story, but as the experiment progressed, they may have become more adept at identifying irony. The context of the stories may also influence children's comprehension rate and response accuracy.

It was found that morphological complexity and word length have no effect on the comprehension rate because the fifth story, which elicited the most correct responses, has neither the lowest morphological complexity nor the shortest word length. The second story, fourth story, fifth story, first story, and third story have the lowest morphological complexity and shortest word length, respectively. However, children did not provide the most accurate responses to the stories in this order. Also, the length or shortness of the story did not influence the accuracy of the responses to the questions, as the shortest story was the first story and the longest story was the fourth story. Additionally, four of the stories feature child-child dyads and only one, the third story, features an adult-child dyad. The number of correct responses is neither highest nor lowest for the third story. Therefore, character dyads have no effect on the comprehension of ironic stories. The only possible explanation is that either the context has an effect on the children's performances in giving correct answers or they become accustomed to ironic stories.

In the first and third ironic stories, it was found that the most common mistake of the children in providing incorrect explanations is considering ironic utterances as literal. The second major mistake in this story is classified as ‘’no idea’’. In the second ironic story, the children's major mistake is classified as "no idea". Additionally, the second majority of the incorrect explanations fall under the "literal" category. It can be concluded from these findings that children either misunderstood the utterances and evaluated the story as literal or they could not understand the story and said ‘’I don't know’’, ‘’I forgot’’ or provided no responses. In the fourth story, the most common mistake was giving inadequate explanations and the second major mistake was providing incorrect explanations that are classified as ‘’no idea’’. This finding shows that children could not completely understand the fourth ironic story and they could not provide comprehensive explanations of ironic statements. In the fifth ironic story, children's major mistake was considering ironic utterances as literal and the second major mistake was the incorrect explanations which are classified as ‘’incorrect focus’’. Incorrect focus responses demonstrate that children fail to address the question's focus. In this category, although the child is unable to answer the question accurately, the response does not contain any material that is inappropriate for the context. Therefore, it can be said that in the fifth story, children could not understand the intended meaning of the ironic utterances and could not provide appropriate answers for the question that evaluates their understanding.

Overall, the findings of the incorrect explanations show that the major mistake in ironic stories is to consider the ironic utterances as literal. These findings are consistent with the findings of Loukusa and Leinonen (2008) since they also found that the literal interpretation of ironic utterances was a common incorrect answer type in all age groups in their study.

The answers to the questions in the ironic stories indicate that children find it easier to answer closed-ended questions than open-ended questions, as they provided the most accurate responses to the Speaker's Attitude Question and the Speaker's Belief Question. Their performance on the open-ended questions is unaffected by whether the question is a first-order or second-order Theory of Mind question. It is difficult for Turkish-speaking children ages five and six to respond to questions about the meaning and intent of an ironic utterance and to provide justifications requiring explanations.

The findings align with those of Hancock et al. (2000) and Filippova & Astington (2008), as they discovered that participants had an easier time recognizing the speaker's belief rather than discerning the speaker's intention. This suggests that while young children can grasp the non-literal meaning of an ironic statement, they may not yet be capable of identifying irony. Drawing on the assertions of Winner and Leekam (1991), they proposed that the speaker belief question measures first-order reasoning about belief states, while the speaker intent (inference) question assesses second-order reasoning concerning others' belief states. As a result, they concluded that comprehending the speaker's pragmatic intent can be distinguished from detecting non-literal utterances. The differentiation between belief and intent judgments is evident since they are based on distinct underlying processes.

In addition to the analysis of the correct answers given to the questions, the most common incorrect explanation types given to the open-ended questions were analyzed. It was found that in the answers given to the Speaker’s Attitude Justification Questions, the major mistake is the providing explanations that fall into the category of ‘’incorrect focus’’. This demonstrates that the children cannot provide explanations of how they understood the speaker’s attitude since they fail to address the question’s focus. The second most frequent incorrect response involved participants interpreting ironic utterances based on the literal meaning of the words, as opposed to comprehending the underlying irony. It shows that they either misunderstood the speaker’s attitude and gave justification

accordingly or even though they understood the speaker’s attitude, they could not provide explanations showing that the utterance is ironic.

The results of the incorrect explanations given to the Speaker’s Meaning Questions show that the most frequent mistake in answering this question is interpreting the speaker's meaning based on the literal language, as opposed to recognizing the intended non-literal meaning or context. This suggests that a substantial proportion of participants have difficulty comprehending non-literal language and identifying contextual cues that indicate the intended meaning. A close second, "incorrect focus" errors indicate that participants may understand the general context but are unable to address the question's specific focus, resulting in an inaccurate or irrelevant response.

The majority of incorrect responses to the Speaker's Intent Question were literal interpretations, indicating that many individuals struggle to see beyond literal language to comprehend the speaker's true intent. This indicates difficulty comprehending non-literal language and identifying contextual cues that convey the speaker's intent. Moreover, as a second error, the participants provided responses that fell under the category of "no idea." This sizeable portion suggests that participants may lack comprehension or be unwilling to speculate when uncertain of the speaker's intentions.

The findings of the reaction times of the children demonstrated that the children’s reaction times are similar to the correct responses provided by them in each ironic story. The fifth story was the one that the children understood best, as they provided the most accurate responses and exhibited the quickest reaction time. Additionally, the fourth story in both results follows the fifth story. There is a distinction, however, between the order of the correct answers based on the stories and the order of the reaction times. In the ranking based on the correct answers given by the children to the stories, it was observed that the children performed better with the third story despite spending less time reacting to the second story. According to the data on correct responses and reaction times, the first story was where the children performed the worst and had the most difficulty. The only plausible explanation for the difference in their reaction times is that the contexts of the stories are unique.

In conclusion, it can be said that children mostly find difficult to understand ironic utterances since they mostly consider them as literal. However, this is not due to the fact that the morphological complexity, syntactic complexity, word length, or the length of the story. The only reason for this

difficulty may be the context of the story or the limited exposure to irony. The reaction times spent for evaluating the speaker's attitude is also related to the context of the story. Also, it was found they answering close-ended (optional) questions were easy for five-and six-year-old children. However, they cannot provide sufficient explanations for the open-ended questions. Additionally, whether the question is a first-order or second-order Theory of Mind question has no effect on their performance on open-ended questions.

RQ2: What is the accuracy rate of the comprehension of literal utterances in Turkish-speaking children?

There was a significant difference between the children's and adults' performance in terms of correct responses and reaction times to literal stories.

The descriptive analysis of the literal stories shows that because the fourth story, the story in which the children provided more accurate answers than the others, has neither the lowest morphological complexity nor the shortest word length, morphological complexity, and word length have no effect on the rate of comprehension. The fifth story, first story, fourth story, second story, and first story, respectively, have the lowest morphological complexity and shortest word length. However, children's responses to the stories in this order were not the most accurate. As the second story was the shortest and the fifth story was the longest, it was observed that the length of the story did not affect the accuracy of the responses to the questions. In addition, four of the tales feature child-child dyads, while only one, the third tale, features an adult-child dyad. The number of correct responses for the third story is neither the highest nor lowest. Also, character dyads have no impact on the comprehension of ironic stories. Therefore, the context of the stories is the only plausible explanation for the variation in the comprehension rates and accuracy of the children's responses to literal stories.

It was found that in the first, second, and fourth literal stories, the most frequent incorrect explanations are falling into the category of ‘’no idea’’. Also, in the first story, the children made the mistake of giving explanations that showed that they understood the opposite meaning of the utterance. Additionally, in the second and fourth literal stories, the second major mistake was not being able to address the question's focus, known as ‘’incorrect focus’’. In the third literal story, the children provided incorrect explanations that show ‘’incorrect focus’’ the most and the second mistake was

not providing answers since they had ‘’no idea’’. Additionally, in the fifth literal story, the most common mistake was categorized as ‘’opposite meaning’’ and the second major mistake was ‘’no idea’’. These findings demonstrated that children mostly gave no responses or said ‘’I don’t know’’ or ‘’I forgot’’ in their incorrect explanations. This may be due to the fact that they had hesitations after listening to the ironic stories since they could not be sure that the story provides literal utterances or they could not understand the story at all. Moreover, in the literal stories they failed to address the focus of the question such as answering a ‘’Why?’’ question with an answer that states the situation. Although it is not a dominant common mistake, considering the opposite meaning of the story is another common mistake of the children when they provided explanations to answer the questions.

The results of the ToM questions reveal that children are capable of answering both open-ended and closed-ended questions, as evidenced by their responses to the questions in the literal stories. In addition, the question's evaluation of first-order or second-order ToM has no effect on their performance when answering questions about literal stories. When they listen to literal stories, it is not difficult for them to comprehend the speaker's belief and explain the speaker's intent. Similar to the outcomes of ironic stories, they perform poorly when clarifying the speaker's meaning.

The answers given to the open-ended questions were analyzed according to the incorrect explanation types. It was found that the most common incorrect explanation type is in the category of ‘’no idea’’. This is the first major mistake that the children did in answering the Speaker’s Meaning Question and the Speaker’s Intent Question. Also, it is the second major mistake that the children did when they answered the Speaker’s Attitude Justification Question. When they answered the Speaker’s Attitude Justification Question, the major mistake that they did was to consider the literal utterance incorrectly, known as ‘’opposite meaning’’. Also, the results of the Speaker’s Meaning Questions show that the second major incorrect explanation type in this question is the ‘’incorrect focus’’ which shows that children failed to address the main focus of the question. Also, in Speaker’s Intent Question, the children gave irrelevant explanations and this is the second major mistake of this question.

These findings suggest that there is no direct relationship between the response times of children when clicking on emojis to demonstrate their comprehension of the speaker's attitude and the stories for which they provided the most accurate responses. The first literal story, however, elicited the fewest correct responses and the longest reaction time from the children. Since the fourth story does

not contain the least morphological complexity, these results suggest that the story to which children had the quickest reaction time is unrelated to morphological complexity. The tales with the least morphological complexity are, in order, the fifth story, the first story, the fourth story, the second story, and the third story. However, this is not the order of performances based on reaction time. It was also observed that the length or brevity of the story had no effect on the participants' reaction times, as the second story was the shortest and the fifth story was the longest. The only possible explanation for the difference in their reaction times is that the contexts of the two stories are completely different.

RQ3: Is there a difference between comprehension of ironic utterances and literal utterances in Turkish-speaking children?

The results of the children's performances in comparison between the literal stories and the ironic stories show that there is a significant difference between their total accurate answers. As the results of the Wilcoxon Signed Rank demonstrated (see Table 10), the number of children who answered the questions in the literal stories better than the questions in the ironic stories is higher. Therefore, it can be said that they could understand literal stories better than ironic stories and provided more accurate answers accordingly.

Furthermore, their total scores of accurate answers to the literal and ironic stories demonstrated that the differences in the performances of the children indicate that whether the question is closed-ended or open-ended does not influence their performances when comparing their answers to the ironic stories and the literal stories. There is no significant difference between the results of the ironic stories and the literal stories for the speaker's attitude questions, but there was a significant difference for the speaker's belief questions. Furthermore, whether the question is a first-order ToM or a second-order ToM does not affect the difference in their performances because the Speaker Meaning question, the Speaker Belief question, and the Speaker Attitude question are all first-order ToM questions and there is only a significant difference in the Speaker's Meaning Questions. Speaker's Intention Question and Speaker's Attitude Justification Question pertain to the second-order Theory of Mind. Although the children perform almost identically on the Speaker's Attitude Justification Question, they were able to comprehend and provide more correct answers for the Speaker's Intent Questions when reading literal stories as opposed to ironic ones. Therefore, it can be concluded that for children, understanding

the speaker's attitude and explaining why they believed the attitude was mocking or genuine is not more difficult in one type of story than in the other. Due to the intended meaning behind the utterance, it is more challenging to comprehend and provide answers regarding the speaker's beliefs, meaning, and intent in ironic stories. However, since they can comprehend the true meaning of the statements in the literal stories, it is easier for them to comprehend and correctly respond to the questions than in the ironic stories.

The findings of the reaction times demonstrate that children showed faster reaction times when they listened to the ironic stories than their reaction times in the literal stories. Moreover, the children's accurate answers to the questions about the speaker's attitude in both ironic and literal stories were comparable, as demonstrated in Table 12, where no significant difference was observed between their performances. Thus, it cannot be concluded that the children clicked on emojis more rapidly in ironic stories than in literal stories because they failed to comprehend and responded hastily. Instead, they successfully grasped the speaker's attitude in both types of stories and provided faster responses in the ironic stories. This finding supports Direct Access Model (DAM) because this model claims that comprehension of irony is a one-stage process, where pragmatic knowledge is activated directly when the receiver unravels what the ironically loaded content means (Gibbs, 1986). Since the children’s processing time is shorter in the ironic stories than in the literal stories, it shows that processing certain types of ironic utterances does not take longer than processing literal statements as demonstrated by many researchers (see: Dews & Winner, 1999; Giora, 2003; Glucksberg, 2001; Schwoebel, Dews, Winner, & Srinivas, 2000; Schwoebel, Dews, Winner, & Srinivas, 2000).

5.2. SUGGESTIONS FOR FURTHER STUDIES AND IMPLICATIONS

This study examined the irony comprehension of Turkish-speaking children aged five and six. In future research, the number of participants could be increased to obtain more comprehensive results. Furthermore, this study only examined the perception of irony in children aged five and six. Since this is the first study that investigates irony comprehension in Turkish-speaking children, it is important to examine different age groups. Therefore, future research may investigate how younger and older Turkish-speaking children perceive irony. Additionally, to investigate whether social class influences the comprehension of figurative language, such as irony, a sociolinguistic study comparing the comprehension of irony among children from different class families could be conducted.

As stated earlier, this study was conducted in Turkish-language. Further research with different groups, tasks, and languages is required to explain and validate these findings. In the future, it would be interesting to compare the irony comprehension of children from diverse linguistic and cultural backgrounds in order to expand our knowledge of universal and culture-specific linguistic development factors.

Another point is that only audio-recordings were used in this study. Hence, this research could be repeated by using short video fragments or pictures supporting the audio-recordings to provide a visual aid to the participants. In addition, this study examined only the comprehension of ironic criticism. In future research, the comprehension of ironic compliments by Turkish-speaking children could be examined, as well as a comparison between the comprehension of ironic criticism and ironic compliments.

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APPENDIX 1

THE RESULTS OF NORMALITY TESTS

Table 15. Normality test results of the children's correct answers in the ironic stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Ironic Story 1	.188	60	.000	NO
Ironic Story 2	.173	60	.000	NO
Ironic Story 3	.173	60	.000	NO
Ironic Story 4	.188	60	.000	NO
Ironic Story 5	.203	60	.000	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Ironic Story 1	.928	60	.002	NO
Ironic Story 2	.919	60	.001	NO
Ironic Story 3	.863	60	.000	NO
Ironic Story 4	.875	60	.000	NO
Ironic Story 5	.854	60	.000	NO

Table 16. Normality test results of the children's correct answers in the literal stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Literal Story 1	.197	60	.000	NO
Literal Story 2	.277	60	.000	NO
Literal Story 3	.308	60	.000	NO
Literal Story 4	.290	60	.000	NO
Literal Story 5	.339	60	.000	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Literal Story 1	.909	60	.000	NO

Literal Story 2	.780	60	.000	NO
Literal Story 3	.764	60	.000	NO
Literal Story 4	.745	60	.000	NO
Literal Story 5	.576	60	.000	NO

Table 17. Normality test results of the control group's correct answers in the ironic stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Ironic Story 1	.488	30	.000	NO
Ironic Story 2	.537	30	.000	NO
Ironic Story 3	.	30	.	NO
Ironic Story 4	.473	30	.000	NO
Ironic Story 5	.537	30	.000	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Ironic Story 1	.492	30	.000	NO
Ironic Story 2	.275	30	.000	NO
Ironic Story 3	.	30	.	NO
Ironic Story 4	.526	30	.000	NO
Ironic Story 5	.275	30	.000	NO

Table 18. Normality test results of the control group's correct answers in the literal stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Literal Story 1	.460	30	.000	NO
Literal Story 2	.528	30	.000	NO
Literal Story 3	.528	30	.000	NO
Literal Story 4	.517	30	.000	NO
Literal Story 5	.	30	.	NO

	Shapiro- Wilk			
Variable	statistic	Df	P value	norm
Literal Story 1	.485	30	.000	NO
Literal Story 2	.347	30	.000	NO
Literal Story 3	.347	30	.000	NO
Literal Story 4	.404	30	.000	NO
Literal Story 5	.	30	.	NO

Table 19. Normality test results of the children's answers to the questions of ironic stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.321	60	.000	NO
Speaker's Attitude Justification Q.	.255	60	.000	NO
Speaker's Meaning Question	.154	60	.001	NO
Speaker's Intent Question	.163	60	.000	NO
Speaker's Belief Question	.258	60	.000	NO
Questions Total	.080	60	.200	YES
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.757	60	.000	NO
Speaker's Attitude Justification Q.	.867	60	.000	NO
Speaker's Meaning Question	.918	60	.001	NO
Speaker's Intent Question	.927	60	.001	NO
Speaker's Belief Question	.788	60	.000	NO
Questions Total	.974	60	.234	YES

Table 20. Normality test results of the children's answers to the questions of literal stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.243	60	.000	NO
Speaker's Attitude Justification Q.	.222	60	.000	NO
Speaker's Meaning Question	.247	60	.000	NO
Speaker's Intent Question	.253	60	.000	NO
Speaker's Belief Question	.382	60	.000	NO
Questions Total	.175	60	.000	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.809	60	.000	NO
Speaker's Attitude Justification Q.	.865	60	.000	NO
Speaker's Meaning Question	.878	60	.000	NO
Speaker's Intent Question	.783	60	.000	NO
Speaker's Belief Question	.608	60	.000	NO
Questions Total	.895	60	.000	NO

Table 21. Normality test results of the control group's answers to the questions of ironic stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.	30	.	NO
Speaker's Attitude Justification Q.	.539	30	.000	NO
Speaker's Meaning Question	.424	30	.000	NO
Speaker's Intent Question	.503	30	.000	NO
Speaker's Belief Question	.	30	.	NO
Questions Total	.349	30	.000	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.	30	.	NO

Speaker's Attitude Justification Q.	.180	30	.000	NO
Speaker's Meaning Question	.628	30	.000	NO
Speaker's Intent Question	.452	30	.000	NO
Speaker's Belief Question	.	30	.	NO
Questions Total	.727	30	.000	NO

Table 22. Normality test results of the control group's answers to the questions of literal stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.539	30	.000	NO
Speaker's Attitude Justification Q.	.539	30	.000	NO
Speaker's Meaning Question	.407	30	.000	NO
Speaker's Intent Question	.494	30	.000	NO
Speaker's Belief Question	.539	30	.000	NO
Questions Total	.348	30	.000	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Speaker's Attitude Question	.180	30	.000	NO
Speaker's Attitude Justification Q.	.180	30	.000	NO
Speaker's Meaning Question	.656	30	.000	NO
Speaker's Intent Question	.471	30	.000	NO
Speaker's Belief Question	.180	30	.000	NO
Questions Total	.626	30	.000	NO

Table 23. Normality test results of the children's reaction times in the ironic stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Ironic Story 1	.152	60	.001	NO
Ironic Story 2	.106	60	.093	YES

Ironic Story 3	.134	60	.010	NO
Ironic Story 4	.132	60	.011	NO
Ironic Story 5	.184	60	.001	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Ironic Story 1	.836	60	.000	NO
Ironic Story 2	.943	60	.007	NO
Ironic Story 3	.921	60	.001	NO
Ironic Story 4	.846	60	.000	NO
Ironic Story 5	.702	60	.000	NO

Table 24. Normality test results of the children's reaction times in the literal stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Literal Story 1	.179	60	.000	NO
Literal Story 2	.211	60	.000	NO
Literal Story 3	.245	60	.000	NO
Literal Story 4	.346	60	.000	NO
Literal Story 5	.154	60	.001	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Literal Story 1	.783	60	.000	NO
Literal Story 2	.569	60	.000	NO
Literal Story 3	.719	60	.000	NO
Literal Story 4	.572	60	.000	NO
Literal Story 5	.795	60	.000	NO

Table 25. Normality test results of the control group's reaction times in the ironic stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Ironic Story 1	.223	30	.001	NO
Ironic Story 2	.113	30	.200	YES
Ironic Story 3	.094	30	.200	YES
Ironic Story 4	.153	30	.073	YES
Ironic Story 5	.186	30	.010	NO
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Ironic Story 1	.614	30	.000	NO
Ironic Story 2	.950	30	.165	YES
Ironic Story 3	.917	30	.023	NO
Ironic Story 4	.828	30	.000	NO
Ironic Story 5	.764	30	.000	NO

Table 26. Normality test results of the control group's reaction times in the literal stories

	Kolmogorov- Smirnov			
Variable	statistic	df	P value	norm
Literal Story 1	.377	30	.000	NO
Literal Story 2	.105	30	.200	YES
Literal Story 3	.094	30	.200	YES
Literal Story 4	.096	30	.200	YES
Literal Story 5	.149	30	.089	YES
	Shapiro- Wilk			
Variable	statistic	df	P value	norm
Literal Story 1	.509	30	.000	NO
Literal Story 2	.935	30	.067	YES
Literal Story 3	.965	30	.422	YES
Literal Story 4	.963	30	.377	YES
Literal Story 5	.951	30	.184	YES

APPENDIX 2

ADDITIONAL TABLES

Table 27. Results on the total scores of the Mann-Whitney U test

	Group	N	Mean Rank	Sum of Ranks	U	Z	p
Ironic stories	Children	60	60.32	3619.00	11.000	-7.609	.000
	Control	30	15.87	476.00			
Literal Stories	Children	60	3619.00	3610.00	20.000	-7.532	.000
	Control	30	476.00	485.00			

Table 28. Results on the total scores of ironic stories of the Mann-Whitney U test

		N	Mean Rank	Sum of Ranks	U	Z	p
Ironic Story 1	Children	60	33.50	2010.00	180.000	-6.370	.000
	Control group	30	69.50	2085.00			
Ironic Story 2	Children	60	33.17	1990.00	160.000	-6.617	.000
	Control group	30	70.17	2105.00			
Ironic Story 3	Children	60	34.75	2085.00	255.000	-5.986	.000
	Control group	30	67.00	2010.00			
Ironic Story 4	Children	60	37.12	2227.00	397.000	-4.583	.000
	Control group	30	62.27	1868.00			
Ironic Story 5	Children	60	36.60	2196.00	366.000	-5.048	.000
	Control group	30	63.30	1899.00			

Table 29. Results on the total scores of literal stories of the Mann-Whitney U test

		N	Mean Rank	Sum of Ranks	U	Z	p
Literal Story 1	Children	60	34.12	2047.00	217.000	-6.022	.000
	Control group	30	68.27	2048.00			
Literal Story 2	Children	60	38.90	2334.00	504.000	-3.922	.000
	Control group	30	58.70	1761.00			
Literal Story 3	Children	60	39.55	2373.00	543.000	-3.616	.000
	Control group	30	57.40	1722.00			
Literal Story 4	Children	60	39.88	2393.00	563.000	-3.373	.001
	Control group	30	56.73	1702.00			
Literal Story 5	Children	60	40.00	2400.00	570.000	-3.758	.000
	Control group	30	56.50	1695.00			

Table 30. Descriptive statistics of the total scores of questions

	Test item	Group	n	min-max	mean	std
Ironic	Speaker's Attitude Question	Children	60	0-5	4.033	1.301
		Control	30	5-5	5.000	.000
	Speaker's Justification Question	Children	60	0-5	2.916	1.700
		Control	30	4-5	4.966	.182
	Speaker's Meaning Question	Children	60	0-5	2.383	1.616
		Control	30	4-5	4.633	.614
	Speaker's Intent Question	Children	60	0-5	2.833	1.428
		Control	30	3-5	4.833	.379
	Speaker's Belief Question	Children	60	0-5	4.016	1.214
		Control	30	5-5	5.000	.000
Literal	Speaker's Attitude Question	Children	60	1-5	4.100	.986

	Control	30	4-5	4.966	.182
Speaker's Justification Question	Children	60	0-5	3.233	1.55
	Control	30	4-5	4.966	.182
Speaker's Meaning Question	Children	60	0-5	3.316	1.455
	Control	30	3-5	4.600	.621
Speaker's Intent Question	Children	60	1-5	4.166	.977
	Control	30	3-5	4.800	.484
Speaker's Belief Question	Children	60	1-5	4.550	.790
	Control	30	4-5	4.966	.182

Table 31. Results on the total scores of the questions of the Mann Whitney U test

	Test item		N	Mean Rank	Sum of Ranks	U	Z	p
Ironic Stories	Speaker's Attitude Question	Children	60	38.75	38.75	495.000	-4.284	.000
		Control	30	59.00	59.00			
	Speaker's Justification Question	Children	60	33.26	1995.50	165.500	-6.621	.000
		Control	30	69.98	2099.50			
	Speaker's Meaning Question	Children	60	34.09	2045.50	215.500	-6.003	.000
		Control	30	68.32	2049.50			
	Speaker's Intent Question	Children	60	33.75	2025.00	195.000	-6.271	.000
		Control	30	69.00	2070.00			
	Speaker's Belief Question	Children	60	37.50	2250.00	420.000	-4.823	.000
		Control	30	61.50	1845.00			
Literal Stories	Speaker's Attitude Question	Children	60	37.14	2228.50	398.500	-4.902	.000
		Control	30	62.22	1866.50			

Speaker's Justification Question	Children	60	34.02	2041.00	211.000	-6.273	.000
	Control	30	68.47	2054.00			
Speaker's Meaning Question	Children	60	37.10	2226.00	396.000	-4.512	.000
	Control	30	62.30	1869.00			
Speaker's Intent Question	Children	60	39.53	2371.50	541.500	-3.469	.001
	Control	30	57.45	1723.50			
Speaker's Belief Question	Children	60	40.97	2458.00	628.000	-3.160	.002
	Control	30	54.57	1637.00			

Table 32. Descriptive statistics of total reaction times

		Mean	Min.	Max.	Std.
Children	Ironic total	16.1833	4.00	25.00	5.09067
(N=60)	Literal total	19.3667	6.00	25.00	4.31382
Control Group	Ironic total	24.4333	23.00	25.00	.72793
(N=30)	Literal total	24.3000	20.00	25.00	1.23596

Table 33. Results on the total reaction times of the Mann-Whitney U test

		N	Mean Rank	Sum of Ranks	U	Z	p
Ironic stories	Children	60	60.32	3619.00	11.000	-7.609	.000
	Control	30	15.87	476.00			
Literal Stories	Children	60	3619.00	3610.00	20.000	-7.532	.000
	Control	30	476.00	485.00			

APPENDIX 3

QUESTIONS

Hikaye 1

1) Ceyda ‘’Ooo en sevdiğim yemek ’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Ceyda ne demek istedi sence?

4) Ceyda neden böyle bir şey söyledi?

5) Ceyda ‘’Oooo en sevdiğim yemek’’ dediğinde sence gerçekten ıspanağı sevdiğini mi kastetti yoksa sevmediğini mi kastetti?

Story 1

1) Do you think Ceyda was sarcastic or serious when she said "Ooo my favorite food"?

2) How did you know that?

3) What do you think Ceyda meant?

4) Why did Ceyda say such a thing?

5) When Ceyda said "Oooo my favorite food", do you think she really meant that she likes spinach or not?

Hikaye 2

1) Berk ‘’Hafızan gerçekten çok zayıfmış.’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Berk ne demek istedi sence?

4) Berk neden böyle bir şey söyledi?

5) Berk, Selim'e ''Hafızan gerçekten çok zayıfmış.'' dediğinde sence gerçekten hafızasının zayıf olduğunu mu kastetti yoksa hafızasının iyi olduğunu mu kastetti?

Story 2

1) Do you think Berk was being sarcastic or serious when he said "Your memory is really poor"?

2) How did you know that?

3) What do you think Berk meant?

4) Why did Berk say such a thing?

5) When Berk said to Selim "Your memory is really poor", do you think he really meant that his memory was poor or did he mean that his memory was good?

Hikaye 3

1) Ceyda'nın annesi ''Ormanda yürümek için ne güzel bir gün!'' derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Ceyda'nın annesi ne demek istedi sence?

4) Ceyda'nın annesi neden böyle bir şey söyledi?

5) Ceyda'nın annesi ''Ormanda yürümek için ne güzel bir gün!'' dediğinde sence gerçekten ormanda yürümek için güzel bir gün olduğunu mu kastetti yoksa kötü bir gün olduğunu mu kastetti?

Story 3

1) Do you think Ceyda's mother was being sarcastic or serious when she said, "What a beautiful day for a walk in the woods!"?

2) How did you know that?

3) What do you think Ceyda's mother meant?

4) Why did Ceyda's mother say such a thing?

5) When Ceyda's mother said, "What a nice day for a walk in the woods!" do you think she really meant that it was a good day for a walk in the woods or did she mean that it was a bad day?

Hikaye 4

1) Begüm ‘’Ne kadar da düşüncelisin!’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Begüm ne demek istedi sence?

4) Begüm neden böyle bir şey söyledi?

5) Begüm ‘’Ne kadar da düşüncelisin!’’ dediğinde sence gerçekten Tarık’ın düşünceli olduğunu mu kastetti yoksa düşüncesiz olduğunu mu kastetti?

Story 4

1) Do you think Begum was being sarcastic or serious when she said "How thoughtful of you!"?

2) How did you know that?

3) What do you think Begum meant?

4) Why did Begum say that?

5) When Begum said "How thoughtful you are!" do you think she really meant that Tariq was thoughtful or that he was thoughtless?

Hikaye 5

1) Nilgün ‘’Bana hiç yardım etmiyorsun.’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Nilgün ne demek istedi sence?

4) Nilgün neden böyle bir şey söyledi?

5) Nilgün, Mehmet'e ''Bana hiç yardım etmiyorsun. '' dediğinde sence gerçekten yardım etmediğini mi kastetti yoksa yardım ettiğini mi kastetti?

Story 5

1) Do you think Nilgün was being sarcastic or serious when she said "You never help me"?

2) How did you know that?

3) What do you think Nilgun meant?

4) Why did Nilgun say such a thing?

5) When Nilgün says to Mehmet, "You never help me," do you think she really means that she doesn't help or that she helps?

Hikaye 6

1) Selin'in annesi ''Bugün ne kadar şanslıyız!'' derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Selin'in annesi ne demek istedi sence?

4) Selin'in annesi neden böyle bir şey söyledi?

5) Selin'in annesi ''Bugün ne kadar şanslıyız! '' dediğinde sence gerçekten şanslı olduklarını mı kastetti yoksa şanssız olduklarını mı kastetti?

Story 6

1) Do you think Selin's mother was sarcastic or serious when she said, "How lucky we are today!"?

2) How did you understand this?

3) What do you think Selin's mom meant?

4) Why did Selin's mother say that?

5) When Selin's mother said "How lucky we are today!" do you think she really meant that they were lucky or that they were unlucky?

Hikaye 7

1) Fatih ‘’Aferin sana!’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Fatih ne demek istedi sence?

4) Fatih neden böyle bir şey söyledi?

5) Fatih ‘’Aferin sana!’’ dediğinde sence gerçekten bu davranışı tebrik mi etti yoksa yanlış bir şey yaptığını mı kastetti?

Story 7

1) Do you think Fatih was sarcastic or serious when he said "Well done!"?

2) How do you know that?

3) What do you think Fatih meant?

4) Why did Fatih say such a thing?

5) When Fatih said "Well done!", do you think he was really congratulating you on your behavior or did he mean that you did something wrong?

Hikaye 8

1) Berk ‘’Harika bir hediye bu!’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Berk ne demek istedi sence?

4) Berk neden böyle bir şey söyledi?

5) Berk ‘’Harika bir hediye bu!’’ dediğinde sence gerçekten hediyenin harika olduğunu mu kastetti yoksa kötü olduğunu mu kastetti?

Story 8

1) Do you think Berk was being sarcastic or serious when he said "This is a great gift!"?

2) How did you know that?

3) What do you think Berk meant?

4) Why did Berk say that?

5) When Berk said "This is a great present!" do you think he really meant that the present was great or did he mean that it was bad?

Hikaye 9

1) Caner ‘’Gerçekten de harika bir kek olmuş! ’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Caner ne demek istedi sence?

4) Caner neden böyle bir şey söyledi?

5) Caner ‘’ Gerçekten de harika bir kek olmuş!’’ dediğinde sence gerçekten kekin harika olduğunu mu kastetti yoksa kötü olduğunu mu kastetti?

Story 9

1) Do you think Caner was being sarcastic or serious when he said, "This is really a great cake!"?

2) How did you know that?

3) What do you think Caner meant?

4) Why did Caner say such a thing?

5) Caner " When he said, "This is a really great cake!" do you think he really meant that the cake was great or did he mean that it was bad?

Hikaye 10

1) Ceyda ‘’Üzerinde harika durdu. Sana çok yakıştı.’’ derken alaycı mıydı yoksa ciddi miydi sence?

2) Bunu nerden anladın?

3) Ceyda ne demek istedi sence?

4) Ceyda neden böyle bir şey söyledi?

5) Ceyda, Tuana’ya ‘’Üzerinde harika durdu. Sana çok yakıştı.’’ dediğinde sence gerçekten çok yakıştığını mı kastetti yoksa hiç yakışmadığını mı kastetti?

Story 10

1) Ceyda said, "It looks great on you. It looks great on you." Do you think she was being sarcastic or serious?

2) How did you know that?

3) What do you think Ceyda meant?

4) Why did Ceyda say such a thing?

5) Ceyda said to Tuana, "It looks great on you. When she said, "It looks great on you," do you think she really meant that it looked great on you or did she mean that it didn't look good at all?

APPENDIX 4

PARENT CONSENT FORM

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ

VELİ/ VASİLER İÇİN BİLGİLENDİRİLMİŞ GÖNÜLLÜ ONAM FORMU

Sayın Veli/Vasi;

Hacettepe Üniversitesi Etik Komisyonu'ndan 25/01/2022 tarih / E-35853172-300-00002019745 sayı ile izin alınan Doç. Dr. Emine Yarar danışmanlığında Sena Gizem Bodur tarafından yürütülen ve 01.05.2022 – 27.05.2022 tarihleri arasında yapılacak olan "5 ve 6 Yaşlarındaki Çocuklarda Türkçe Sözlü İroni Kavrayışı " başlıklı araştırma için izninize ihtiyaç duymaktayız.

Araştırma T.C. Milli Eğitim Bakanlığı'nın ve okul yönetiminin de izni ile gerçekleşmektedir. Araştırma uygulamasına katılım tamamıyla gönüllülük esasına dayalı olmaktadır. Bu araştırmaya katılım izniniz için sizden herhangi bir ücret istenmeyecek ve size de herhangi bir ödeme yapılmayacaktır. Çocuğunuz çalışmaya katılıp katılmamakta özgürdür. Araştırma çocuğunuz için herhangi bir istenmeyen etki ya da risk taşımamaktadır. Çalışma yapılmadan önce çocuğunuzun sözlü rızası mutlaka alınacaktır. Çocuğunuzun katılımı **tamamen sizin isteğinize bağlıdır**, reddedebilir ya da herhangi bir aşamasında ayrılabilirsiniz. Araştırmaya katılmamama veya araştırmadan ayrılma durumunda öğrencilerin akademik başarıları, okul ve öğretmenleriyle olan ilişkileri etkilemeyecektir.

Çalışmada öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplar tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Araştırmadan elde edilecek bilgiler "araştırma amacı" kısmında belirtilen amaç dışında kullanılmayacak ve sizin ve velayetiniz/vesayetiniz altındaki katılımcının kişisel bilgileriniz gizli tutulacaktır.

Uygulamalar, genel olarak kişisel rahatsızlık verecek sorular ve durumlar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden çocuğunuz kendisini rahatsız hissederse cevaplama işini yarıda bırakıp çıkmakta özgürdür. Bu durumda rahatsızlığın giderilmesi için gereken yardım sağlanacaktır. Çocuğunuz çalışmaya katıldıktan sonra istediği an vazgeçebilir. Böyle bir durumda veri toplama aracını uygulayan kişiye, çalışmayı tamamlamayacağını söylemesi yeterli olacaktır. Anket çalışmasına katılmamak ya da katıldıktan sonra vazgeçmek çocuğunuza hiçbir sorumluluk getirmeyecektir.

Araştırmayla İlgili Bilgiler:

Araştırmada katılımcılar 10 tane kısa hikaye dinleyeceklerdir. Hikayelerin 5 tanesi ironik bir cümle ile, diğer 5 tanesi ise gerçek anlam içeren bir cümle ile bitecektir. Her hikaye sonunda katılımcılara iyi ve kaba ve ciddi ve alaycı yüz ifadeleri içeren emojiler gösterilecektir ve birini seçmeleri istenecektir. Ayrıca hikayelerin sonunda katılımcılara hikaye ile ilgili sorular sorulacaktır.

Araştırmanın Amacı:

Bu araştırma, 5 ve 6 yaşlarındaki Türkçe dili konuşan çocukların ironiyi kavrayıp kavrayamadıklarını ölçmeyi amaçlamaktadır.

Araştırma Yöntemi :

- Araştırma katılımcı, katılımcının sınıf öğretmeni ve araştırmacı arasında görüşme şeklinde yapılacaktır.
- Hikayelerin sonunda sorulan kavrama soruları kategorilere göre değerlendirilecektir.
- Görüşme süresince katılımcı ile yapılan sohbet ve katılımcının verdiği cevaplar video ile kayıt altına alınacaktır.
- Bu görüşme süresince kayda alınan konuşma, sonrasında yazıya çevrilecek ve ananonim olarak saklanacaktır.
- Katılımcının adı ve kimlik bilgileri hiçbir şekilde açığa çıkarılmayacaktır; fakat konuşma örneklerinin bir kısmı gerekirse makalenin yazım ve basım süresince konuşmacının adı ve kimlik bilgileri verilmeden kullanılabilmektedir.

Süresi:

15-20 dakika

Araştırmanın Yürütüleceği Yer:

Sessiz ve video kaydına müsait olan, katılımcının kendini rahat hissedebileceği, okul içerisinde herhangi bir yerde görüşme gerçekleştirilebilir.

Onay vermeden önce sormak istediğiniz herhangi bir konu varsa sormaktan çekinmeyiniz. Çalışma bittikten sonra bizlere telefon veya e-posta ile ulaşarak soru sorabilir, sonuçlar hakkında bilgi isteyebilirsiniz. Saygılarımızla,

Araştırma yürütücüsü:

Ad- Soyad:
İletişim:
İmza:

VELİ/VASİ BEYANI
Yukarıda ayrıntıları belirtilen ve veli/vasi olarak tarafıma aktarılan bu araştırma ile ilgili yapılan tüm bilgilendirmeleri ayrıntılarıyla anlamış bulunmaktayım. Gerek araştırma yürütülürken gerekse yayımlandığında katılımcı ve veli/vasi kimliğinin gizli tutulacağı konusunda güvence aldım. Ayrıca araştırma sonuçlarının eğitim ve bilimsel amaçlarla kullanımı sırasında kişisel bilgilerin dikkatle korunacağı konusunda bana yeterli güven verildi. Araştırma için yapılacak harcamalarla ilgili herhangi bir parasal sorumluluk altına girmiyorum ve bana herhangi bir ödeme de yapılamayacaktır.

Araştırmanın yürütülmesi sırasında herhangi bir sebep göstermeden iznimi çekilebilirim. Bu şartlar altında velayetim/vesayetim altındaki aşağıda adı soyadı yazılı katılımcının araştırmaya katılmasına izin veriyorum.

Katılımcı Adı ve Soyadı	
Veli/Vasi Adı ve Soyadı	
Veli / Vasi Adres, telefon, e-posta	
Veli / Vasi	İmza: Tarih:

APPENDIX 5

ADULT CONSENT FORM

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ

BİLGİLENDİRİLMİŞ ONAM FORMU

Bu formun amacı katılmanız rica edilen araştırma ile ilgili olarak sizi bilgilendirmek ve katılmanız ile ilgili izin almaktır.

Araştırma T.C. Milli Eğitim Bakanlığı'nın ve okul/kurum yönetiminin izni ile gerçekleşmektedir. Araştırma uygulamasına katılım tamamıyla gönüllülük esasına dayalı olmaktadır. Çalışmada sizden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplar tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Veriler sadece araştırmada kullanılacak ve üçüncü kişilerle paylaşılmayacaktır.

Bu kapsamda "5 ve 6 Yaşlarındaki Çocuklarda Türkçe Sözlü İroni Kavrayışı" başlıklı araştırma Doç. Dr. Emine Yarar danışmanlığında araştırmacı Sena Gizem Bodur tarafından **gönüllü katılımcılarla** yürütülmektedir. Araştırma 20.05.2022 – 20.06.2022 tarihleri arasında yapılacak bir uygulamadır. Bu araştırmaya katılım izniniz için sizden herhangi bir ücret istenmeyecek ve size de herhangi bir ödeme yapılmayacaktır. Araştırmadan elde edilecek bilgiler "araştırma amacı" kısmında belirtilen amaç dışında kullanılmayacak ve sizin ve velayetiniz/vesayetiniz altındaki katılımcının kişisel bilgileriniz gizli tutulacaktır. Uygulamalar, kişisel rahatsızlık verecek sorular ve durumlar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden rahatsız hissederseniz cevaplama işini yarıda bırakabilirsiniz.
Araştırma sürecinde konu ile ilgili her türlü soru ve görüşleriniz için aşağıda iletişim bilgisi bulunan araştırmacıyla görüşebilirsiniz. Bu araştırmaya **katılmama** hakkınız bulunmaktadır. Aynı zamanda çalışmaya katıldıktan sonra çalışmadan **çıkabilirsiniz.** Bu formu onaylamanız**, araştırmaya katılım için onam verdiğiniz** anlamına gelecektir.

Araştırmayla İlgili Bilgiler:

Araştırmada katılımcılar 10 tane kısa hikaye dinleyeceklerdir. Hikayelerin 5 tanesi ironik bir cümle ile, diğer 5 tanesi ise gerçek anlam içeren bir cümle ile bitecektir. Her hikaye sonunda katılımcılara iyi ve kaba yüz ifadeleri içeren emojiler gösterilecektir ve birine tıklamaları istenecektir. Ayrıca hikayelerin sonunda katılımcılara hikaye ile ilgili sorular sorulacaktır.

Araştırmanın Amacı:

Bu araştırma, 5 ve 6 yaşlarındaki Türkçe dili konuşan çocukların ironiyi kavrayıp kavrayamadıklarını ölçmeyi amaçlamaktadır. 5 ve 6 yaşındaki çocukların ironiyi ne kadar kavradıklarını anlayabilmek için yetişkinlerin ne kadar kavradıklarına bakıp

aradaki farkı görmek açısından yetişkin katılımcıların kontrol grubu olarak çalışmaya katılmaları amaçlanır.

Araştırma Yöntemi :

- Araştırma katılımcı ve araştırmacı arasında görüşme şeklinde yapılacaktır.
- Araştırmada hikayelerin sonunda sorulan kavrama soruları kategorilere göre değerlendirilecektir.
- Görüşme süresince katılımcı ile yapılan sohbet ve katılımcının verdiği cevaplar video ile kayıt altına alınacaktır.
- Bu görüşme süresince kayda alınan konuşma, sonrasında yazıya çevrilecek ve ananonim olarak saklanacaktır.
- Katılımcının adı ve kimlik bilgileri hiçbir şekilde açığa çıkarılmayacaktır; fakat konuşma örneklerinin bir kısmı gerekirse makalenin yazım ve basım süresince konuşmacının adı ve kimlik bilgileri verilmeden kullanılabilmektedir.

Süresi:

15-20 dakika

Araştırmanın Yürütüleceği Yer:

Sessiz ve video kaydına müsait olan, katılımcının kendini rahat hissedebileceği herhangi bir yerde görüşme gerçekleştirilebilir.

Çalışmaya Katılım Onayı:

Katılmam beklenen çalışmanın amacını, nedenini, katılmam gereken süreyi ve yeri ile ilgili bilgileri okudum ve gönüllü olarak çalışma süresince üzerime düşen sorumlulukları anladım. Çalışma ile ilgili ayrıntılı açıklamalar sözlü olarak araştırmacı tarafından yapıldı. Bu çalışma ile ilgili faydalar ve riskler ile ilgili bilgilendirildim.

Bu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Katılımcının (Islak imzası ile)

Adı-Soyadı:
İmzası:

Araştırmacının (Islak imzası ile)

Adı-Soyadı:
e-posta:
tel:

İmzası:

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
YÜKSEK LİSANS TEZ ÇALIŞMASI ORİJİNALLİK RAPORU

HACETTEPE ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İNGİLİZ DİLBİLİMİ ANABİLİM DALI BAŞKANLIĞI'NA

Tarih: 08/05/2023

Tez Başlığı : 5 ve 6 Yaşlarındaki Çocuklarda Türkçe Sözlü İroni Kavrayışı

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Adı Soyadı: Sena Gizem Bodur
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Sayı : E-35853172-300-00002019745 5.02.2022
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Enstitünüz İngiliz Dilbilimi Anabilim Dalı Yüksek Lisans Programı öğrencisi **Sena Gizem BODUR**'un **Doç. Dr. Emine YARAR** danışmanlığında hazırladığı; **"5 ve 6 Yaşlarındaki Çocuklarda Türkçe Sözlü İroni Kavrayışı (Turkish Verbal Irony Comprehension in Children Aged 5 and 6 Years)"** başlıklı tez çalışması Üniversitemiz Senatosu Etik Komisyonunun **25 Ocak 2022** tarihinde yapmış olduğu toplantıda incelenmiş olup, etik açıdan uygun bulunmuştur.

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Prof. Dr. Vural GÖKMEN
Rektör Yardımcısı

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