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A discourse analytical study of the children TV programme *Team Umizoomi*

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ABSTRACT

Modern children TV shows are heavily geared to engage children in learning new contents. Similar to any educational context, the transfer of knowledge in children TV shows is informed by three prominent psychological theories: behaviourism, cognitivism, and sociocultural theory. Much research about learning in children TV shows utilise psychological methods and theory that, for the most part, ignore the role of language as a discourse strategy and a semiotic resource that interact with learning. An episode of the children TV show *Team Umizoomi*, titled *The Elephant Sprinkler*, was selected as a point of departure to understand the relationship between communicative resources such as discourse strategies and semiotic sign system, on the one hand, and learning within the framework of three major psychological learning theories, on the other hand. Discourse analytical methods were used to process and analyse data. Results suggest that the episode heavily utilises discourse strategies and also the Peircean sign system theory that relates to sociocultural theory of learning. This research may be useful for scholars from diverse academic and professional areas that aim at education. Similarly, the findings may contribute positively to improve television productions for future children TV shows. This study faced limitations in terms of data selection as well as the lack of real target audience's reactions.

Keywords: Behaviourism, Children TV Shows, Cognitivism, Discourse Strategies, Education, Learning, Learning Theories, Semiotics, Sociocultural Theory.

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1. INTRODUCTION

Over the last decades, several authors within the linguistic and teaching areas have carried out studies on learning and the role that language accomplishes in the aforementioned process (Duran et al., 1998; Halliday, 1993; Met, 1991; Painter, 1999). A particular issue related to these studies is the manner in which the usage of discourse strategies serves as a support in the teaching of diverse subject matters (Green, 2008; Gumperz, 1992; Van Donzel & Koopmans-van Beinum, 1996). By taking into account an episode of a children TV show as a point of departure, in this case, *Team Umizoomi*, the relation among discourse strategies and the three major theories associated to learning will be analysed. These different strategies can be mainly placed under three influential learning theories: behaviourism, cognitivism and sociocultural theory, which will be considered in the present study with the aim of analysing strategies that can inform teaching within the educational environment.

Even though several scholars have conducted research concerning these aspects together (Bower & Hilgard, 1981; Schunk 2012), little emphasis has been put on the use of learning strategies within the context of educational programmes for children. The relevance of these programmes is substantial since they can provide and build up spaces of knowledge, recreation and interaction for children of all ages; these contents have a considerable impact on both daily life and school life. The encouragement and promotion of research on this issue is essential, given that it may point out if there is more than one predominant learning theory within the teaching process as well as the involved strategies. Moreover, it may explain the interaction of linguistic and nonlinguistic features, how they are used to create the needed meaning and thus, how they are related to children's learning processes.

From a deeper and more specific perspective, several studies have been undertaken concerning the learning theories that are subject of interest for this present study, that is to say, behaviourism, cognitivism, and sociocultural theory. Research on behaviourism dealt with the design of taxonomies, plans and methods that structured teaching at schools,

institutes and universities (Mergel, 1998; Richards, 1986). The creation of taxonomies by Bloom and by Gagne respectively, Morrison's Mastery learning, the Keller Plan, the Individually Prescribed Instruction (IPI), the Program for Learning in Accordance with Needs (PLAN), the Computer-Assisted Instruction (CAI), and the Audio-lingual method were products of the behaviouristic theory and its approach to education. Like behaviourism, cognitivist studies were focused on the usefulness of the theory within classrooms; studies with a cognitivist basis have contributed to teaching procedures, including tools, exercises and materials to facilitate children's mental development while learning (Craik & Lockhart, 1972; Marton & Säljö 1976).

Up to the date, research lines on sociocultural theory have considered as main topic the connections between the theory and second language acquisition respecting learning and teaching; in this area, Lantolf can be considered as one of the most remarkable scholars (Lantolf, 2000; Lantolf, 2001; Lantolf, 2006a; Lantolf, 2006b; Lantolf, 2007; Lantolf & Appel, 1994; Lantolf & Poehner, 2011; Lantolf & Thorne, 2006a; Lantolf & Thorne, 2006b). Other scholars, like John-Steiner, Panofsky and Smith (1994), and Kozulin (2003), focused on sociocultural theory in different learning stages of the human, such as infancy, childhood and adolescence, but mostly at educational environments such as schools or at a family level.

In relation to the aforementioned aspects, one of the most used ways for teaching children, by means of the usage of learning theories in connection with discourse strategies, is the creation of different TV programmes which are particularly designed to promote learning in children throughout their growth (Bruner, Goodnow & Austin, 1956; Choat, Griffin & Hobart, 1986; Perlado & Sevillano, 2003). Schramm (1961) mentioned the huge impact television had on families' customs, and how this mass medium ended up being part of children's routines within their spare time. He also explained that television provides an incidental type of learning, in which children while look for entertainment, they implicitly receive knowledge. As it occurs at schools, the amount of learning that a child may obtain depends on his own abilities and cognitive capacities.

Following the discussion about learning and television, Anderson (2005) compiled different studies on the effects of TV programmes on children, dividing the information into two categories: foreground television and background television. The first one is programmed for children to see and that receives more attention from them, while the second one is not designed for them and consequently children pay less attention to it. Even though there is still a debate about whether TV shows for children are positive or negative, it has been shown that the older the child is, the greater attention is paid to the content of the programme. Along with this, children will watch what is under their comprehensibility, interest and cognitive meaningfulness; anything else that does not fulfil these criteria would become background television.

Anderson also mentioned that since the 1990s television networks began to show programmes directed to a younger audience, and this caused an increase in rates of children watching television. Due to these shows, children acquire vocabulary and grammar elements, however, some scholars hold the idea that there are programmes that may affect children's speech and language proficiency (Rice et al., 1990), while others say that they have a positive impact. Anderson finally emphasised the importance of further research concerning this issue, since it would clarify the effects of television at different ages in children.

Considering all the above, it is possible to detect in this series of studies, which have been carried out along in the 20th and the 21st centuries, a lack in combining all these aspects (learning theories, learning strategies, and TV programmes) into a study in order to analyse in depth all the features and details of one single show. This evident lack will be considered a relevant key in this study to determine the way in which the linguistic resources from the mentioned learning theories are used in a specific television programme to provide an effective path in learning to children.

The importance of this research study lies on the current relevance of getting to know the different methods and/or techniques that are used to provide knowledge to children in contexts that are far from a school environment. Children's educational TV shows are an

effective instance to indirectly transmit knowledge that is difficult or undesirable to them within in-class activities, resulting in an indirect way to provide knowledge and promote learning through entertainment (Choat, Griffin & Hobart, 1986; Sørensen et al., 2006). Additionally, a study carried out by Williams (1981) pointed out the non-linear relationship of time that is spent on watching television and the learning income that this activity provides to children. This suggests the high impact of educational television programmes on children's learning process. Accordingly, research from Choat, Griffin and Hobart, (1986) claimed the importance of the inclusion of educational TV shows at schools curriculum and teaching programmes, based on the teaching methods of 259 schools in England and Wales.

Moreover, Wright et al. (2001), in a study on the relationship between watching television during spare time and school readiness in children, claimed that the exposure to educational and informative TV shows provides the child a considerable amount of vocabulary and other academic skills. Also, several studies about learning through television have shown that teaching content through this medium can effectively facilitate the process in which the audience acquires certain knowledge.

As shown in a study by Salomon (1984), selected participants were divided into two groups, half of them exposed to learning through television and the other half exposed to a text with the same content. Effectively, the content taught through television was considered by the subjects as easier and more effective, while it was also concluded that learning through the written text required more effort and was arduous. Due to the role of television as a facilitator of learning through various linguistic strategies and visual resources, it is important to carry out further research on the subject; TV series turn out to be an effective means of teaching and a vast influence, especially in the early stages of life.

Studies from Perlado (2003) and Van den Bulck (2004) have proved that the most performed activity by children in their spare time is watching television, reaching an average of twenty-four hours weekly, which means about 3.5 hours a day. The result is followed by playing computer games, use of internet, going out, playing sports and so on.

This indicates that children's TV shows represent an important and influential aspect in their lives and they may be a useful tool to encourage or enhance children's learning (Rubin, 1979; Williams, 1981; Wright et al., 2001).

By considering what has been discussed above, it is necessary to be aware of and to modify the content of TV programmes for children with the aim of making them suitable and adequate to the learning requirements they might have nowadays. In order to accomplish this goal, the first step to begin with is to carry out studies that inform and show the current condition of the existing TV shows which were created by television networks responsible of children's entertainment. Consequently, this would bring to light the different strategies that are commonly applied within these shows.

Moreover, this study can be useful for scholars in diverse research areas, such as linguistics, psychology, pedagogy, preschool education, mass media production, TV networks, and so on. In a more specific manner, the relevance of this present study lies, in the case of linguists, on the role that verbal and linguistic strategies studies play in the communication of information and contents effectively, in a wide range of mediums and contexts including educational. Regarding this scope, the understanding of discourse strategies for communicative and teaching purposes is crucial for the transfer of knowledge.

Following with other areas, scholars from psychology may benefit from this study due to the fact that the understanding of the elements in children TV shows that enhance learning might be a key tool to develop or to improve representative models of cognitive and learning processes. Pedagogy and preschool education may receive new ideas to develop or renew teaching methodologies as well as get to know useful strategies to help out children with difficult subjects and, consequently, to facilitate the learning process of children with cognitive, language or attention problems. Lastly, mass media and TV networks may benefit from this by creating and improving their products in order to promote children's education and entertainment, and thus, obtaining more attention from both children and parents.

Taking into account all the aforementioned aspects, the present study will be structured by the following sections: Theoretical framework, Objectives, Research questions, Methodology, Results, Discussion and Conclusion. The Theoretical framework section consists of a thorough review of the different studies on the three learning theories addressed, that is to say, behaviourism, cognitivism, and sociocultural theory. That section will also include a compilation of studies concerning the use of language in the learning process which is undoubtedly a significant matter. Furthermore, in order to incorporate a different vision of the non-linguistic elements presented by this TV show, semiotics aspects will be addressed in the theoretical framework as well. These aspects have to do with the content proposed by Berger (2014), which establishes the existence of iconic, indexical and symbolic elements that fulfil different functions when it comes to analyse teaching and learning processes.

Next, in the third section, general and specific objectives will be presented in order to state what this study aims to find out. As a brief advance, this will be accomplished by emphasizing the type of evidence that we aim to find by means of a critical analysis of the episode “The Elephant Sprinkler” from *Team Umizoomi* TV show. Specifically, the main idea is to relate these findings to the learning process to which the audience of this show, particularly preschool children, go through.

In the fourth section, specific aspects regarding the methodology used in this study will be explained, considering a description of the different selection steps, which were carried out over several weeks and in which our group increasingly filtered content that could or could not serve to our study. Together with this, the analytical procedure and the criteria that was used will be explained in detail; additionally, specific information about the selected programme, episode and TV network will be provided as well.

In the following section, the results will be presented by means of tables, images and transcriptions. Tables will show the organization and classification of the evidence, resulting in four tables: three corresponding to the aforementioned learning theories (behaviourism, cognitivism, and sociocultural theory) and one for the analysis of signs

according to the Peircean model. While the first three tables will reflect the relations among learning theories with discourse strategies, the last table will present Peircean signs and their effects. The results will be thoroughly analysed and illustrated through the use of images and transcriptions.

In the sixth section, the main points concerning the discussed contents of the theoretical framework and results as well as its relevance will be stated. Furthermore, a critical analysis among the present study and others will be developed. Following the same line, the main findings of this study, the implications and suggestions for further research will be established in the Conclusion section. Finally, in the Appendix section, the transcription conventions and items that do not appear before but formed part of the process of this study will be attached.

Regarding the limitations and suggestions of the present research, it can be said that the critical analysis of a specific episode of a show cannot be fully generalised, considering that there are other programmes that are currently broadcast on television and that are aimed for children. Nevertheless, by determining the evidence and its effectiveness in one programme it is possible to provide a more detailed implementation of the study and a deeper analysis of the various strategies both linguistic and semiotic, along with the main learning theories addressed nowadays. As a suggestion, a broader corpus could be incorporated in future studies, as well as a more extensive gathering process of linguistic and nonlinguistic evidence within several programmes related to the topic. Along with this, researchers may consider to carry out these studies within real context with the purpose of considering children's interpretations and perspectives.

2. THEORETICAL FRAMEWORK

In this section, the existing literature regarding the topic of the present study will be reviewed. This theoretical framework section will be subdivided into different sections that are essentially important for the development of this research. First of all, three significant learning theories to the presented inquiry will be discussed: behaviourism, cognitivism and sociocultural theory. Each of these sections will provide key information about the origins of the theory and the context of development. In order to do this, previous works from different authors that contributed to the aforementioned theories will be analysed as well. In more specific terms, the focus and main principles of each theory will be established, along with the strategies and techniques within teaching and learning contexts.

Secondly, the notion of discourse strategy will be discussed including, as well, the concept of discourse and its relevance for the study. Afterwards, the main aspects of semiotics will be described, by particularly considering its origins, development within the linguistic area, and its relation with the television medium. At the end of this section, information on children's TV shows will be provided along with the implications of mass media on the learning processes carried out by different subjects.

2.1 LEARNING THEORIES

2.1.1 Behaviourism

Several theories that attempt to describe the way people learn have been developed (Mehmet, 1988). Behaviourism was one of the first theories to address those issues. As it was stated by Mehmet (1988): "The major principle of the behaviourist theory rests on the analyses of human behaviour in observable stimulus-response interaction and the association between them" (p. 136). The behaviourist theory is mainly based on stimulus and response; it is fundamental to comprehend what these terms refer to. On the one hand, the first term refers to an environmental event that can affect the behaviour of an organism. On the other hand, the second term can be understood as a part of behaviour which is

important in order to have a complete idea of the process of learning (Becker, Thomas & Carnine, 1969). The perspectives and contributions of John Watson, Ivan Pavlov, Edward Thorndike, and B.F. Skinner will be explained in detail below.

Researchers working on behaviourism believe that learning takes place when a person acquires a new behaviour; hence the emphasis is on behaviour instead of mental processes. Mergel (1998) points out to the fact that automatic behaviour is achieved through the constant repetition of new behavioural patterns. Ivan Pavlov was one of the first researchers to work on the concept of behaviour, being known for the *classical conditioning* theory and whose works influenced the Watsonian behaviourism. At the same time, as it was pointed out by Pickren and Rutherford (2010), Pavlov was influenced by Ivan Sechenov, a Russian physiologist who postulated that psychology needed objective methods and that should avoid paying attention to consciousness in order to present a scientific approach.

Pavlov's classical conditioning paradigm can be explained as a set of experimental processes that involves an unconditioned stimulus that is natural for the organism. For example, dogs salivate when they see food; the food produces a measurable unconditioned response and a conditioned stimulus as well. The conditioned stimulus and the unconditioned stimulus are presented repeatedly to an organism in a specific order. Mehmet (1988) claimed that Pavlov's experiment, which indicates that stimulus and response work together, helps babies to obtain native language habits via varied babblings which resemble the appropriate words repeated by a person or a nearby object.

Watson (1919) established that psychology is the science of behaviour, consequently, the subject of study of psychology is the conduct and activity of human beings. One of the principal goals of Watson's behaviourism is to predict human activity by means of studying people's character, as well as to formulate laws and principles. Few years later, Watson (1924) stated the following idea:

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any

type of specialist I might select - doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations and the race of his ancestor. (p. 82)

In the previous quotation, the author described children's minds as a *tabula rasa*, in other words, that human beings are born with no innate predisposition that helps the development of a specific behaviour, and therefore, knowledge comes from experience. Along with this, their family background is not important in the learning process.

Another important term related to behaviourism is *association*, which gives an account of how classical conditioning works, due to the fact that it is the process by which a new behaviour can be learnt. This means that there must be an association between two stimuli in order to learn a new behaviour. Watson and Rayner, in 1920, conducted an experiment with a nine-month old infant. In the experiment, they showed the baby a white rat, a dog, a monkey, and some masks; the infant did not show any particular reaction to those stimuli. The investigator discovered that loud noises made the child burst into tears and then they created an association between the striking sound and the white rat. This experiment showed that through the association of two stimuli, a new behaviour can be learnt.

Subsequently, Edward Thorndike also carried out studies on animal behaviour. In 1974, he published the book *About Behaviorism*. In his book, Skinner presented a modern vision regarding behaviourism, as he established that leaving consciousness, mental processes, and feelings aside was a mistake. His theory attempted to explain the causes of a person's behaviour, "many of the things we observe just before we behave occur within our body, and it is easy to take them as the causes of our behaviour" (Skinner, 1974, p. 10-11). In that sense, if a person does not eat is because that person is not hungry. Furthermore, Skinner is well known for the *operant conditioning* theory and the principle of reinforcement; these two features of Skinner's work are strongly related. Operant conditioning is based on causes and consequences and, when a certain consequence comes

along with a reinforcement, it is likely to be repeated again (Skinner, 1974). These two aspects of Skinner's behaviourism will be explained in detail below.

The results of Thorndike's experiments were displayed in a book in 1989 called *Animal Intelligence: An Experimental Study of the Associative Processes in Animals*. The puzzle-box experiments that Thorndike carried out in several animals were a basis for the future operant conditioning theory discovered by Skinner in 1989. "Results from these famous puzzle-box experiments with cats, dogs, and chicks led Thorndike to conclude that animals learn solely by trial and error and by reward and punishment" (Pickren & Rutherford, 2010, p. 58). The puzzle-box experiment consisted in a box of 20 x 15 x 12 inches where he positioned a cat. The animal, in a certain moment by stumbling upon a lever, discovers the manner to escape. As in Pavlov's experiments, by means of the constant repetition of the process, the cat would open the box faster each time and it would be rewarded each time it gets out of the box.

Operant conditioning focuses on how an organism can learn new behaviours through experience and how this learning process has a consequence in the environment of the organism. Skinner coined the idea of reinforcement, which can be positive or negative and involves the presentation or removal of stimulus according to its consequences. The stimulus presented is followed by a response; if the response is strengthened, then it is more likely to occur in the future (Becker et al., 1969). In other words, a positive reinforcer may be something as simple as a glass of water if a person is thirsty, in this way that person will drink a glass of water in another similar occasion; the contrary occurs with a negative reinforcer because, after it occurs, it reduces or terminates certain behaviour. For instance, to take off a shoe that is pinching the foot: there is a negative reinforcement by reducing the pressure (Skinner, 1974).

This theory has been applied in the educational system in the past as a popular matter, and currently in a low-key fashion. For instance, the audio-lingual method was created in order to teach students from army programmes to be proficient in different languages. This method was "the combination of structural linguistic theory, contrastive analysis, aural-oral

procedures, and behaviourist psychology” (Richards & Rodgers, 1987, p. 53). The audio-lingual method has an oral based approach and focuses on the use of grammatical sentence patterns; it also encourages the use of oral language since it was considered to be more effective than written forms. The way in which students learn grammar with the audio-lingual method is primarily inductive, specifically, they must practice and repeat a specific grammatical pattern in order to learn.

In the audio-lingual method, the role of the teacher is central due to the fact that he is the one who dominates the classroom; he or she shapes and targets language, and also controls the direction and the pace of learning. A different role is taken by learners since they are perceived as organisms that can be directed to produce correct responses. The learner's task is basically to respond to the stimuli, for this reason, the learner has little control over the pace of learning (Richards & Rodgers, 1987). Despite its apparent success, the audio-lingual method was questioned considering that, in the end, learners were not competent in the target language. It is relevant to mention, that “the learner of a language should be encouraged to use their innate and creative abilities to derive and make explicit the underlying grammatical rules of the language” (Richards & Rodgers, 1987, p. 66).

Moreover, behaviourist theory received criticism from scholars concerning its main ideas and effectivity. One of them is the American linguist Noam Chomsky (1971) who analysed some previous postulates about the malleability of man. As science has revealed, *freedom* and *dignity* are merely an illusion and “what a person does is fully determined by his genetic endowment and history of ‘reinforcement’” (Chomsky, 1987, p. 158). He discussed Skinner's ideas on behaviourism and this theory of human malleability.

Chomsky affirmed that Skinner's ideas were dogmatic. According to him, Skinner has demonstrated his dogmatic thinking when he stated that a scientific analysis should explain how a person's behaviour in physical terms is related to the evolvement of humanity and the living conditions of that person. Chomsky analysed Skinner's conclusion that the science of behaviour has to avoid people's personification and their internal states

to progress as well. He advocates that if inner states are rejected, then Skinner would be hostile to the nature of scientific inquiry.

2.1.2 Cognitivism

Another relevant learning theory to address in order to carry out this study is cognitivism. By the end of 1950, learning theories started to change and depart from behaviouristic ideas towards an approach that supported its ideas based on models developed from the cognitive sciences (Snelbecker, 1983). As Bower and Hilgard (1981) pointed out, cognitive theories put emphasis on the acquisition of knowledge and internal mental structures, that is to say, cognitive models focus on the conceptualisation of students' learning processes and how the input acquired is received, organised, stored, and retrieved by their minds (Ertmer & Newby, 2013). In this case, the process of learning is concerned with what learners know and how they acquire new knowledge and information, not with what learners do (Jonassen, 1991).

Although it is not possible to set the beginning of this movement at a specific point in time, it can be noted that cognitivism gained importance when it began to develop as a response to behaviourism around the 1950s and 1960s. Nevertheless, some traces of cognitive psychology are also observed in previous decades. For example, Jean Piaget (1936) was one of the first researchers to take a new perspective on knowledge and learning theories, including among his studies the cognitive development in children. By applying different kinds of tests he observed differences in cognitive abilities of individuals, thus discovering that the way children and adults think is different. This does not necessarily mean that they are less smart subjects, which was the assumption until that time.

Thereby, authors continued to develop theories that leaned towards this new perspective regarding knowledge acquisition. One of the principles that began to be explored was that memory and perception in human beings could be conceptualised in such a way that sensory information works as the input that enters the receptors; that input goes

through several analyses in our minds until it finally takes part in our memory systems (Shannon, 1948).

Later on, cognitive theories began gaining ground and to interest researchers, thus several authors focused their studies on this model. Bruner, Goodnow and Austin (1956) were devoted to studying the way in which subjects learnt new categories and concepts, but instead of focusing on associative relationships, they tried to analyse the various learning strategies used in order to do so, making inroads into information processing, which was becoming an increasingly important topic.

That was also the case of Broadbent, who mainly studied how information in short-term memory is transformed into information stored in long-term memory (1958). In the following decades the interest in this area continued increasing, as it is possible to observe on the inquiry carried out by Neisser (1964) who introduced one of the fundamental principles in cognitive theories: the functioning of the human mind as a computer. Then he committed himself in the study of recognition patterns and ways of processing information through computer programmes. Following the same line, Newell and Simon (1972) also developed computational models engaged in solving problems as people do, trying in this way to demonstrate that these models could reflect how these processes are carried out by the human mind.

Cognitive models became the dominant perspective in the field of teaching and learning after a considerable period of gestation (Bechtel, Graham, & Balota, 1998). Through the emerging studies it was demonstrated that the previous movement, Behaviourism, was based on reactionary responses and on the belief that behaviour could be modified by modifying the environment only. Cognitive theories began to explore the internal processes of the mind where the information is analysed and processed, and incorporated new insights into those mechanisms by including fields such as cybernetics, artificial intelligence and computer science (Bechtel, Graham, & Balota, 1998).

Furthermore, Anderson and Bower (1973) wrote a book presenting a model where information processing and new technologies in the linguistic field, such as artificial intelligence, played a fundamental role. This model combines both areas and its use is intended to represent semantic knowledge through networks in order to generate a memory model for linguistic materials, mainly by recognising and recalling lists of words. The use of computational models in this field, new perspectives on linguistics and implementation of technological devices allowed the development of a cognitive science that persists up to this day; in the 21st century, these theories have been used to model teaching strategies in various areas and also to strengthen the focus on mental processes through which humans acquire new information (Anderson & Bower, 1973).

It is paramount to state that the cognitive theory is composed by a set of principles. First, the principle that links cognitivism and Chomsky's ideas will be reviewed. In Horst (2003), it is said that Chomsky was the responsible for introducing a *cognitivist revolution* in the field of linguistics that shifted away from the behaviourist theory of language-learning. Chomsky was unable to explain the fact that children rely on grammatical rules, and that they are able to apply them in different new contexts in forms that are not determined by the finite set of stimuli that they have been exposed to. This meant that, with the aim of solving Chomsky's problem, a mechanism that was not bound to general principles of classical and operant conditioning was necessary. Consequently, a mechanism designed especially for language-learning and linked to computational terms was plausible. This mechanism is one of the most important principles within the cognitive theory, it is the so-called computational theory of the mind (Bechtel, Graham, & Balota, 1998).

During World War II digital computers were developed and these new technologies were soon compared to the human mind. As Smelser and Baltes (2001) assessed, by 1957 Alan Newell, J.C. Shaw, and Herb Simon had created a computer programme that could come up with different solutions for difficult logic problems, a faculty that was only attributed to humans. Newell and Simon then continued their project of a problem-solving programme that resembled the capacity of humans, and they explained that the programmes

they have designed were detailed models of human problem-solving (Newell & Simon, 1972).

The association between the human information processing and computational operations remains the keystone of modern cognitive science. Basically, the human mind functions as a computer in the sense that these machines require an input received by the hardware to process information and create a response shown in the monitor. In this way, humans need, just like computers, input to process information and knowledge in our minds. Homologously, computer's input are similar to a computer mouse, keyboard and so on, while human's input are taste, hearing, touch, sight and smell.

Followed by Chomsky's cognitive revolution, research on pattern recognition was enormously benefited. Pattern recognition shelters the concept of how people recognise and perceive objects, so the cognitive approach developed a two-stage theory of object recognition: first, describing the input object by means of descriptions embedded in visual memory, and then selecting the identity that best matches the input object (Smelser & Baltes, 2011). Research revealed that once the stimulus has been removed, underlying object perception still persisted; this was only possible thanks to the visual memory of the stimulus. This way of understanding knowledge through pattern recognition is also understood in terms of schema and conceptualisation, which means knowledge was organised as an elaborated network of abstract mental structures, representing one's understanding of the world. Knowledge can be seen as symbolic mental construction schemas and learning can be defined as a change in a learner's schemata.

One of the key aspects of the integration of cognitivist theories in teaching is to create an appropriate environment for students, which should include the tools and materials necessary for the understanding of the subject. These tasks have been addressed by several authors in the field, which attempt to introduce a cognitive perspective in order to investigate the factors involved in the different learning processes, their nature and how they are influenced by external and internal issues (Craik & Lockhart 1972; Marton & Säljö, 1976). To achieve meaningful learning, teachers can undertake the task to monitor

the processes that students go through, guide them and encourage their critical thinking and processing.

It is also important to consider several psycholinguistic factors when it comes to teach contents in the classroom. In the case of language learning, according to Skehan (1998), it is necessary to take into account the critical period's influence on certain tasks and that teaching contents according to the student's age is also very helpful. According to Piaget (1952), who also emphasised the aforementioned factors, children learn better by playing and actively doing things. Furthermore, language skills are strongly influenced by practice and habit formation to which they can connect the new information they receive. Thereby, three main objectives are necessary for a student to learn something: the information must be understood, retained and recalled easily.

Among the activities suggested by the British Council website to achieve meaningful learning in the classroom, there are tasks such as organising new vocabulary, guessing word meanings from a certain context, realisation of mind maps, associations through mnemonics, self-testing and scanning, emphasis of key ideas, and so on. Other tasks that can be implemented are the division of tasks into smaller and easier ones to complete a bigger activity, by breaking them into systematic steps to reach a final result, and so forth. Following the same idea, according to Gagné (1985), there are five categories of learning outcomes, one of them is cognitive strategies, which are mainly characterised by problem analysis, different thinking techniques and problem-solving techniques. In his study, Gagné stated that students need to receive instructions to perform a variety of tasks that make up a big final one, to achieve this, they must master each task first and then act sequentially in order to reach the final result. Finally, the creation of procedures, the use of strategies to easily recall the acquired information, and the use of problem-solving techniques are some of the most relevant aspects of the cognitive theory.

2.1.3 Sociocultural theory

During the 1990s, sociocultural theory of learning gained importance in the classroom teaching context (Cook, 2008), complementing other scopes based primarily on mental processes of learners, such as cognitivism and constructivism. Sociocultural theory of learning claims that students acquire knowledge through individual human cognition but also, and most importantly, by means of social interaction (Vygotsky, 1986).

Sociocultural theory origins are placed during the 1920s as a response to behaviourism, a theory that was still the centre of attention within research environment. Lev Vygotsky, a psychologist from the Soviet Union, was the head of these theory assumptions that were held by a group of diverse researchers and professionals known as the Vygotsky's circle. Compared to other studies, Vygotsky's ideas were absolutely contrasting and innovative for that time; the divergent feature of sociocultural theory seems to be one of the motives for the little impact among scholars.

The emergence and progression for this theory was hindered by Vygotsky's early death, leaving to his circle the responsibility of developing and improving the studies for this theory. Another likely reason for its low acceptance was the political tension due to war issues. Vygotsky's circle was dissolved at the beginning of World War II, and relations between countries might have limited the translation and diffusion of academic texts. Almost four decades passed until Western countries were able to read translations from Russian to English of his main books: *Thinking and Speaking* in 1962 by Hanfmann, Vakar and Minnick, and *Thought and Language* in 1986 by Alex Kozulin. The American psychologist Jerome Bruner (1983) pointed out Vygotsky's work concerning the importance of social interaction and parental input as key factors for learning, as well as the relevance of the scaffolding process in order to internalise the linguistic code through what he mentioned as the Language Acquisition Support System.

Despite having Vygotsky's sociocultural theory translated into English, scholars in the linguistic area paid little attention to it; it was not until the early 1990s that interest in

this theory triggered the relevant production of new pieces of research and perspectives (Cook, 2008). One of the first researchers who contributed to this sociocultural theory renaissance was the linguist James Lantolf, focusing most of his studies on how Vygotskian approaches may be used as a guide in second language acquisition strategies for learning and teaching (Lantolf, 2000; Lantolf, 2001; Lantolf, 2006a; Lantolf, 2006b; Lantolf, 2007; Lantolf & Appel, 1994; Lantolf & Poehner, 2011; Lantolf & Thorne, 2006a; Lantolf & Thorne, 2006b). Following the same line, Merrill Swain (Philipson & Færch, 1991) has carried out second language education studies based on Vygotsky's notions such as the Zone of Proximal Development. Lastly, studies in which this theory and Applied Linguistics are linked have gone beyond English boundaries; Amy Snyder Ohta (2006) has focused her attention on Japanese contexts in which second language education is implemented.

The underlying principles of sociocultural theory aim to link social interaction and experience with cognitive processes in order to explain the functioning and progression of knowledge acquisition. Individual learning and mental functioning are related to personal cultural context, thus, social interaction and experience are crucial to acquire knowledge and trigger cognitive processes (Vygotsky, 1986). Concerning this issue, the concept of scaffolding was coined as a metaphoric term to point out the role of assistance and interaction while learning (Boblett, 2012; Cook, 2008). Consequently, according to Vygotsky's approach, knowledge is constructed by means of the support of a teacher or a more experienced peer that cooperates and helps the student to complete a task, to solve a problem, to improve language proficiency or to understand a concept.

The person in charge of supporting the student's learning process is known as *The more knowledgeable other* (MKO), characterised by being responsible of replacing material sources such as dictionaries or books in order to facilitate learning through peer interaction (McLeod, 2015). The MKO can be a teacher, a student from superior courses or with advanced knowledge, a parent, and so on, with the role of conducting and guiding the learner into the Zone of Personal Development (ZPD). The ZPD is a figurative space that exists between the developmental level that the student can achieve through independent

learning or problem solving as well as the potential level of development that the learner can reach with the assistance of an MKO (Cook, 2008).

Until this point, sociocultural theory emphasis on social interaction is reflected in the role that scaffolding and MKO play to complete the process of learning and move on into the ZPD. In addition to those concepts, Vygotsky presented the concept of internalisation linked to a principle that establishes a necessary relationship between social interaction, learning and internalisation. According to Vygotsky, internalisation is the process in which the learner makes the external information, obtained through social interaction, an internal element available in the mind to be used. Moreover, this internalisation process can only be triggered after the new knowledge appears on the social level (interpsychological), to be present at individual level (intrapsychological) later on (Cook, 2008).

Given that internalisation is carried out due to social and interpsychological experience, culture is a crucial aspect that conditions learning as an essential part of society. For sociocultural theory, symbolic and cultural meanings allow the individual to select what elements are significant to learn once immersed into certain culture. Children, for instance, learn the symbolic use of language and meaning to function in the world, and to refer to real tangible and abstract elements of the world. This construction with symbolic meaning, shaped by culture, individual and social experience and interaction, is known as semiotics. Semiotic tools are not limited to language itself, but are also present in various systems of counting; mnemonic techniques, algebraic symbol systems, schemes, diagrams, maps and conventional signs (John-Steiner & Mahn, 1996; Vygotsky, 1986). A more thorough and broad review on semiotics will be provided in section 2.3.

As a consequence of the aforementioned processes, it can be established that the relation of learning and development of the student is described by opposite values. In more detail, sociocultural theory claims that, on the one hand, learning is a universal process, necessarily external, since internalisation comes only after experiences in a social level; on the other hand, development is an individual process, necessarily internal and not universal, due to the personal mediation of cultural and social information that is internalised later. In

this way, the first step for a student is to learn in interactive social contexts to subsequently develop the acquired knowledge internally and individually.

Due to the increase of research connecting sociocultural theory with second language education, some changes took place in academic and non-academic environments. In the first circumstance, educational establishments began to give more emphasis to tasks in which students have to cooperate and work together, sharing different ideas in order to end up with a result. Along with this, teachers are also relevant participants of these communicative transactions, collaborating with knowledge and skills that students do not have yet. Compared to earlier teaching and learning techniques, activities with a sociocultural approach involve real context situations, and interactions with others in these instances are crucial to have progresses in the process of scaffolding.

In the second circumstance, recreational spaces, such as TV programmes or games for children, have acquired features that belong to sociocultural theory. Nowadays, television channels include special sections for children entertainment combined with education and value formation. Through these programmes, children can interact with cartoons or actors and accomplish tasks together. This is the case of *Dora the explorer*, *Go Diego Go!*, *Ni Hao Kai-lan*, *Blue's Clues* and so on. Video games, online games, board and parlour games have also evolved through time with sociocultural characteristics. Children and teenagers participate in teams, planning strategies with the aim of winning and gaining experience. Acquisition of knowledge through social interaction has evidently expanded its limits beyond classrooms up to any place where people may share together any piece of information.

2.2 DISCOURSE STRATEGIES

2.2.1 The Notion of Discourse

The concept of discourse has no established, unequivocal definition. Throughout the decades and since the study of language beyond the sentence level begun, different scholars in different fields have developed their own notions and ways of approaching the study of discourse (Schiffrin, Tannen & Hamilton, 2001). These notions and practices are directly related to the nature of the huge range of disciplines or theories from which discourse is studied at a given moment; they are, therefore, biased according to the types of discourse which are relevant to each discipline (Dijk, 1985).

The concept has spread to an important variety of academic domains and most of them have not provided specific definitions; the use of the word has been rather free and even indiscriminate (Jørgensen & Phillips, 2002) in humanities as well as in scientific texts. Consequently, the notion of discourse has become vague, adopting different meanings in different contexts (Dijk, 1985; Jørgensen & Phillips, 2002). As stated by Michael Stubbs in Jaworski and Coupland (1999), discourse is “the organisation of language above the sentence or above the clause” (p. 1). This notion, even though coming from the field of sociolinguistics, represents the characteristics of more formal and local approaches, which study the textual features of language in conversational exchanges or written texts (Dijk, 1985; Jaworski & Coupland, 1999; Schiffrin, Tannen & Hamilton, 2001).

Accordingly, one of the first disciplines to begin with the analysis of discourse is linguistics, characterised also by formal aspects of language use. Linguistic analysis is characterised by a focus on structural descriptions and the study of units, categories, relations or patterns of the language of monological or dialogical text (Dijk, 1985). Marianne Mithun stated the known position of discourse as an autonomous level beyond the sentence and remarked the importance of understanding the grammatical aspects of discourse, as these elements are the tools for the packaging of information, performing, thus, a communicative and social goal (Schiffrin, Tannen & Hamilton, 2001). The

grammatical approach to discourse analysis studies addresses the relation between grammatical choices made by individuals at the morphological level (both with complex or simple sentence structure) and their specific goals within a particular discourse situation (Schiffrin, Tannen & Hamilton, 2001). However, according to van Dijk, this approach imposed limitations to the analysis of discourse (1985).

Additionally, linguistic perspectives have been influenced by the development of different linguistic theories, giving as a result the study of discourse from a structural, generative and also a functional grammar perspective, originated from the works of Ferdinand de Saussure, Noam Chomsky and Michael Halliday respectively, among others (Dijk, 1985; Dijk, 2007). Thus, the analysis of phonological, morphological and syntactical features has been central (Dijk, 1985). Even though discourse is seen as a form of social interaction, functional relations between discourse and its context are not taken into account as it happens in more global perspectives (Dijk, 1985).

Another influential approach to the study of discourse is the one that emerged from pragmatics with scholars such as John Austin and John Searle (Dijk, 2007). The objective of pragmatics was to study the role of utterances in context, instead of studying sentences or grammatical constructions in isolation (Dijk, 1985). During the 1960s, its study extended to the analysis of discourse (Dijk, 1985); the most salient pragmatic studies relate to the development of the notions of speech acts, conversational maxims and, through time, it has become the discipline that many authors choose to refer to as the study of language use beyond the grammatical level (Dijk, 2007).

By the end of the 1960s, a new type of study emerged; the discipline of sociolinguistics, which related different aspects of people's discourse to social variables. For the first time, discourse was studied not only related to context; the choice of specific style and linguistic forms began to be understood as dependent on the social situation, class, ethnicity, or other demographic variables, such as social status, gender, age or power a person or group possess in their cultural reality (Dijk, 1985; Dijk, 2007). This new perspective developed from the work of William Labov, who carried out several studies of

language use, accounting in his conclusions for explanations of language change and the manner in which socioeconomic aspects can affect language use (Labov, 1966; Labov, 1994). Later on, a new perspective was installed within the field with John Gumperz and his studies on social interaction among people, or interactional sociolinguistics (Dijk, 2007).

In parallel with this perspective, there are more global and abstract approaches which largely contrast with earlier studies (Jaworski & Coupland, 1999). Similarly, a most salient contribution to the modern concept of discourse and the general development of discourse analysis was made by Michel Foucault's definition and research (Jørgensen & Phillips, 2002). Due to his work on both theoretical and empirical research, the French poststructuralist philosopher became a referent to follow, comment on or criticise (Jørgensen & Phillips, 2002). In his *Archaeology of Knowledge* (1972), he defines discourse as follows:

Group of statements [...] made up of a limited number of statements for which a group of conditions of existence can be defined. Discourse in this sense is not an ideal, timeless form that also possesses a history; [...] it is, from beginning to end, historical – a fragment of history, a unity and discontinuity in history itself, posing the problem of its own limits, its divisions, its transformations, the specific modes of its temporality rather than its sudden irruption in the midst of the complicities of time. (Foucault, 1972, p. 131)

Foucault's study of discourse can be related to the study of ideologies; for the French philosopher, discourse provides systematic ways of understanding and conceiving a topic. Discourse provides a set of assumptions, expectations and interpretations which allow the extraction of meaning from the elements that constitute it (Schiffrin, Tannen & Hamilton, 2001). Under the Foucauldian perspective, discourse is neither local nor passive, but it is constructed socially and historically; for instance, in discourse referred to as *psychiatry*, *political economy* and *natural history* over the years by different people. In addition to this,

it constrains what is said or not about a topic (Foucault, 1972; Schiffrin, Tannen & Hamilton, 2001).

Later on, this perspective was very useful for the development of the critical discourse analysis discipline (Jaworski & Coupland, 1999). Norman Fairclough's studies, influenced by the Marxist theory, were fundamental to the development of this approach, which focuses on the role that discourse plays in the construction of the social world (Jørgensen & Phillips, 2002). Fairclough, as stated in Jaworski and Coupland, addresses the concept of discourse as a social practice (Jaworski & Coupland, 1999), conformed by three dimensions: knowledge, social relations and social identity and which, at the same time, are shaped by social ideologies and relations of power (Jaworski & Coupland, 1999).

Consequently, the critical study of discourse builds its theory on problematised aspects of the social reality, namely, issues of social inequality, power, domination and discrimination whereby gender, class and race play important roles in the construction of given social types of discourse (Dijk, 2007). Critical studies of discourse are an example of how the approaches have developed and grown from formal perspectives to theories that include social factors and agency as essential elements (Schiffrin, Tannen & Hamilton, 2001).

Finally, it is important to emphasise that discourse analysis has no developed renown approaches related to education. However, different types of discourse and speech, and the use of each of them have undoubtedly specific objectives in each case and in each context. In the present study, it will be possible to see how the use of different types of discourse acquires the role of discursive strategies, which allow, among other things, the facilitation of learning processes.

2.2.2 Discourse Strategies

Over the past decades, several authors have focused on the functions of discourse and thus in the different involved strategies, including learning as for interaction purposes. One of the first authors to discuss the term *discourse strategies* was John Gumperz, who related this term to aspects of social and cultural context, therefore he studied communicative processes and put special emphasis on the area of conversational analysis, applying these concepts to the study of communicative signs in dialogues and in written texts (1982). In this way, his intervention on the concept of discourse strategies is mainly based on the interpretation processes that speakers go through when participating in conversations.

According to Dijk and Kintsch (1983), there are several classifications for strategies that allow the understanding of discourse, such as cognitive strategies, language strategies, grammatical strategies and discourse strategies. Considering the aforementioned classification, these strategies require specific processes and tools in order to permit a speaker to produce discourse. Cognitive resources are used to accomplish and achieve a specific goal via mental processes and deductive thinking, which include small steps in the selection of information, and after that, a conscious or unconscious control over verbal production “in order to solve a problem” (Dijk & Kintsch, 1983, p. 68).

Language strategies, in this case, are considered as a part of cognitive processes in which one purpose is to achieve goals through the use of language by users in order to produce, comprehend and understand different expressions in the utterance level and by means of “speech acts in social interactions” (Dijk & Kintsch, 1983, p. 70). Grammatical strategies tend to project specific grammatical structures in order to convey a message that needs to be clearly understood by the hearer. In this sense, the grammatical part of discourse tends to be more abstract and “to provide specific rules of verbal production” (p. 70), meanwhile language strategies allow for the concretisation of the uttered grammatical structures.

Moreover, discourse strategies are the mixture of all the processes required in the previously mentioned strategies in order to understand and comprehend discourse, including its cultural, social, interactional, pragmatic, semantic, schematic, stylistic and rhetorical aspects. Taking into account Dijk's ideas, these strategies can be directly or indirectly seen as an essential component of learning theories of language. In the case of cultural strategies, they are quite related to the exchange of background information about two different cultures and their traditions, including relevant facts about a specific community in social interaction with the purpose of comparing, sharing and contrasting these two different cultures (Dijk & Kintsch, 1983).

Regarding social strategies, these imply the use of specific speech acts in order to fit in a specific event or situation under the control of social norms, prerogatives, values or ideologies of social behaviour provided by a specific social group or instance of interaction (Dijk & Kintsch, 1983). Interactional strategies correspond to the ways in which an individual addresses or leads a specific discourse to another person in a spontaneous "communicative situation" (p. 82) considering a direct participation in line with purposes of the establishment of verbal statements; pragmatic strategies are directly related to the verbal production and its correspondent "context of language use" (p. 83) in communication.

Semantic strategies deal with the way in which discourse is understood, including its meaning and the content produced by the speaker (Dijk & Kintsch, 1983). Semantic and pragmatic strategies are related to each other; in the case of the former, it refers to the literal meaning of words produced in the discourse, while the latter shows the revelation of real intentions of the speakers by means of the discourse produced by them (Dijk & Kintsch, 1983). Schematic strategies are the series of processes in which the speaker organises discourse in the verbal production of grammatical structures. Stylistic and rhetorical strategies cope with the ways in which this discourse is produced in order to cause an effect or impact on the hearer or under Dijk's and Kintsch's terms (1983) "the most effective way of public speaking" (p. 92).

Primarily, Dijk and Kintsch (1983) seek to clarify the operation of various discourse-processing models in order to lead to a more detailed explanation of the concept of *strategy* in relation to the processing of speech. These discourse-processing models can be both linguistic and cognitive, among others. Thus, the concept of strategy is defined as a form of organisation that “involves human action, that is, goal-oriented, intentional, conscious, and controlled behaviour” (p. 62). This definition is given by the action theory and proposes that the actions can be regarded as a particular situation. They imply different changes in the real world; they can either propose these changes or stop them from being established. Therefore, actions are manners of transforming a previous state of matters by means of different activities. These activities, i.e., purposes, underlying wishes, likes, choices, or other motivational arrangements are commanded by cognitive data in our minds.

The last state is the outcome of a certain action. If these results match the intentions of the agent of the particular action, then we can state that the action is successful (Dijk & Kintsch, 1983). Overall, the intention of the agent is not only to produce outcomes, namely, final states of actions (e.g. a cooked meal as the final state of the action of cooking a meal), but also to include more extensive purposes (Dijk & Kintsch, 1983). The agent’s aim is for the action and its outcome to develop a desired purpose: a situation or state that is an effect of the action (we cook a meal not for the sole purpose of cooking it, but to eat it because we or someone else is hungry) (Dijk & Kintsch, 1983).

For the present study, different strategies by Dijk and Kintsch (1983) were considered as a representation of the multiplicity of actions, decisions or *macroactions* globally combined through a series of steps, with the purpose of achieving a final result or goal proposed by the speaker in a specific event or social interaction. To summarise, strategies emphasise the possibility of manipulating and transforming the language. This is reflected on users’ selection of appropriate words, grammatical structures, actions and decisions (Dijk & Kintsch, 1983). Additionally, it is paramount to consider the social and contextual aspects in the production of the discourse and the main goal of learning. In this way, participants in a process of interaction are aware of the management of these aspects in order to fit in in the social community.

Another view of these communicative strategies can be seen in Gumperz (1982), whereby the concept of discourse strategies has been used by several researchers under the umbrella term of social interaction among individuals, and none of these strategies has been discussed and categorised explicitly in the interpretation of discourse. However, some strategies might be analysed within the framework of the sociolinguistic theory, associated to their use of them in social interaction, and they can be transformed by language users in order to convey a specific message. In addition to this, the speaker and the hearer (in this case the child or the audience in general) “must actively respond to what signals directly through words, or indirectly by gestures or non-verbal signals” (p. 1). In order to do this, the learner has to be able to make deductions to understand and comprehend the message that is conveyed by an action portrayed on the TV show.

Soon after, Paris, Cross and Lipson (1984), set out to investigate various strategies that can be used in teaching. In this case, they focused on the informed strategies for achieving better reading comprehension, determining as one of the main obstacles the use of inefficient instruction by tutors when they needed to teach these strategies, which may be related to a failure in the discursive strategies used in this particular case. In this study, the authors were able to verify that the improvement of the instructions, and the way they address students, along with increasing the awareness of the children's skills, can definitely improve their reading comprehension and use of strategies. Furthermore, Oxford (1989) also focused on the use of strategies for learning purposes; in her study she stated that “learning strategies are operations used by the learner to aid the acquisition, storage, or retrieval of information” (p. 1), and through this research she studied the discourse strategies related to successfully learning of a second language and the factors that influence the choice of those strategies.

Later, authors such as Garner (1990) and Ventola (1991) studied topics such as the importance of correctly applying certain learning strategies in order to successfully learn something. In the case of Garner (1990), her study focused on the involved factors when appropriate use of strategies is not presented:

Because of weak cognitive monitoring, well-practiced maladaptive routines (instead of learning-enhancing strategies), deficiencies in non-strategy knowledge, attributions that do not support strategic behavior, or failure to transfer acquired routines, they do not invoke strategies that might have improved learning. (p. 526)

In the first part of the collection of texts in the book by Ventola (1991), Neils Enkvist's work entitled *Discourse Strategies and Discourse Types* described the different notions of strategy, agreeing that they consist mainly in decisions and choices for a particular purpose. He pointed out that "the actual choice of expression, of words and syntagms, and their exponents in speech and writing, can then be seen as a hierarchic sequence of tactical solutions" (p. 13), thus suggesting that the use of strategies involves solutions to problems and to achieve this, the use of language and discourse are fundamental.

Finally, in a contemporary work such as Sharpe (2008), scaffolding strategies that play an important role in learning were studied. To do this, Sharpe focused on multimodal strategies and types of discourse that help in the development of the scaffolding, in order to examine "the ways in which these function in the discourse to support student learning in the local and immediate context" (p. 211). Through the analysis carried out by Sharpe, some discourse strategies are distinguished such as:

Repeating, recasting and appropriating students' language to develop technical vocabulary [...] Paralleling through analogy, examples and drawing on students' experiences to exemplify and 'concretise' key concepts; Implication sequences to demonstrate chains of reasoning being established; Use of visuals such as diagrams, pictures and action gestures that accompany verbal explanation [...]. (p. 228-229)

As it was aforementioned, one of the main issues to be addressed in detail, in order to carry out this study, is the concept of discourse strategies and different applications that this notion acquires within the context of teaching and learning. It is paramount to note that in

order to achieve a successful internalisation of contents, it is necessary to develop different methodologies that are intended to facilitate and ensure the success of the learning process. These are precisely the learning strategies that both learners and agents in charge of teaching can apply to accomplish these tasks.

In the case of this study, our focus was on the relation between different discourse strategies and the process of learning, and the use of those strategies within the practices of different learning theories, such as behaviourism, cognitivism and sociocultural theory, especially in the case of children's learning through TV shows that are aimed at such audience. For this purpose, it was necessary to determine the various tools, resources and utterances that are used in order to achieve certain results and effects and how these strategies are used to facilitate learning in children by means of a specific TV show.

In the construction of discourse we can find strategies used in order to communicate an idea, get some reaction from the listener, transmit a specific underlying notion implicitly attached to discourse, and so forth. In this case, it can be seen that there is a gap in the existing literature, because although there has been an account of the different definitions of discourse, discourse analysis and strategies used to understand it (Austin, 1962; Dijk, 1985; Dijk, 2008; Dijk & Kintsch, 1983; Gumperz, 1982; Ventola, 1991), it has not been possible to find specific literature on discourse strategies related to the main learning theories, which is why the analysis conducted in this study will give an account of the most outstanding discourse strategies that can be observed in a process dedicated to teaching children through a TV show.

2.2.3 Language and its role as facilitator and mediator of learning

In spite of the lack of specific literature connecting strategies and learning theories, there is a wide variety of studies on linguistic strategies, their characteristics and use in social and learning contexts. In the following lines, examples about how language mediates learning are explained. This process of mediation is based on the different crucial learning theories including behaviourism, cognitivism and sociocultural perspective. To accomplish

this, different principles proposed by Skinner, Piaget and Vygotsky are addressed as a starting point for the establishment of these theories as tools to facilitate language learning in children.

In line with this, the analysis of language's use in a teaching and learning context is intended to contribute to the learning process. Specific strategies can be used for this purpose and can be implemented in varied ways to facilitate learning within the principles of different learning theories, such as imperative mood, linguistic repetition, and compliments, regarding behaviourist-oriented strategies. Besides, rhymes, emotional intensifiers, songs, and connectors to create procedures, can be used with emphasis on cognitive functions. Finally, respecting a sociocultural approach, some examples of strategies with social-oriented value are use of second person singular and first person plural to indicate inclusion, addressing the audience, asking questions, pauses, code-switching and neologisms. Accordingly, these strategies will be analysed in the following lines.

2.2.3.1 Behaviouristic approach to learning

The subsections below will present the discourse strategies that are related to the behaviouristic theory, specifically, imperatives, linguistic repetition, and compliments and hortatives. From a more specific perspective, each strategy will be characterised and explained by considering different authors' studies on the field.

2.2.3.1.1 Imperatives

Considering behaviourism as the first learning theory that has been analysed, it can be mentioned that imperative mood or the use of imperatives is the first strategy evidenced in the data and this instance will be analysed in other sections along this study. Regarding this issue, imperatives are defined as “the implicit or explicit desire that the speaker expressed in order to influence to another person to do something” (Leszek, 1995, p. 22), also Van der Auwera (2006) states that this are “grammatical constructions that express a state of affairs

as desirable by the speaker and appealing to the hearer to fulfil the desire” (p. 565). More explicitly, the concept of imperatives defined by Sadock and Zwicky (1985) is presented as the speaker’s desires to influence future actions. Additionally, imperatives as a linguistic and grammatical form can lead the addressee of the message to act in the manner that the speaker wanted or expected in relation to the hearer (Leszek, 1995).

In a learning context, imperatives are used in several ways according to the intention that the speaker wanted to convey through his or her message. This intention can be explicit or implicit, in other words, a person can give orders, make suggestions, make requests, give instructions or influence the addressee’s behaviour in some other way (Leszek, 1995). The reason behind the use of imperatives corresponds to the purpose of the speaker, while the hearer has to change the volition of the recipient in order to follow certain instructions, obey orders or commands, consider suggestions about some issues, and so on (Leszek, 1995). Imperatives encourage taking actions that are given by this discourse strategy; on the one hand, imperatives as a strategy tend to be directed to the second person singular/plural ‘you’ to complete the task required by the speaker (Leszek, 1995). On the other hand, the speaker can also use imperatives as “a reference to a second person singular ‘me and you’ by means of ‘let’s do this together’” (Sadock & Zwicky, 1985, p. 177) in order to get the participation and collaboration of the individual (Cook, 2008).

On the one hand, imperatives in a real life context can be used with the purpose of being aware about some characteristics of the daily routine, in terms of how to behave in society, customs and traditions, and on the other hand, they can be applied to the resolution of problems, in which the audience of the show, takes actions to solve the request suggested by the speaker or the characters on the show. Through use of imperatives, the message involved the audience in the programme. At the same time, it exerted an influence on the audience in which children take actions to do things requested by the speaker. These actions allow the acquisition of learning experiences in the audience, due to the imitation of imperatives with other interlocutors, imperatives lead the interlocutors to react to the command immediately (Lantolf & Thorne, 2006a). The idea of imperatives is to fulfil the

authentic requirement of the speaker in which the recipient has to complete the command ordered by the interlocutor (Sadock & Zwicky, 1985).

2.2.3.1.2 Linguistic repetition

Following the same line, another important discourse strategy that can be related to behaviourism is repetition. Studies regarding the function of repetition and its relation to learning are plenty and varied (Kuhl & Anderson, 2011). By the end of 1920s the work of Ebbinghaus on memory had already established the importance of repetition (including repetition of information and repetition as practicing) in the learning process as a facilitator of memorisation. In nearly all the paradigms centred on memory, repetition has proved to have evident effects, having a direct effect related to the frequency of repetitions (2011). As Kuhl and Anderson (2011) state, repetition enhances accessibility in implicit memory, as well as cued recall in explicit memory.

Repetition has been associated with traditional teaching drills. It has also been historically considered as a very important tool for the audiolingual method, emphasising its role in the acquisition of habits. Because of this, in modern methods of second language teaching, repetition is regarded as something that should be avoided (Cekaite & Aronsson, 2004). Nevertheless, Bruner (2001) advocates the importance of repetition in modern educational systems. He argues that the learning process requires of a slow engagement with ideas that have been introduced before, and that repetition gradually contributes to the conformation or consolidation of ideas in the brain. Additionally, he states that repetition is capable of hastening this engagement process. Hence, this method should be applied in the classroom in a free manner and that teachers should be aware of this in the design of their classes, not only in the context of language, but in any type of subject (2000).

2.2.3.1.3 Compliments and hortatives

Another communicative resource is related to compliments, which are directly related to the process of learning in children. This strategy was stated by Gramley and Pätzold (2004) as the manner in which the receiver responds to the complimenter positively or negatively, according to the action performed by the addressee (the audience of the show) or some specific qualities of it. Holmes, as quoted in Maíz-Arévalo (2012), defines compliments as “the credit attributed to someone for some good characteristics, skills, etc., positively valued by the speaker” (p. 982). Compliments can also be recognised according to Boyle, discussed in Maíz-Arévalo (2012), as implicit or explicit compliments. The former is recognised as a formula that cannot have a fixed linguistic form to recognise the intentions that this type of compliment has on the recipient. The latter is a clear judgement or “conventional formulae” (Maíz-Arévalo, 2012, p. 982), which is provided by “declarative and affirmative sentences” (p. 983) about the action made by the ‘audience’ or the characteristic of the receiver.

In the process of learning, compliments can be either explicit or implicit as it was mentioned before (Maíz-Arévalo, 2012). In this study, it can be evidenced that explicit compliments tend to be seen as a positive reinforcement provided by the characters of the children’s TV show, due to the action performed by the audience. With this type of compliment, children feel that the action performed by them can get a reward (Gramley & Pätzold, 2004). Additionally, it encourages them to participate in future activities that the programme offered to the audience (Cook, 2008; Lantolf & Thorne, 2006a). These compliments are explicit as contextual background is required in order to be easily understood by children (Cook, 2008; Maíz-Arévalo, 2012).

The use of compliments is crucial in children; they provide some tools to encourage their collaboration in different activities (Cook, 2008; Lantolf & Thorne, 2006a). Additionally, children can receive a reward because of the ‘good’ job performed in the activity, and rewards correspond mainly to phrases such as good job, great!, well done, or to facial gestures such as a smiling face (Maíz-Arévalo, 2012; Pillet-Shore, 2015). In

addition to this, this discourse strategy can permit the collaboration of audience and encourage it in order to receive a reward for it (Gramley & Pätzold, 2004). However, if the receiver cannot do the activity correctly, a negative reinforcement can be made and, at the same time, it is accompanied with a positive comment to encourage the participation of the audience in the resolution of problems (Cook, 2008; Vygotsky, 1986;).

2.2.3.2 Cognitivist approach to learning

In the following subsections, the discourse strategies that were selected in order to illustrate the cognitive approach to learning will be explained in detail. In this case, rhymes, emotional intensifiers, connectors to create procedures, and songs will be described and exemplified by considering different authors' notions on each strategy.

2.2.3.2.1 Rhymes

Regarding the cognitive theory of learning, some discourse strategies, such as rhymes, facilitate cognitive practices and activities. Rhymes and the mnemonic properties of rhymes were explained by Bower and Bolton (1969) in their study of the relation between memory and rhyming. As they stated, for instance, poetry in its form of rhyming verse is easier to learn than prose and several mnemonic systems make use of rhymes. One of the most spread examples is the memorisation of the alphabet or numbers by means of rhyming songs or any other rhyming mnemonic device (Bower & Bolton, 1969). Nowadays, it is recommended to use rhymes when teaching to young children, taking into account the cognitive basis for facilitation of learning that can be implemented in the classroom (Schiller & Willis, 2008).

There have been different studies, even from the areas of mathematics that recommend the use of rhymes in order to improve and facilitate the learning process (Taylor, 2013). Rhymes get the children's attention and help them to keep themselves focused. Another field that has been explored is the use of rhymes in the language teaching classroom. The report titled *Preventing Reading Difficulties in Young Children* (Bruce,

1998) already highlighted the importance of the use of rhymes (complementary to the use of songs, poems and games), with the purpose of emphasising and facilitating practices of manipulation of sounds when developing language, and particularly phonetic skills (1998).

Bower and Bolton (1969) explained this process of facilitation by relating rhyming with the restriction of ranges of possibilities at the moment of retrieving information when a person is faced to several possible options of response to a stimulus. Additionally, rhyming patterns stick in the brain easier than common non-rhyming pieces of information (Schiller & Willis, 2008). The use of rhymes is not only useful for retention and retrieval of information, but it is also a very positive teaching tool, as it stimulates the senses and, thus, contributes to the involvement of different senses during the learning process facilitating brain's reception and processing of information (Schiller & Willis, 2008).

2.2.3.2.2 Emotional Intensifiers

Another relevant strategy concerning the second learning theory, cognitivism, is emotional intensifiers. This strategy refers to the use of intensifiers that appeal to the emotions of the audience in order to get a positive answer from the audience, based on linguistic resources that cause a reaction of the audience due to the activity performed by it. Zhang et al. as stated in Das and Bandyopadhyay (2009), emotions and answers of the senses in the audience reflect the current state of the children “internally (physical) and externally (social)” (p. 95). Nonetheless, the answer to the task is a brief experience that suddenly and rapidly disappears, that is to say, these intensifiers caused a response that is not felt by the audience for a long period of time (Ekman, 1993).

In the learning process, emotional intensifiers triggered a positive reaction in children because they feel a certain kind of enjoyment in the performed task. This can be directly related to studies that were done in language identification based on Ekman's six emotions (Mayer & Geher, 1996). This strategy can change the perception of a given assignment if it appeals to emotions, i.e., happiness, anger, sadness, appreciation, admiration, and so on,

represented in facial expressions or through other physical representations such as dancing to manifest happiness and excitement (Ekman, 1993; Mayer & Geher, 1996).

However, language and emotion are limited to a specific lexicon associated with a certain emotion. Rosenthal et al. (1979) stated that this degree of reaction can be modelled in a positive or negative way through changes of face or voices. Also, their emotions can be elicited through open-ended questions in which participants express their feelings as it was stated by Ickes et al. in Mayer and Geher (1996). As an additional tool, intensifiers lead to the free expression of emotions and facilitate the process of achievement of a goal (Mayer & Geher, 1996).

The use of emotional intensifiers encourages the participation and collaboration of the audience by means of the appealing to emotions of the audience as it was stated through Vygotsky's ideas discussed in Lantolf and Thorne (2006a). This strategy makes children feel that the activity performed by them is an enjoyable experience, of course, this sensation is short as the necessary process of cognition to understand the activities (Ekman, 1993). However, it can change the individual's perception of the process turning a potentially boring or challenging task into a positive and enjoyable activity (Ekman, 1993).

2.2.3.2.3 Connectors to Create Procedures

The following discourse strategy to discuss is the use of connectors to create procedures. This resource provides a strategy to use connectors that can give a hint to understand things by steps, that is to say, sequential information can be processed more easily by children because of the sequence of events by means of connectors that produce this order. For instance, *first*, *next*, *then*, and even the act of indicating some action by means of a phrase such as *What X goes here?* lead to complete a task and following instructions reflected on procedures that the child has to follow to accomplish the assignment. At the same time, the child processes the message in a better manner in order to understand the required steps to make the task (Sadock & Zwicky, 1995; Veenman, Van Hout-Wolters & Afflerbach, 2006).

The use of these connectors provides a kind of linking device that facilitates the process of following instructions in little steps, that are simple and become more complex along the progress of the episode of the TV show. These connectors can be expressed by ordering information in sequences in order to be easily memorised by an audience (Veenman, Van Hout-Wolters & Afflerbach, 2006) and also to elicit the participation of such audience in completing tasks in order to achieve the resolution of the difficulties proposed in the TV show (Cook, 2008; Lantolf & Thorne, 2006a). This aforementioned discourse strategy allows the rapid processing of information in children, due to the division of pieces of information about a task or activity into simple steps, and it requires a small amount of effort and concentration to be understood and performed (Bruner et al., 1957). It is important to mention that cognition, as well as decoding information requires a lot of effort to be processed, decoded and understood by children. At the same time, this information is transformed into steps or chunks that have to be followed by the audience (Veenman, Van Hout-Wolters & Afflerbach, 2006).

Furthermore, the use of linking connectors can be used as a direct or indirect guide to keep the focus of the audience on fulfilling the mission and solving the difficulty presented in the episode watched by children at home (Veenman, Van Hout-Wolters & Afflerbach, 2006). Another strategy that can be applied with cognitive-oriented purposes is the use of music and songs. The consequences of learning with or through songs have diverse positive consequences, from physiological, to motivational and from mnemonic to linguistic (Millington, 2011; Smith, 2002). For this reason, its pedagogical benefits are numerous and valuable, and it can be useful for flexible classroom methodologies (Millington, 2011).

2.2.3.2.4 Songs

Regarding the physiological effects of songs in learners, it is possible to say that it lowers anxiety, pain, blood pressure and heart rate; there is also an improvement in respiratory rate and relief of tension. According to Bancroft in Smith (2002), listening to music causes changes in blood pressure, flow of blood, people's physical posture, pulse and

respiratory rate, and general activity (2002). Moreover, the use of songs is also recommended to L2 students, as it provides sequential and syllable length information, patterns of chunk linking, and rhythmical information that learners can use to reconstruct a text (Smith, 2002). The memory aid that songs provide is also a useful second language learning tool, since it helps to remember different linguistic constructions and expressions, as well as to acquire vocabulary and to improve listening and pronunciation skills (Millington, 2011; Smith, 2002).

Along with this, songs are effective regarding memory as they facilitate recall. Among the options of learning through common non-rhyming text, rhyming text and melodic text, the latter is the easiest to remember. This fact has been proved, among other instances, with the Wallace's experiments that are focused on the comparison between immediate and long-term recall of texts that individuals learn with music and without music, concluding that a text is more easily learnt when accompanied with a simple melody (2002). This occurs due to mental links made among different parts of the text and a determined piece of melody (Smith, 2002).

Furthermore, and of major importance, the use of songs in the classroom can help to increase learner's motivation (Millington, 2011). Songs are enjoyable to most young learners; songs allow the use of variation in the classroom teaching routine, stimulate interest and attention, thus helping to maintain motivation throughout a task and, with that, improving levels of achievement. Additionally, the use of songs enables the creation of a relaxed and informal environment. This reduces student's anxiety and improves student's attitude towards class activities (Millington, 2011).

2.2.3.3 Sociocultural theory approach to learning

The following section will present the discourse strategies that are related to sociocultural theory, namely 2nd person singular and/or 1st person plural to indicate inclusion, addressing the audience, asking questions, pauses, code-switching, and

neologisms. In particular, a description on each strategy, by considering diverse authors' ideas, will be provided.

2.2.3.3.1 2nd person singular and/or 1st person plural to indicate inclusion

Concerning sociocultural theory, the third analysed theory along the study, pronominal choice is also a significant discourse strategy that can be related to it. In this sense, the selection of pronouns, such as the first person plural and the second person, provides interpersonal information in a communicative situation and, according to De Fina as cited in Inigo-Mora (2013) "by manipulating pronouns speakers can also convey subtle social meanings that relate to their social identities or to their positions with respect to other interlocutors, both present and absent, and to the experiences and topics that are discussed" (p. 22). This can be related to the many studies highlighting the function of pronouns beyond variables such as formality, attitudes, status and sex, and closer to the codification of the speaker's particular communicative intentions (Kuo, 2002).

Brown and Gilman (Kuo, 2002) pioneered the studies of the social and interpersonal meaning of pronouns. Their research indicated that pronominal choice is affected by the relationship that speakers perceive between the members of a communicative situation (2002). For instance, the use of first person plural can reflect emotional closeness to a speaker's interlocutor (Chung & Pennebaker, 2007). Indeed, the pronoun *we* can be used to give a sense of collectivism and to inform that the interlocutor is not alone in a situation of shared responsibility; conclusions such as these have been reviewed in studies of political discourse, among others (Håkansson, 2012).

Accordingly, personal pronouns are fundamental in their role of showing speaker's identification with a particular group (2012), and these expressions of inclusion have consequences both at a social and interpersonal level (Schbeiman, 2004). On the one hand, the use of first person singular brings attention to the speaker; on the other hand, the use of the first person plural, whether in an explicit or implicit manner, brings attention to the speaker's consideration to other individuals (Chung & Pennebaker, 2007). In addition to

this, studies have shown that the meaning and function of pronouns can be studied at the macro level; the closer to important social problems or agitation, the most common the use of pronoun *we* is, demonstrating again the relation between these function words and important social aspects of the speakers in a communicative context (2007).

2.2.3.3.2 Addressing the audience

Another strategy that can be identified regarding sociocultural theory is related to addressing the audience. In this case, audience is essential to understand the concept of audience stated by Park (1982) “ the defined presence of people whom are outside the discourse with beliefs, attitudes and expectations [...] presenting certain characteristics in response to the discourse” (p. 248). Bitzer as cited in Park (1982) discussed that, in order to address a message through discourse, “it is necessary to consider the three components to make the discourse and the rhetorical situation exigency, audience and constraints” (p. 248). In addition to this, the characterisation of the listeners or viewers can also determine the form of the discourse and manners in which such group is addressed (Bitzer, 1968; Park, 1982).

Turning to the issue of components to make discourse and its rhetorical situation aforementioned above, these elements are *exigency*, *audience* and *constraints* (Bitzer, 1968; Ede & Lundsford, 1984; Park, 1982). The first one deals with the possible obstacle that the discourse has to surpass in order to be understood by the audience (Bitzer, 1968; Ede & Lundsford, 1984; Park, 1982). The second one consists of a group of people with specific characteristics or aspects that can change the way in which they create a discourse (Bitzer, 1968; Ede & Lundsford, 1984; Park, 1982), and the third one is associated to the beliefs, facts, attitudes, and so forth, that are behind the audience. Thus, the discourse modelled decisions or actions of the speaker to create discourse (Bitzer, 1968; Ede & Lundsford, 1984; Park, 1982).

In terms of learning, the audience, which is represented by children, is the group of people that can be modelled by discourse uttered by the interlocutor to the audience.

Discourse can lead the audience to adopt certain behaviour reflected on their participation and collaboration (Bitzer, 1968; Cook, 2008; Ede & Lundsford, 1984; Park, 1982). In this case, the discourse formulated in the episode of the TV show is accompanied with facing at the camera in order to catch the attention of the audience. The discourse and the action of facing at the camera can also be connected with the decisions made by the audience during the performance of activities (Bitzer, 1968; Park, 1982). In this way, the audience collaborates and takes actions due to the activities encouraged by the discourse used in the show, through the promotion of audience's participation in a social activity reflected on the TV show (Cook, 2008).

The reason behind addressing audience is the union of two things. on the one hand, the audience take actions, by means of the building of the discourse, and on the other hand, the participation and collaboration of the audience involved in the TV show (Cook, 2008). The importance of discourse is its function as a tool that can influence positively contributing to the process of learning things due to the alteration of reality and the representation of concepts or ideas (Bitzer, 1968; Park, 1982). Additionally, modelling the decisions and actions of the audience produce a sense of collaboration in tasks to reach goals proposed at the beginning of the show, and also a sense of satisfaction and happiness in the audience when the mission is completed (Bitzer, 1968; Cook, 2008; Ede & Lundsford, 1984; Park, 1982).

2.2.3.3.3 Asking questions

Another important strategy used in the children TV shows, is asking questions to the audience in order to elicit the response of children when a request for information is needed. Mehan (2001) states that the sequence of ideas organised in a question causes the hearer's answer to the speaker's question, in this case the speaker asks to the addressee for information that the latter presumably possesses (Labov & Fanschel, 1978; Levin, 1978; Mehan, 2001; Searle, 1969; Shuy & Griffin, 1978). However, there is another type of questions in which the speaker initiates the question, the interlocutor who is not the speaker answers the questions and the speaker provides a positive evaluation or feedback via

thanking for the information, and so on (Labov & Fanschel, 1978; Levin, 1978; Mehan, 2001; Searle, 1969; Shuy & Griffin, 1978).

The use of questions generates in the audience a sense of collaboration, due to the answer to the requests asked for the speaker as it was mentioned by Vygotsky (Cook, 2008; Lantolf & Thorne, 2006a). This strategy also gives a more natural context of interaction between the characters of the show (the speakers) and the children (the audience), in which the former initiates and evaluates the response of the audience, while the latter answers to the requests through the observation of the contextual environment of the TV show. Mehan (2001) mentioned that the audience's behaviour is evidenced according to the type of questions that are elicited by the speaker; if it is about known information the answer is more accurate and certainty, but if the questions is seeking for unknown information, it requires more effort to answer, and possibly it is incorrect or uncertainty emerges (Mehan, 2001).

Asking questions as a discourse strategy has been widely used in classroom contexts as a projection of the IRE model (Initiation, Response and Evaluation) (Mehan, 2001; Nunan, 2004; Sadock & Zwicky, 1985). In children's TV shows, a character initiates a simple or complex question, afterwards children reply to it (Mehan, 2001; Nunan, 2004; Sadock & Zwicky, 1985) and then the same character, which asked the question, evaluates or provides feedback according to the reply given by the recipient of the message (Mehan, 2001; Nunan, 2004; Sadock & Zwicky, 1985).

This IRE model supports the idea that a constant participation and collaboration is required in order to fulfil a task or to solve a problem proposed by the speaker by means of addressing questions that looked for essential information (Cook, 2008; Lantolf & Thorne, 2006a), in spite of the fact, that those questions can be directly or indirectly to the audience. In context of the children's TV show, the linguistic forms of questions tend to be elicited in a yes-no format or in an open-ended format in order to get participation and collaboration of the audience that is watching the show (Mehan, 2001; Nunan, 2004; Sadock & Zwicky, 1985). The evaluation or feedback provided can trigger in children the participation of

answering questions as an instance of knowledge and mutual collaboration to complete a task or solving a problem (Cook, 2008; Mehan, 2001; Nunan, 2004; Sadock & Zwicky, 1985).

2.2.3.3.4 Pauses

Another strategy is the use of silence and pauses in discourse. Several authors over the last decades have addressed the topic of silence and silent pauses and their functional characteristics. Silence is not merely absence of noise or sounds, and authors such as Jaworski, Tannen, Saville-Troike and Jakobson have addressed this fact (Ephratt, 2008; Ngan Ling, 2003; Zsubrinszky, 2012). Silence involves a “total withdrawal of speech at a communicative event” (Zsubrinszky, 2012, p. 1) and it can reach, at the macro level, the practice of groups of speakers (for instance, the silence of attendants in religious events, or the silence that takes place in court when a person is talking).

Nevertheless, this withdrawal does not imply absence of meaning (Ephratt, 2008; Zsubrinszky, 2012). Its different functions can be classified into cognitive, regarding the use of pauses and hesitations; discursive as they set boundaries in a discursive production; and social and affective, for instance, when the speaker pauses in order to extract information about the interlocutor and the situation of interaction (Zsubrinszky, 2012). Ephratt (2008) distinguishes silence or what he calls eloquent silence from pauses.

In his description, eloquent silence is a speaker’s conscious decision and is meant as a means for significant communication alongside verbal communication. He also differentiates this silence from other types, such as the silence of the listener or silencing a speaker by means of direct or indirect ways of exercising power (Ephratt, 2008; Ngan Ling, 2003). As it is a conscious decision, it has a function. According to Jakobson in Ephratt (2008), eloquent silence, as any other linguistic sign, conveys referential information. Balley described the zero sign as follows: “a sign invested with a particular value but without any material support in sound” (Ephratt, 2008, p. 6), and taking into account this definition Jakobson established the silence as part of a structural dichotomy between

something and *nothing* (2008). Additionally, it performs an emotive function as it is a way of expressing emotions (emptiness, intimacy, and so on).

Furthermore, in normal communication silence is accompanied by visual nonverbal cues which allow the interpretation of the speakers' silences (Ngan Ling, 2003). Body movements and gestures (shrugs, hand gestures, changes of facial expressions, and so forth.) are useful to convey a determined meaning of a silence. Moreover, even expressionless silence has a communicative value in an interactive situation. Jaworski explains this meaning of silence by elaborating on the fact that silence is the interruption of what the hearer expects; it is noticed as intentional from the speaker, and is consequently perceived as significant by the interlocutor (2003).

2.2.3.3.5 Code-switching

Another discourse strategy related to sociocultural theory is code-switching, and this strategy tends to be associated to the alternation of codes from the language that is spoken by a speech community to another language or linguistic code that is spoken by a second group of speakers. The switch of the code or code-switch as a phenomenon can be defined as "the shifting between two or more languages simultaneously or interchangeably in a talk" (Grosjean, 1982, p. 145). The changing of the code within a conversational context can lead to a misunderstanding if one of the two groups that is interacting in a conversation cannot manage the ability to change the code in order to be understood by the another one. In this case, the interlocutor that manages both linguistic codes is capable to alternate the codes of his *own language* into the second one in order to be comprehensible and understandable for the speaker that belongs or manage the second code (Gardner-Chloros, 2009). For instance, the speaker of a community (C1) that speaks Spanish as first language or own language is interacting with an interlocutor of a speech community (C2) who speaks French. In this instance, the speaker of the first community (C1) has to change his own code to interact with the individual of the second community (C2) if they want to be understood by each other (Gardner-Chloros, 2009).

Code switching in the process of learning can be applied to the development of the ability to adapt to different situational contexts. These contexts of use are provided by two different communities in order to understand a piece of information or resolve a problem, and so on. Also, the use of code-switching is necessary to elaborate utterances understood by two individuals; one of them belongs to a given community and tries to understand the message of another individual who belongs to a different community (Gardner-Chloros, 2009; Grosjean, 1982). In other words, an individual of a certain group interacts and talks with another person from a different community with the idea of fulfilling a task to get specific information (Gardner-Chloros, 2009).

Nonetheless, the communication is unbalanced because one of the speakers has to be able to manage two codes at the same time in order to facilitate the flow of the conversation. This variability of codes presented by an individual gives a proof that, in order to be understood or comprehended by an individual with another language, as Malik stated in Azlan and Narazuman (2013), it is necessary to adapt and change the code due to the lexical lack of the second code that has to be fulfilled by the mother tongue or first code (Azlan & Narazuman, 2013).

The reason for code-switching is stated by Azlan and Narazuman (2013) who remarked that this strategy is an important phenomenon that happens in the mind of the speaker from one language to another and this generates in the speaker a status of integration within a new speech community that possesses a different language. This is linked to the creation of a new identity as well as to the development of adaptability that involves taking part in a different reality or cultural viewpoint, with customs that are behind this second language (Azlan & Narazuman, 2013). Along with this, the interlocutor who manages the two codes adopts a new attitude towards the second language to emphasise the own mood or feelings that occurs in the *here and now* time without losing the identity (Azlan & Narazuman, 2013; Hughes et al., 2006).

2.2.3.3.6 Neologisms

Another discourse strategy that is evidenced in the data is code-switching, and this strategy tends to be associated to the alternation of codes from the language that is spoken by a speech community to another language or linguistic code that is spoken by a second group of speakers. The switch of the code or code-switch as a phenomenon can be defined as “the shifting between two or more languages simultaneously or interchangeably in a talk” (Grosjean, 1982, p. 145). The changing of the code within a conversational context can lead to a misunderstanding if one of the two groups that is interacting in a conversation cannot manage the ability to change the code in order to be understood by the another one. In this case, the interlocutor that manages both linguistic codes is capable to alternate the codes of his own language into the second one in order to be comprehensible and understandable for the speaker that belongs or manage the second code (Gardner-Chloros, 2009). For instance, the speaker of a community (C1) that speaks Spanish as first language or own language is interacting with an interlocutor of a speech community (C2) who speaks French. In this instance, the speaker of the first community (C1) has to change his own code to interact with the individual of the second community (C2) if they want to be understood by each other (Gardner-Chloros, 2009).

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These stages briefly explain the use and identification of neologisms (Kerremans, 2012; Schmid, 2008), and the possibility of the individual to incorporate these new words into a group through collaborative activities (Cook, 2008). The management of these new words gives to the speech community a more knowledgeable view about reality (Cook, 2008; Lantolf & Thorne, 2006a; Vygotsky, 1986).

2.3 SEMIOTICS

2.3.1 The study of signs

The study of signs has had the attention of several scholars since classical ancient times. Throughout the decades, it has been developed and related to other areas of study, such as philosophy, logic, psychology, medicine, linguistics, and so on. The following sections will comprise the origin, and the development of semiotics as a research field, particularly focusing on authors' notions of semiotics that are of interest to the present research analysis.

2.3.2 Origins and Historical Background

The most ancient record on the theory of signs can be placed in the Ancient Greece, following with Latin translations concerning these studies (Krampen, Oehler, Posner, Sebeok & Uexküll, 1987). Philosophers such as Plato, Aristotle, and Philodemus left trace of their interest about the relation between signs and elements of the real world. Plato saw verbal signs as representations of reality that were incomplete, thus ideas are independent from words; he stated that words and other types of signs were inferior to immediate knowledge and truth by themselves (Nöth, 1995).

From a different perspective, Aristotle studied the connection of words as symbols of speech, explaining that these spoken sounds stand for mental impressions as signs and symbols. Human beings' mental representations reflect reality elements that are the same in every human, however, their spoken sounds or language are different (1995). Philodemus, being a representative of the Epicureans, conceived the sign as a dichotomy that was perceived through human senses, hence, the experience of semiosis was not only for educated people but also for ordinary humans and even animals (1995).

Studies of signs in the middle ages were carried out by philosophers and schoolmen such as Augustine, Boethius, and Roger Bacon. Augustine conceived the sign function as triadic, having a communicative and an epistemic function; the sign is perceived through senses and conveys meaning within the mind (Meier-Oeser, 2003). Moreover, he classified the signs into two types: natural sign or *signa naturalia* that refers to non-intended signs, and given signs or *signa data* that were intended by a sender (2003).

Boethius interest was focused on linguistic signification, particularly on what he called order of speaking or *ordo orandi*, a group semeiotic elements that are external object or *res*, mental concepts or *intellectus*, spoken words or *voces*, written words or *scripta*, whereby the former element ontologically precedes the latter (2003). *Res*, *intellectus*, and *voces* structure the *semiotic triangle* that explains the sign function (2003).

Bacon considered the sign as the essential instrument of Liberal arts, classifying it into the relation category (2003). Like Augustine and Boethius, he interpreted the sign function as a triadic relation, in which the concepts of senses and intellect or mind are involved (2003). Along with this, Bacon emphasised the importance of the role of the interpreter, who is the responsible of conveying a meaning to a certain sign under the concept of relation of reason or *relatio rationis* (2003). He also created a set of categories of the signs that can be mainly divided into natural signs and given signs directed by a soul. While natural signs deal with meanings of inference, concomitance, and consequence, configuration and likeness, and causality, given signs includes the convention of meaning instinctively, with deliberation, and interjections (2003).

Within Enlightenment, the physician and scholar Henry Stubbe, in 1670, employed the term *semeiotics* for the first time in English (Classen, 2010) to refer to the area of medicine that dealt with the interpretation of medical signs, founded in observation (Stubbe, n.d.). Later on in 1690, the British philosopher John Locke, at the end of the *Essay Concerning Human Understanding*, introduced the term *semiotike* as the third division of science (Locke, 1990).

According to him, science should be divided into the nature of things and their relation to each other or *physica*, the actions of men or *practica* and finally, semiotike as a doctrine that deals with signs expressed usually by words. This last division concerning semiotics is immediately related to logic or *logike* as it has to do with the understanding of things and the expression of ideas by means of the signs; men's thinking should not remain only in their memory but being accurately communicated to their peers instead, since they constitute a significant contribution to knowledge and sciences.

2.3.3 Development and contribution to the linguistic field

The study of signs, from a more modern scope, came under the contribution of Charles Sanders Peirce in the 19th century, particularly in his works *The Logic of Science* in 1865 and *On a New List of Categories* in 1868 (Krampen et al., 1987); due to this, he has been considered the father of semiotics (1987). His notions and ideas did not find enough answers through previous models and categories such as Kant's list of categories. Peirce took Logic as the main basis that triggered his semiotic research (Deledalle, 2000; Krampen et al., 1987) and defined semiotics as the theory or doctrine of the inference of signs experience, known as *semiosis*, a concept from the philosopher Philodemus (Deledalle, 2000).

Peirce saw the sign as a triad, in which there is a *representamen* or the sign by itself, an *interpretant*, and an *object* within a relation that cannot be divided (Deledalle, 2000; Krampen et al., 1987; Peirce, 1868). The first aspect is composed by the description of qualities through senses, the Qualisign; the reality in a particular context, the Sinsign; and the *general type of a sign*, the Legisign (Krampen et al., 1987, p. 5). The second aspect, interpretant-aspect, includes Rhema, Dicent, and Argument, whereby: "Any sign that is neither true nor false is a Rhema [...]. A Dicent is a sign that is capable of being translated into a proposition. An Argument is a sign whose rational necessity must be acknowledged." (p. 6).

In other words, this factor shows the manner a sign and its interpretant are connected. The last aspect describes the relations between a sign and its object; it is divided into three types: symbol or general sign, index, and icon, which was previously called similarity or likeness (Deledalle, 2000; Krampen et al., 1987; Peirce, 1868). Peirce explained these three mentioned concepts in the following way:

An icon is a sign that shares a resemblance with its real or fictional object [...] an Index is a sign that relates to its object not as a copy but in some real way, as a pointer or marker [...] A symbol is a sign that is determined by its object only in the sense that it is interpreted as being such, and is thus totally independent of similarity or physical connection to its object. (Krampen et al., 1987, p. 5-6)

In this manner, the sign functions through these three aforementioned factors: representamen, object, and interpretant. The relation can be characterised as irreducible given the fact that two of these factors are mediated by the third correlatum. Moreover, this idea presupposed that a sign does not exist by itself, but by interacting with other existent signs (Krampen et al., 1987).

Years later, Ferdinand Saussure, in his posthumous publication *A course in General Linguistics* in 1916, delimited the object of study of linguistics, providing to the field important concepts and notions to the understanding of language. In his course, Saussure presented the project of semiology along with the description and characterisation of signs, being the first linguist treating semiotics within the field parameters. For Saussure, language was a social institution (Saussure, 1959), and the most important system of signs to express thoughts “comparable to a system of writing, the alphabet of deaf-mutes, symbolic rites, polite formulas, military signals” (p. 16).

Since language is a social entity, the science that studies its signs within society becomes necessary; semiotics, being a science related to other sciences, would depict the constitution of signs and their laws. According to Saussure, linguistics was part of semiotics, which at the same time was part of anthropological facts. Nonetheless, linguists

must find out what elements make language phenomena relevant to semiotics. Moreover, Saussure stated that the relevance of linguistics among sciences would be achieved due to its relation to semiology, by studying social rites and customs as signs.

After the differentiation between speech and language, the first one being the object of study of linguistics, Saussure described the sign as the most discrete unit of language, composed by two faces:

I propose to retain the word sign to designate the whole and to replace concept and sound-image respectively by signified [signifié] and signifier [signifiant]; the last two terms have the advantage of indicating the opposition that separates them from each other and from the whole of which they are parts. (p. 63)

The signified, then, is a word, sound or image, while the signifier is the mental representation of it. The relationship between those elements is conventional, in other words, there are no natural or inherent characteristics in the signified to provide it a signifier, but rather a social and cultural agreement to name things with a certain term (1959). For being bilateral and mental, excluding the referent of its components, the Saussurean sign is different from Peirce's triadic model of the sign (Nöth, 1990). Regarding the conformation of meaning of signs, Saussure also established that signs are defined by the things that they are not; for instance, something is large because it is not small, thus each sign has its own semantic value (Saussure, 1959).

Finally, Saussure made the distinction between sign and symbol. He recognised the cause of the interchangeable use of symbol and sign as equal terms, like the arbitrariness of the sign. Moreover, he said that the sign is mutable and immutable since arbitrariness is fixed by community conventions, and thus it cannot be easily changed without a significant amount of time and agreement of several speakers (1959). The example that he used was the symbol of law, a pair of scales, which could not be changed by another symbol given that symbols are not fully arbitrary, instead, there exists a natural cause in the signifier to stand for a certain signified.

By taking Saussure's sign dichotomy as a starting point, Hjelmslev explained his model of the sign function in his *Prolegomena to a theory of language* in 1943 (Hjelmslev, 1961; Krampen et al., 1987; Siertsema, 1965). In this way, the sign is primarily conformed by expression and content, which are the functives or planes of the signs; the functives are connected through a mutual solidarity relation that is called sign-function (Eco, 1976; Hjelmslev, 1961; Krampen et al., 1987; Siertsema, 1965). The elements that are not signs, that is to say, that do not carry meaning, are known as *figurae*, which can form a sign by using a restricted number of them (Eco, 1976; Hjelmslev, 1961).

At a more specific level, both expression and content have a form and a substance; each form is manifested through the substance (Siertsema, 1965). Expression-substance refers to sounds from a physical point of view, while the content-substance deals with thoughts from a psychological perspective (Hjelmslev, 1961; Krampen et al., 1987). Both expression-form and content-form involve pure linguistic rules (Hjelmslev, 1961). There is a third element, which is involved in the functives of the sign that Hjelmslev named as purport (Hjelmslev, 1961). The purport is the amorphous mass or matter that is common to all languages; however, its structure will depend on each language (Hjelmslev, 1961; Krampen et al., 1987; Siertsema, 1965).

Hjelmslev described glossematics studies as immanent, since his interest was to analyse only the pure language (*langue*), in other words, both forms of content and expression; substance was not included since it involves areas of study that are external of linguistics (Hjelmslev, 1961; Krampen et al., 1987). Another element, which Hjelmslev did not consider part of glossematics, was that of the symbol. He defined symbols as structures in which the expression plane and the content-plane have one and the same form that do not display any difference in form between content and expression (Krampen et al., 1987, p. 98). In this way, Hjelmslev did not consider symbols part of the semiotic field.

Three decades later, the modern Italian semiotician Umberto Eco, in his book *A theory of Semiotics* (1976), provided a general framework for the study of semiotics, taking into account codes and sign production. Eco defined distinguishing the discipline from semiosis, just as Sebeok did, by stating that semiosis exists within event regardless codes; the naming and description of those new events in the world corresponds to semiotics (Eco, 1976). Given that verbal language is the primary way of men to translate their thoughts, and speaking and thinking are a privileged area in semiotics, linguistics becomes the most important part of semiotics, which is at the same time “no more than a derivation from linguistics” (p. 172). Thus, Eco defined semiotics as a part of linguistics, centred in human language and inference. In addition to this, he explained that not every act of inference is a semiotic act, contrary to Peirce’s assumptions, even though human everyday life is filled with cases of inference (1976).

Later on in his book, Eco reflected on the delimitation of signs, signals and icons. To start with, he took the Saussurean definition of sign and stated based on it that signs are not physical entities nor fixed semiotic elements but a *meeting ground* for elements resulting on coding relations (p. 16). Then, Eco established that a sign is a referent or something that *states for another thing* (p. 17) when this reference is a cultural agreement and is coded systematically, thus, when humans decide to recognise and make use of a term as a vehicle to refer to something else, there is a sign. Moreover, Eco expressed that signification and communication are primarily verbal and that all other types of languages are imperfect approximations to verbal capacities, since they construct “impure instances of semiotic devices” (p. 172). As an example of this, he said that a phrase such as *the sun rises* would be replaced by a visual representation of a horizontal line and a semicircle rising from it, but in the case of *the sun also rises* would be more difficult to depict (1976).

Eco also took into account non intentional signs such as gestures, and described them as acts perceived by someone who interprets them even if the sender is not aware of the message that he is providing with his behaviour. Another consideration by Eco is the one of *sign-functions* which refers to the correlation of an enunciation to content within a context that allows the creation of more than one function to the same sign (1976).

Concerning signals, Eco considered that they can be both an expression related to content or a physical activity without any semiotic purpose. In this way, a signal could be a stimulus without meaning that causes a reaction, however, there is not an agreement on the interpretation of it, and consequently signals are not signs. On the contrary, icons are signs that are similar to the denoted element, nonetheless, to ascertain the similarity it is necessary to establish that the perceptual mechanisms, involved in the perception of the icon, are the same involved in the perception of the actual referent (1976).

Eco added to this requirement of icons the fact that the similarity between the object and the icon is a cultural and conventional matter; he put as an example the iconic drawing of a zebra, which takes the main elements that make a zebra different from a horse and other animals, this being its stripes in its skin. However, if an interpreter is from an African community that just knows zebras and hyenas, it would not be necessary to include the stripes for them to recognise the icon as a zebra (1976).

Lastly, the linguist and editor of important works in semiotics, Thomas Sebeok, studied the science as a multidisciplinary field, and related it with logic just as Peirce's proposals (Krampen et al., 1987). Sebeok, in his book *Signs* in 1994, defined semiotics as a solely human manner of inquiry that consists on the formal or informal contemplation of semiosis (Sebeok, 2001). According to the linguist, semiotics regards the human tendency of the mind to inner speculation and daily cognitive strategies (2001). Additionally, in his book *A sign is just a sign*, he stated that semiotics is a science that has its own theories and finding corpus, and also a technique that allows the study of everything that produces signs (Sebeok, 1991). The objective of semiotics would be the capacity of species to produce and understand signs, distinguishing this biological capacity from representation, which is the deliberate use of signs to classify, know and perceive the world (1991).

Concerning the sign, he defined it in Saussurean terms, quoting the idea of the signifier and signified as the constituents of the sign. Sebeok also added to his definition the capacity of signs to encode denotatively and connotatively, depending on the context and use (Sebeok, 1991). Regarding the functions of the sign, Sebeok explained that the understanding and production of signs depends on each species, being biologically determined. Signs permit species to signal their existence, communicate to other species and to model information from the environment (Sebeok, 1991).

Moreover, the linguist categorised signs into six types: signal, symptom, icon, index, symbol and name. This categorisation of signs is based on the three features of them: (a) their bifacial property, constituted by *aistheton* or perceptive part and the *noeton*, or intelligible part, equal to the Saussurean signifier and signified; then (b) the zero signs, which are signs that signify by their absence, such as the silence of elephants as a sign of alarm; and finally (c) the denotative and designation property, that corresponds to reference and the sense or relation of this reference to meaning, respectively (Sebeok, 1991).

According to Sebeok, signals are signs that naturally or conventionally generate a receiver reaction, while a symptom is a non-arbitrary sign that automatically and compulsorily ties a signifier and a signified together; symptoms denotation depends on the person that interprets it, being different from addresser to addressee. Concerning the icons and index, icons occur when there is typological similarity between signifier and signified, while indexes exist when the signifier is a sample of the signified or is similar to it. Symbols, on the contrary, are signs without any similarity but with a conventional link between the signifier and its denotation; its designation is completely intentional (Sebeok, 1991). Finally, names are signs that have an extensional class (p. 59) of denotation, therefore, individuals with a same name do not share any type of feature together but the fact that they answer to the same name.

2.3.4 Semiotics and television medium

It is a matter of fact that mass media has become an essential part of people's lives. Arthur Asa Berger, in his book *Media Analysis Techniques* in 1982, discussed the relation between mass media and semiotics. In particular, Arthur Berger's interest was focused on the manner in which television generates and conveys meaning through its different tools, thus, signs and their relations were relevant concepts in order to understand the television medium (Berger, 2014). Concerning the connection between signs and human beings, Berger stated that, even though society is an abstraction that stands for several individuals, the construction of meaning is always social (2014).

Since every element that people perceive can be considered a sign, television by itself and its specific elements are signs as well (Berger, 2014). Some pertinent semiotic features are *activities* and *performances*, which deal with linguistic expressions of the voice, face, and body; *music* and *sound effects* are features that generate responses on the audience such as feelings and emotion; and *colours and light* or *shade effects* function as signifiers that support viewers' interpretation of what is seen (2014).

Marcel Danesi discussed the relation between semiotics and the television medium from a different point of view. Specifically, he connected the concepts of television and semiotics by discussing how this widespread medium has an influence on how societies perceive different realities (Danesi, 2002). During the 20th century, television medium and technology have developed together; nowadays, television channels offer a wide variety of genres and programmes, providing not only entertainment, but also awareness and opinion on world and local issues (2002).

The social and cultural impact of television has been significant; through the years, people have given it a space in their daily routines (2002). Danesi explained three types of psychosocial impacts: the *mythologising effect*, the *history fabrication effect*, and the *cognitive compression effect*. The first effect concerns the idea that television creates unreal personages and, by means of this medium, they can get life; the second describes how

television creates history by giving a relevant emphasis to certain ordinary events; and the third refers to television manner of presenting information as a “cut up, packaged, and digested” product (p. 145).

Through Danesi’s discussion, both positive and negative consequences are discussed. On the one hand, television is blamed for people’s passivity, laziness, cognitive low effort and shallowness on current issues. On the other hand, it is said that television creates more instances of inclusion, in which people are not only viewers but participants that have the power of opinion and change (2002). Anyhow, television, from a more linguistic perspective, can be seen as a *syntext*, that is to say, a text that provides synthetic and organised connection among text pieces that without its action would be divided and unrelated (2002). Television is also a social text that functions as a mirror: a medium that reflects societies as well as reinforces behaviours within cultures (Danesi, 2002).

2.3.5 Present research perspective

From the previous review on the history of semiotics and the most important authors’ postulates on the field, it was found that, due to the nature of the present study, it is necessary to gather and combine the ideas of various authors in order to create an analysis structure to categorise findings. The considered authors were: firstly, Saussure and Hjelmslev, due to their pivotal definitions of language and signs that will be taken as a basic principle to understand the language as a sign system, particularly at an utterance level. Secondly, Peirce’s notions, given the fact that his classification of signs in relation to the object, i.e., icon, index, and symbol, provides a significant tool to organise, classify and interpret the selected data.

Finally, Berger, due to his relevant link between semiotics and the television medium, establishing its existence as a sign, supporting the relevance of the study of semiotic elements applied in specific television shows. Berger’s selected classifications are *activities and performance*, *music and sound effects*, and *colours and light or shade effects*. The aforementioned considered ideas will be further explained in the Methodology section.

2.4 CHILDREN'S TELEVISION PROGRAMMES

According to Rice, Huston, Truglio, and Wright (1990), it is important to notice that “children’s active processing in their ability to draw upon linguistic processes when viewing, may be they can learn about language when viewing as well” (p. 421). For this reason, children’s TV programmes are very useful for the development of certain skills by children. As it was stated in *Learning from Television: a research review*, there are several aspects that confirm the growth of interest in television medium as a resource of knowledge. One of them concerns the creations of TV shows with education goals that promote literacy in the young audience (1996); *Sesame Street*, introduced for the first time in 1969, is one the most successful and remarkable examples.

Since the 1940s, television has influenced people’s lives all over the world. Perlado and Sevillano stated in *Children’s Television: Analysis of Effects* (2003) that children are physically active while they are watching television, for instance, they can be eating or even talking to other people. This shows how television affects children’s routine, since the act of watching television is nowadays as significant as playing with their friends. Furthermore, children usually watch television surrounded by adults, this means that they spend time together while watching television and, thus, it is regarded as a shared activity.

For over forty years, *Sesame Street* has used puppets, animations and numerous formats to entertain children. As Rice, Huston, Truglio, and Wright (1990) stated: “the main goal of this TV programme is to focus on concepts and other cognitive content, such as alphabet letters, but not general vocabulary development” (p. 422). *Sesame Street*, whose main audience consists of children from 3 to 5 years old, has had a great impact on the development of TV shows directed to children; the dialogue of its characters adjust to young viewers comprehension level. This particular show was associated to the amount of time children spent reading and to educational matters as well, such as letter-word knowledge, maths skills, and school readiness (Anderson, 2005). Thus, these programmes try to prepare children to perform school tasks successfully by providing them with the basic skills to achieve their goals in a classroom context.

The number of hours that children spend watching television does not significantly vary from one country to another. Chonchaiya and Pruksananonda (2008) affirm that “young children, not only in the United States but also in Thailand, watch an astonishing amount of television, spending more time in front of a screen than any other single activity except sleep” (p. 977). A few years earlier, Perlado and Sevillano (2003) had reported similar conclusions due to their study made in Spain, asserting that television plays an important role in transmitting contents and moulding individual’s minds. Perlado and Sevillano’s study considered 432 children from 6 to 8 years old. The results showed that 84% of children watched TV in the morning before school, 87% watched TV after school, and a 98,6% of them watched television in the mornings during the weekends. In 2005, Zimmerman tested the effects of television on children; the number of hours that children, aged 3 to 5 years, watched in average was 3,29 per day, and children that were 6 years old watched 3.54 hours in average per day.

One of the drawbacks of children spending several hours on television is that they probably would get no benefits in terms of education. Perlado and Sevillano (2003) declared that the construction of reality is, in part, due to the daily contribution of television in children’s life. Children learn from each kind of programme, not only those directed to children, but also to those that are created for adults. Perlado and Sevillano (2003) addressed the importance of the presence of adults while children watch TV, as children may not understand what they watch altogether; the results of their research showed that 52.3% of the 432 interviewed children watch TV accompanied and 43,1% are sometimes alone. However, only 37,7% of parents comment TV shows with their kids. In addition to this information, they added questions about television preferences and the majority of children preferred programmes for children that included action and violence.

The American Academy of Pediatrics (2001) published a paper focused on the negative effect that television had on children and adolescents. This study revealed that children and adolescent spend approximately 3 hours per day watching TV. According to this, the American Academy of Pediatrics inferred that “Time spent with various media

may displace other more active and meaningful pursuits, such as reading, exercising, or playing with friends.” (p. 423).

Another relevant issue that the American Academy of Pediatrics (2001) highlighted was the perceptions and the impact that television may produce on children and adolescents because “children and adolescents are particularly vulnerable to the messages conveyed through television, which influence their perceptions and behaviors” (p. 423). For instance, children may not understand the difference between real life and fiction, and this could even be reflected in society, as it was stated by the American Academy of Pediatrics (2001) the figures show that 10%-20% of violence in real contexts can be associated to media violence. In addition to the risk of children’s reception of violent acts, music videos in public television present many illicit references to unhealthy elements such as cigarettes and alcohol.

The idea of implementing educational purposes on television was established in 1957, but its development has been scant. Choat, Griffin and Hobart (1986) carried out a study about educational television among teachers where it was demonstrated that only a few teachers were using effectively this medium. The results of their research showed that those teachers who were using TV for educational purposes incorporated it in the curriculum. Choat et al. (1986) stated that a good use of educational television is the teacher’s responsibility. It is essential for teachers to clarify the ideas presented by the different programmes; the fact that children comment on what they watched is not necessarily an indicator of good comprehension or assimilation. Besides teachers’ explanations, they must interpret them and bring the ideas into possible real situations, as well as create activities so the students can participate in the learning process.

According to Fisch (2005) there are several factors that contribute to the fact that children can learn from educational television. There are several factors that contribute to learning, Fisch stated that educational television works by “Engaging children via the use of appealing elements such as humour (with the caveat that children find different kinds of humour funny at different ages), mysteries, and games, among others” (p. 13).

Additionally, the content is presented with appropriate language and the levels of difficulty are tailored to children's knowledge. Similarly, the emphasis given to the educational context in the plotline of the show is significant. One of the most important features of a successful television show is the fact that children are encouraged to actively participate, for instance by attempting to solve a problem before the on-screen characters solve it.

Finally, the importance of television on our society and the increasing number of hours that children spend in front of the TV has undoubtedly a great impact on the way they learn and interact. For this reason, many TV shows for children attempt to provide contents that may contribute to learning and to make this process easier for them. In the present study, the strategies and methods by which children's TV programmes achieve this goal will be analysed and discussed in detail.

3. OBJECTIVES

The following section attempts to explain both general and specific objectives of the present study. It will consider the establishment of the selected criteria concerning the selection of data, the identification and classification of evidence with its subsequent analysis. Moreover, this section will provide a preview of what research questions aim to elucidate throughout the processes of analysis and discussion. The research interest is directly related to learning and discourse strategies, including both linguistic and nonlinguistic elements.

3.1 General Objectives

By taking into account the episode “The Elephant Sprinkler” of the TV show *Team Umizoomi* as a point of departure, the present study aims:

1. To identify and categorise the different discourse strategies used within the show and their relation to three major learning theories, namely: behaviourism, cognitivism and sociocultural theory, including also a semiotic analysis of the data.

As it was stated in the previous section, these types of educational programmes are meant to promote and encourage learning in preschool children. By means of a thorough analysis of the episode, this study aims to find and categorise the most representative instances of each discourse strategy and their connection to the selected learning theories. Through the aforementioned procedure, which will be further explained in the Methodology section, the present research aims to establish the relationship between the elements presented in the show and their influence on children's learning processes.

3.2 Specific Objectives

1. To describe the function of the different discourse strategies in relation to the three main learning theories (behaviourism, cognitivism and sociocultural theory).
2. To classify strategies according to the parameters of the three main learning theories (behaviourism, cognitivism and sociocultural theory).
3. To analyse the role of semiotic elements in the selected TV show as they relate to learning events

4. RESEARCH QUESTIONS

1. What are the discourse strategies related to behaviourism in the episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*?
2. What are the discourse strategies related to cognitivism in the episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*?
3. What are the discourse strategies related to the sociocultural theory in the episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*?
4. What are the semiotic resources discursive strategies that were used in the episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*?

5. METHODOLOGY

5.1 Corpus

The data was selected from eight different networks from both cable television and free-to-air broadcast networks in English as well as in Spanish. The cable broadcast networks were five: Disney Jr., Disney XD, Nick Jr., Discovery Kids and Cartoon Network, which are specifically and exclusively addressed to children. The free-to-air networks were three: Red, UCV Television and Mega that correspond to Chilean networks. Even though the latter channels broadcast adult content as well, they count with special schedules that are aimed at children, generally airing on Saturday and Sunday mornings.

Among the initial material, there were shows corresponding to both series and movies, with a target audience ranging from pre-schoolers to pre-teens (see table 10.1, Appendix B). The distinction between cable networks and open television networks coincides with a distinction in language; the former provided English-spoken data whereas the latter provided Spanish-spoken data. Moreover, there were differences among the amount of material each network provided, ranging from 04:20:04 to 12:30:18. All this information has been tabulated in Table 5.1 and Table 5.2 respectively, as it is possible to observe below.

Table 5.1

Cable television networks with the corresponding amount of hours from the data

Nick Jr.	Disney Jr.	Disney XD	Discovery Kids	Cartoon Network
4.25:34	10.23.53	12:30:18	11:27:40	8:23:52

Note. Table 5.1 shows the duration of the corpus of the TV shows from cable broadcast networks before selection.

Table 5.2

Open television networks with the corresponding amount of hours from the data

Red	UCV	Mega
4:22:02	4:20:04	6:46:18

Note. Table 5.2 shows the duration of the corpus of the TV shows from free-to-air television networks before selection.

5.2 Procedures and Data Selection

The whole selection procedure comprises five major steps; three of them consisted of addressing different TV shows. In order to fulfil this task, the eight researchers in charge of this study decided to split into four groups of two people each. The first and second step were carried out without watching the whole material and it was approached under two selection criteria: the target age group of the series and the degree of educational content presented in each show. The former step was meant to select the networks from which the series to analyse would be taken, resulting in the discard of Disney XD and Cartoon Network. The latter was intended to select the group of series which would be prone to selection and therefore, the one which would be watched at least by one of the four groups of researchers. At this point in the process, background information about the different shows was used in order to discard several series that did not match the criteria.

After these steps, each group watched the entire episodes from their respecting networks according to the established analytical criteria. As it was stated above, the initial group of eight people was divided into four groups of two in order to analyse data. Each of these groups was given one or two networks in order to make up an average of 10 hours with 26 minutes (10:26:00) per group. The division of networks was the following:

Table 5.3

TV networks' division per group to be analysed

Group 1	Group 2	Group 3	Group 4
Discovery	Mega Nick Jr.	Red UCV	Disney Jr.

Note. Table 5.3 presents TV networks' division per group to be analysed.

In favour of selecting a first group of TV shows, special attention was paid to the richness of discursive strategies and semiotic elements applied for educational purposes, in other words, to the variety displayed within the evidence. Also, the presence of influences from the three theories of learning studied: behaviourism, cognitivism and sociocultural

theory were considered in this process. There was no particular restriction regarding the number of shows that were selected by group in this step, as the focus was on selecting useful potential data. The following tables (Table 5.4 and Table 5.5) show the first group of data selected after watching the material:

Table 5.4

The first group of TV shows selected from the cable networks

Nick Jr.	Disney Jr.	Discovery Kids
Max & Ruby	Higglytown Heroes	The cat in the hat
Bubble Guppies	Mickey Mouse ClubHouse	Sesame Street
Team Umizoomi	The Hive	Backyardigans
Tickety Toc	Oso Special Agent	Caillou

Note. Table 5.4 presents the first group of TV shows selected from the cable networks.

Table 5.5

The first group of TV shows selected from the open networks

Red	UCV	Mega
None of the shows were selected	Dora the Explorer Team Umizoomi	None of the shows were selected

Note. Table 5.5 presents TV shows from open networks selected in the third stage of data selection.

The following step was intended to reduce the first selection to an amount of two shows per group, which were considered to be the ones that thoroughly satisfied the criteria applied for the first round of selection. In order to do this, each group watched and analysed again the episodes, reducing the number of shows to the following eight, as it is possible to observe in Table 5.6 and Table 5.7:

Table 5.6

The two last TV shows selected from the cable networks

Nick Jr.	Disney Jr.	Discovery Kids
Max & Ruby	Oso Special Agent	Backyardigans
Bubble Guppies	Mickey Mouse Club House	Caillou

Note. Table 5.6 presents TV shows from cable networks selected in the fourth stage of data selection.

Table 5.7

The two last TV shows selected from the free-to-air networks

Red	UCV	Mega
No shows were selected	Dora the Explorer Team Umizoomi	No shows were selected

Note. Table 5.7 presents TV shows from free-to-air networks selected in the fourth stage of data selection.

The final step took place in four sessions in which each episode was seen by the group as a whole. In order to come to an agreement regarding the selection of the episode, each member graded the episodes with a number ranging from 1 to 7. The grades were subjected to the fulfilment of the basic criteria and for this reason there was a tendency to grade present-day shows with higher scores than prior shows as they displayed a major variety of learning theories. Finally, in the third session, and once all the episodes were watched by the group, the scores were calculated and the episode, corresponding to *Team Umizoomi*: “The Elephant Sprinkler” with a score of 56, was selected.

5.3 General Background of the TV show

Team Umizoomi is a computer animated show that was created in the United States of America by Soo Kim, Michael T. Smith and Jennifer Twomey in 2010. The TV show had four seasons, one per year until 2014, when the channel that had aired the programme decided not to renew it for a fifth season. *Team Umizoomi* was produced by Curious Pictures Company, which is an animation studio set in New York city. This company also produced several TV series and advertisements since 1978 when it was known as Stowmar Enterprises; then, in 1981, it changed its name into Broadcast Arts; and since 1993 up until the present day, this animation company is known as Curious Pictures Company.

Some of the projects that this animation studio produced were children TV shows such as *Pee-wee’s Playhouse* (1986) airing on CBS and *Codename: Kids Next Door* (2002-2008) airing on Cartoon Network, among others. It also produced some animated shorts like *Sheep in the big city* (2000-2002), and the cartoon scenes of the “Elmo’s world” (1998-2012). Additionally, animated TV films such as *My Scene’s trilogy: Jammin in Jamaica* in

2003, *Masquerade Madness* (2004), *My Scene goes Hollywood: The Movie* (2005), *Barbie Diaries* (2006) were also products by the same company. Furthermore, videogames such as *Rock Band* and *Rock Band 2* (2007-2008), *Grey's Anatomy: The Video Game* (2009), and *Green Day: Rock Band* (2010) are included in their released projects as well. Regarding *Team Umizoomi* distribution, its first broadcast was on January 25th, 2010, with MTV International Networks and Viacom International Incorporated as its main distributors. These television networks used Nick Jr. cable broadcast channel as a means of airing this show, since it was specially designed for preschool children.

5.4 Specific information about the TV show and the selected episode

Team Umizoomi, is a television programme for pre-schoolers, with an emphasis on mathematical concepts, such as patterns, shapes and measurements. The TV show is a mixture of animation and live action; the background and each team member are animated while, people being helped are usually real children. The use of songs is very important in the show, being *Umishake* the most important song during the first season, which was later on called *Crazy shake*. This song is related to the fulfilment of the main task, and the audience is invited to dance and sing with the team. Frequently, the characters use songs every time a task or a sub-task is accomplished.

Each episode presents a task or a request to be completed; the team normally assists a child in need. Completing the main task requires the fulfilment of a number of sub-tasks, and each sub-assignment involves a different mathematical reasoning. Every episode of *Team Umizoomi* is filled with everyday mathematical problems that children can solve with the help of Milli, Geo and Bot, who are the characters that conform the team. It is expected that children, by watching this show, will learn important concepts such as counting, measuring and comparing objects.

Team Umizoomi is set in a colourful city called *Umicity* and the action occurs around this city. The three main characters of the show are Milli, Geo and Bot, and they are part of team Umizoomi. Milli is a young girl and Geo is her little brother, while Bot is a robot and

their best friend. Other important members of the team are the children seeing the show, who are called *Umifriends*; it is said that they have mighty math powers. The girl of the team, Milli, is an imaginative fashionista: her abilities are related to patterns and measuring, being able to change her dress and project patterns, and use her ponytails to measure things. Among the characters that compose team Umizoomi, Milli is the one that interacts the most part of the episode with the audience.

Milli's brother, Geo, has a super skate that can take him everywhere; he is a shape expert and a master builder as well. Geo has a shape belt and he uses it to create anything by assembling the appropriate shapes. Finally, the third member of the team, Bot, is a robot that is equipped with different gadgets; he can look up the needed information for the team, and he is also able to extend his arms and legs. Moreover, Bot has a receiver on his head to take calls, and along with this, he has a front screen called *belly screen* whereby the team has access to videos, pictures, and video calls with people that need their help.

The fifteenth episode from the first season of *Team Umizoomi* is called The Elephant Sprinkler. This episode starts with Milli welcoming the audience and implicitly stating the topic of the episode by asking what the audience likes to do in hot days, to give an answer by telling them that she likes to water the plants during this type of days. Next, Milli's brother Geo is introduced by Milli; the boy comes with the watering cans and they fill them together. In this way, the two children meet Bot and go to water some plants. After Geo finishes watering the plants, the sound of the *Umialarm* alerts the team; they see a message on Bot's belly screen. The message is from team Umizoomi's friend Kayla, who tells them her problem: she and her friends were having a great time at the water playground until the elephant sprinkle stopped working.

After receiving Kayla's message, the team decides to go to the playground and they try to figure out what the problem is; Milli, Geo and Bot wonder what can be wrong with the sprinkler. In that moment, Geo asks how the elephant sprinkle works, so Bot explains the route of the water in order to get to the sprinkler. As he mentions, the rain fills up the

reserve water as a first step, then, the water flows through the big pipe, following with its path throughout the small pipes, to finally get to Umicity and to the water playground.

Later on, team Umizoomi goes to the lake with the aim of finding out if there is something wrong with the reserve water. They measure the lake's depth with Milli's ponytails, and they realise that the lake is in excellent condition. The next step is to go to check the pipe, and, with Geo's help, a super submarine is built by means of the boy's shape belt. After building the submarine, they go into the sea to look for the entrance to the big pipe. Milli, Geo and Bot are able to find the entry to the pipes, but first they have to unlock the riddle at the entrance. They achieve opening the gates by figuring out different patterns. Team Umizoomi does not find anything wrong with the big pipe, so they decide to check if the problem is on the small pipe. The team discovers that the problem is a rubber duck that is stuck in the small pipe. They squeeze the duck in order to set it free and let the water flow through the pipe to the elephant sprinkler. In this way, team Umizoomi fulfilled their mission and helped Kayla to have fun in the water playground.

5.5 Analytical Procedure

As it was mentioned before, the whole group selected only one children TV show from the eight proposed by the four groups. The show was entirely analysed in detail by all members of the groups together. It was decided to analyse the TV show in eight sessions of one hour and half each to determine the presented learning theories with their respective discourse strategies, along with the discussion on the presence of Peircean signs with their effects. Moreover, this stage considered the manner in which these elements were connected with each other to accomplish the objective of educating preschool children.

In each session, the whole group met to watch the show to collect all what has been mentioned. In the first meeting, the show was watched in pauses of two minutes approximately to discuss the elements each member found. The first time, the focus of attention was on the most highlighted features of learning theories such as phrases, facing at the camera, questions that the characters asked to the audience, among others. The

following sessions concerned the observation and discussion of some details in the show that are not easy to perceive, such as songs and their functions in the learning process. Background and its main characteristics received particular attention within the analysis as well. Some of the background features that the group discussed and analysed in depth were the colours that were used in the different scenes, the function of the setting in the story, the use of real human beings, the utilisation of neologisms, and so on.

5.6 Data Analysis Procedure

The analysis of the mentioned elements was carried out in the following order: behaviourism, cognitivism, sociocultural theory, and semiotics. Discourse strategies analysis was included within learning theories discussion. In addition, the analysis criterion for the aforementioned elements was the presence of an explicit educational goal; the instances fulfilling this requirement were the ones selected to analyse in depth. Moreover, the episode was stopped when needed in order to register major strategies applied by the characters. Each member of the group took notes of the strategies that the group considered as influential for the audience's learning. Once the video was paused, the group discussed about what they had found to see if there were coincidences, to finally conclude an agreement on the most remarkable aspects of the evidence.

The first three theories (behaviourism, cognitivism, and sociocultural theory) were analysed in six sessions, thus, this part of the analysis took six weeks. Semiotics was analysed in five sessions of one and a half hour just as the other theories, finishing the analysis in two weeks and a half. It took one session more than the other theories, due to the discussion and interpretation of the different signs and the complexity of their categorisation.

The following tables depict the categorisations used by the group as guidance for the selection and study of strategies performed in the episode "The Elephant Sprinkler". These tables were created based upon literature on the area as well as upon the communicative resources applied in the episode. These matters provided relevant information concerning

the three learning theories selected, as well as the semiotic approach. Particularly, the following tables (Table 5.8 and Table 5.9) show the respective discourse strategies for each learning theory, along with the definition of the Peircean signs.

Table 5.8

Learning theories and their associated Discourse strategies

Learning theory	Discourse strategies associated to learning theories
Behaviourism	Imperatives Repetition Compliments
Cognitivism	Connectors to Create Procedures Songs Rhymes Emotional Intensifiers
Sociocultural theory	Addressing the Audience Asking Questions Pauses Neologisms Code-Switching 2nd Person Singular & 1st Person Plural

Note. Table 5.8 shows the different communicative resources evidenced in the data selected with their associated learning theory.

Table 5.9

Peirce's aspects of the sign in relation to its object

Analysis Structure	Specific Analysis Aspects
Peirce's aspects of the sign in relation to its object	Icon: a sign that shares a resemblance with its real or fictional object.
	Index: a sign that relates to its object not as a copy, but in a real way, as a pointer or marker.
	Symbol: a sign that is determined by its object only in the sense that it is interpreted as being such due to a convention, independent of similarity or physical connection.

Note. Table 5.9 shows Peirce's aspects of the sign in relation to its object.

6. RESULTS

The following section aims to present the analysis of the aforementioned results included in the tables that were shown in the Methodology section of this study (see section 5). In this case, behaviourism, cognitivism and sociocultural theory will have their own specific section with their respective discourse strategies; in these sections the evidence and instances found in the data will be analysed. As it was previously established in subsection 2.3.3 within the Theoretical framework, strategies such as imperatives, linguistic repetition, and compliments and hortatives will be associated to behaviourist ideas. Afterwards, rhymes, emotional intensifiers, songs and connectors to create procedures will be linked to aspects of cognitivism. Then, second person singular and first person plural to indicate inclusion, addressing the audience, questions, pauses, code-switching and neologisms will be strongly bound to sociocultural theory. Lastly, icons, indices and symbols as Peircean semiotic signs will be addressed as well.

Additionally, every discourse strategy will be analysed in this section by means of, approximately, two or three examples that are considered as the most remarkable instances of those strategies. In order to carry out the analyses, the context of each instance within the episode are first provided and described. This step provides a more detailed narration of the affairs that surround the selected instances. The evidences, after being thoroughly discussed, are associated with the foundations of its respective learning theory as well as with the involved learning processes in each particular case.

6.1 Discourse Strategies of Behaviouristic Model of Learning

The first theory to be analysed is behaviourism, which focuses on observable behaviour that can be objectively measured. As it was described in the theoretical framework section, one of its most characteristic features is the stimulus-response model. Moreover, it is of relevance to mention the use of reinforcement methods, which encourage the acquisition of a new desirable behaviour. In relation to this theory, there are three discourse strategies at the verbal level that will be analysed below: imperatives, linguistic

repetition, and compliments and hortatives. First, these discourse strategies will be described and a brief account of the context will be given. Secondly, some transcriptions and screenshots will be added in order to exemplify the instances in which these discourse strategies occur. Lastly, a relation between the theory and how it helps to create learning will be presented.

The following table presents a categorisation of the main evidence associated to behaviourism found within the Episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*. In this case, a brief review of the selected instance will be provided, together with the specific minutes within the instance occurred and finally, the associated discourse strategy for each instance.

Table 6.1

Categorisation of the evidence and relation between Behaviourism and its discourse strategies

Associated Learning theory	Instance	Time	Associated discourse strategy
Behaviourism	Imperatives are used to make requests to the audience in order to incorporate them to the activities.	04:54 - 05:08	Imperatives
		05:48 - 05:55	
		08:17 - 08:27	
		09:48 - 09:45	
		10:00 - 10:19	
		11:40 - 12:19	
		12:44 - 12:54	
		13:28 - 13:40	
		14:00 - 14:10	
		14:21 - 14:33	
		15:22 - 15:24	
		15:51 - 16:11	
		17:43 - 17:55	
		18:18 - 19:05	
19:21 - 19:26			
20:00 - 20:14			

Imperative is used to raise awareness of some everyday life rules.	05:42 - 05:45	Imperatives
Repetition of the diagram description.	07:00 - 07:44	Linguistic Repetition
Repetition of numbers in order to count by tens.	10:30 - 11:00	Linguistic Repetition
Repetition of the concept "pattern".	04:04 - 04:13 15:00 - 16:05	Linguistic Repetition
Characters of the show give compliments to each other. Thus, children perceive how positive reinforcement works.	07:37 - 07:50	Compliments and Hortatives
The characters of the show give compliments and hortatives to the audience. Thus, children can receive a positive reinforcement for their collaboration in an activity.	08:51 - 09:00 10:15 - 10:26 12:22 - 12:36 15:26 - 15:30 16:21 - 16:27 19:12 - 19:19 21:14 - 21:17 19:43 - 19:45 19:49 - 19:53 20:25 - 20:29 21:18 - 21:20 22:10 - 22:16	Compliments and Hortatives

Note: Table 6.1 shows the most representative examples of each discourse strategy associated to Behaviourism.

6.1.1 Imperatives

The use of imperatives can be perceived along the whole episode. This discourse strategy consists on giving an order or making requests to incorporate children into the activities, and also to teach them about different topics. Some examples of the use of imperatives in *Team Umizoomi* will be presented below. One of the first instances in which imperatives are used, occurs when the characters; Milli, Geo and Bot, communicate with Kayla, a girl from the real world, through Bot's belly-screen, which is a screen that this

robot has in its stomach. As they talk to Kayla, she explains to them that it is really hot in the park and the elephant sprinkler, which is a sprinkler at the water playground, is not working. The characters need the help of the audience, therefore, children become part of Team Umizoomi. They sing introducing their powers and explaining that the new Umifriend possesses mighty maths powers as well. During the song, Milli asks the audience:

Transcription 1 (min. 04:54)

1 Mil you've got mighty math powers too? (.) let's see you::r
mighty maths powers (.) COUNT DOWN WITH ME?

Milli makes this type of request several times, thus children participate in the different activities and learn about maths. In this specific case, Milli addresses the audience highlighting that now children are part of their team and she asks them to count down with her. This strategy may be used in order to show children how to use their new power, by practising immediately after obtaining it. This instance occurs during the presentation of the different powers that all the characters possess and ends by stating that their powers are ready to be used, so they go to the next step that is checking the elephant sprinkler.

Another example occurs in minute 09:23 when they need to check if Milli's ponytail reaches one hundred to find out if the lake has enough water to make the elephant sprinkler work. First, they go to the lake where Bot emphasises the fact that they need to check if the lake has enough water and they need to find out how deep is the lake. Then, Milli suggests that they could use her ponytails as a measuring tape. Finally, as Bot stands out, the lake needs to reach one hundred to make the sprinkler work, and then Milli asks the audience to help her to count.

Transcription 2 (min. 09:23)

1 Bot let's make sure this lake has enough water >in it< to get the
elephant sprinkler flowing (.) <we need to know> how deep the
water is.

- 2 Mil I KNOW (.) we can use my ponytails to measure how deep <the lake is> (.) to make my ponytails gro::w si::ng MILLI MEASURE (4.0) MILLI MEASURE
- 4 Bot (4.0) if your ponytail reaches <one hundred>? milli (.) that means the lake has enough water for the elephant sprinkler.
- 5 Mil let's MEasure to see if my ponytail reaches <one hundred> (0.5) we can count by TENS? (2.0) COUnt with me.

Milli uses imperatives twice in this segment. First, with a loud voice, she asks the audience to sing “Milli measure” so her ponytails will grow to accomplish the mission, and then, by making the request of counting with her. The use of imperatives in those cases stimulates the active participation of children at home; they feel part of a group and also learn while cooperating. Finally, the ponytail reaches one hundred; therefore, they proceed to the next step which is going to the big pipe. Similarly, in minute 05:48 Geo makes a special request to the audience. In this instance, they need to check the elephant sprinkler and they want to get there by car. Once they get in the car, Geo wants to make the umicar go faster, so he requests:

Transcription 3 (min. 05:48)

- 1 Geo to make the umi car zoom really fast (.) say UMi::ZOOmi

Geo's request highlights the words *really fast* in order to specify what he really wants to obtain by asking for children's help. He asks the audience to say a particular word and then he waits a few seconds for children to internalise the request and say the word. After this pause, they drive to the elephant sprinkler really fast as a demonstration of how the children's help worked as expected.

As it was stated before, the use of imperatives in children TV shows has the purpose of teaching (Bruner, 2001; Choat, Griffin & Hobart, 1986; Goodnow & Austin, 1956; Perlado & Sevillano, 2003). One example of this occurs when the three characters are in the car ready to drive to the elephant sprinkler and check if it is working or not. Once they are seated in the car, Bot gives an order to Milli and Geo, as it is shown in the following transcription:

Transcription 4 (min. 05:43)

1 Bot okei team (.) seat belts on



Figure 1. Bot requests to use seat belts

In this case, Bot does not give an order directly to the audience. However, he teaches children about using seat belts to travel safely in an indirect manner. In this way, children learn about different subjects and topics, including those that are part of everyday life and, as the behaviourist approach proposes, they create habits (Mehmet, 1988).

To summarise, imperatives in this particular TV show are used in order to give children the possibility to participate in the different events presented along the show. Children are allowed to join several activities, this makes them feel that they are part of a team and also they can see how others rely on them to achieve different purposes. Another aspect that is closely related to behaviourism is the formation of habits. In this particular episode, in the scene of the seat belts advice, the order made by Bot is the one given by the older main character, therefore, it shows how children should obey people who are wiser or have more experience than them.

6.1.2 Linguistic Repetition

Linguistic repetition is a common feature in children TV shows, particularly in the case of the television programme *Team Umizoomi*. This technique is employed to enhance the acquisition of specific contents. The basic principle of the already mentioned strategy is to reinforce the attainment of knowledge; which can be achieved by means of the repetition of a specific structure until it is internalised. According to the behaviourist approach of learning, knowledge can be acquired through constant repetition (Bruner, 2001). In the following section, instances of different kinds of linguistic repetition will be presented.

The first case of linguistic repetition is the use of the word pattern. The term is introduced by Milli in a song; she states that her might maths power is creating different kinds of patterns. The following instance, in which the word is used, is when the team is heading towards the big pipe, they find a door that has a lock on it, and the only way to open it is by solving the pattern on the entrance, then the team with the help of the audience solved the pattern on the door. Finally, the term is repeated one more time in the episode, the characters are going to the small pipe, and they find another locked door, with the help of the audience they solved the pattern. The examples can be seen in the following transcriptions:

Transcription 5 (min. 04:09)

1 Mil i am milli (.) i can make any pattern (.) with my
dress (0.7) pattern of (0.5) BUTTERFLIES (0.5) PATTERN Power

Transcription 6 (min. 15:04)

1 Bot this gate (.) has some kind of lock on it
2 Mil HEY the numbers on the lock make a PATTERN (.) if we figure
out this PATTERN the lock will open
3 Mil look at the numbers:: one (.) TWO (.) one (.) TWO(.) one::
4 Mil what comes next (0.5) TWO (.) you're right
5 Geo the gate is opening

Transcription 7 (min. 15:45)

- 1 Bot what do you know (.) another gate
 2 Geo is ANOTHer pattern
 3 Mil Umi Friend (.) we need to use our MIGHTY MATh POWers to
 UNlock (.) this gate (0.2)let's figure it out this PATTERN

The previous set of transcriptions showed the different instances in which the word pattern is repeated throughout the episode. Transcription 7 shows how the word is introduced, the relevance of the example lies on the fact that it helps the audience to understand the meaning of the concept. In the following transcription, the term is mentioned several times. In the first instance, Milli emphasises the word in order to direct the attention of the audience to the term. The second instance in which the term is mentioned, Milli needs the help from the audience to solve the pattern on the door, this time the children already know the meaning of the concept and they can help the team to fulfil the task. Finally, in transcription 9 the term is mentioned again, in this case, the word is used in a more complex context; mainly because the audience is supposed to have already internalised the concept and they presumably know how to use it.

Furthermore, the set of transcriptions shows the frequency in which the word is repeated throughout the episode, the relevance of the examples is the fact that linguistic repetition is one of the most significant principles of behaviourism, in which a certain structure is repeated until the concept is learnt. First the term is introduced, then children learn how to use it and finally, the term pattern is used in a more complex context.

Other instances where this strategy can be found have to do with the repetition of numbers. Numbers are important in the show storyline; moreover, numbers are introduced in the opening song. Team Umizoomi mentions numbers again when they find the big lake and need to measure its depth. In first place, Milli says that they can use her ponytails to measure how deep the lake is, and then she asks children at home to help her count with her.

Transcription 8 (min. 09:28)

- 1 Bot we need to know (.) how deep the water is
- 2 Mil i know (.) we can use my ponytails to measure how deep the lake is (.) to make my ponytails grow sing (0.2) <milli measure> (1.0) <milli measure>
- 3 Bot if your ponytail reach ONE HUNDRED milli (.) that means the lake has enough water for the elephant sprinkler
- 4 Mil let's measure (.) to see if my ponytails reach one hundred (.) we can count by TENS (0.3) COUNT WITH ME (0.1) <ten twenty thirty forty fifty sixty seventy eighty ninety> ONE HUNDRED

Transcription 9 (min. 10:31)

- 1 All ten (1.3) twenty (1.3) thirty (1.3) forty (1.3) fifty (1.3) sixty (0.3) seventy (0.3) eighty (0.3) ninety (2.3) ONE HUNDRED:: (.) ONE HUNDRED:: we counted to a hundred and we did it by tens (.) we did it with the help of our UMIfriend

A different event related to repetition is the account of steps that will help Team Umizoomi reach their goal, which is to fix the elephant sprinkler at the water playground. The steps are introduced after the team arrives at the water playground and they need to know how the elephant sprinkler works. After singing a song related to the functioning of this system, Bot shows how it works through various diagrams on his belly-screen. Immediately after Bot finishes his explanation, Milli describes the steps again. Additionally, the steps are repeated each time they finish a new task.

Transcription 10 (min. 07:05)

- 1 Bot first (0.3) rain falls from the sky (0.5) into a reservoir. (1.0) that's a special kind of lake. (1.0) then (0.3) the water flows out of the lake through a big:: pipe. (0.7) after that (0.5) the water flows from the big pipe (.) into smaller pipes that go everywhere in umi city (1.2) in::cluding? (0.5) the elephant sprinkler at the water playground. (0.4)and that's how water gets to the elephant sprinkler

- 2 Mil SO:: we need to check the lake (0.5) then the big pipe (.)
then the SMALL pipes
- 3 Bot sounds like a pla::n
- 4 Geo you're ALways thinking (.) milli
- 5 Mil THANKS? so: FIRST (.) we need to see if the lake has enough
water.

The use of linguistic repetition can be seen in different forms throughout the entire episode, Transcription 5 shows how the word pattern was repeated several times, until the word becomes part of the audience lexicon. The second instance presented the repetition of numbers, which is very important, because the show main topic is numbers and mathematical operations. Finally, the last instance was the repetition of instructions, as it can be seen in Transcription 10, Bot explained the instruction in detail, and then Milli made a summary of the instructions.

Linguistic repetition is a common feature in children TV shows, transcriptions above show some of the instances in which this strategy is used. The constant repetition of a concept, numbers or the instruction of a task is essential in the learning process, because it is seen as a facilitator for memorisation (Kuhl & Anderson, 2011). Also, as stated by Bruner (2001), repetition gradually helps to the consolidation of ideas in the brain. This means that through continuous repetition children can acquire knowledge.

6.1.3 Compliments and hortatives

Another relevant feature that can be found on behaviouristic approaches is the use of reinforcement of certain demeanour. Reinforcement, in this case, comes as a reward for learners during the learning process. In children TV shows, the use of this positive reinforcement takes the form of compliments and hortatives, which are given after the resolution of a task. The characters in *Team Umizoomi* usually ask questions to children and, after a pause, they congratulate the audience for their answer, encouraging them. These compliments and hortatives not solely appear after children at home say some specific words or count with the characters, but also when they are supposed to respond in

physical manners, such as creating shapes with their hands. Some evidences of compliments and hortatives will be presented in this section.

As it was mentioned in previous examples, Milli, Geo and Bot need to check the lake's depth in order to continue to the next step. In this opportunity, Milli offers her magic ponytails to measure it. In the minute 09:55, with the help of the children at home, Team Umizoomi and the audience count together by tens. After realising that the lake has enough water, Milli says:

Transcription 11 (min. 10:19)

- 1 Mil this lake <is full>
- 2 Geo no problem here
- 3 Mil mighty good measuring umifriend

Milli highlights the ability of children to count by tens and congratulates them for their good measuring. The addition of the adverb mighty intensifies Milli's purpose of exalting the audience's mathematical skills and participation. After verifying that the lake contained enough water, the three characters decide to continue to the following step which is checking the big pipe. This pipe is located at the bottom of the lake and they do not know how to get there. Geo tells the audience that they can use a submarine to reach the place, but he needs the help of children to build it. Geo and the audience build a submarine which consists of a triangle, a rectangle, and an oval. After achieving this task, Geo says:

Transcription 12 (min. 12:22)

- 1 Geo umifriend look what we built together (.) a SUpEr submarine?
(2.2) I really like building <with you> umifriend
- 2 Bot great submarine?
- 3 Mil MIGHty good building.

This sequence of compliments is directly addressed to children at home. First, Geo is fascinated and proud of their creation and he makes it clear by saying "look what we built together". This serves as a positive reinforcement because Geo solved the situation thanks to the audience's help; together they created a collaborative situation in which both the

character in the TV show and the child at home participated. Geo also expresses how much he enjoys working with the audience, making them feel that they are part of Team Umizoomi. Furthermore, Geo's words are supported by the comments of the other characters; Bot highlights the final creation and Milli highlights the audience's powers, reinforcing the compliments already given by Geo.

Later on, after travelling through the big pipe, Milli, Geo, and Bot reach the small pipes. They finally realise that the problem is a rubber duck that is stuck within the pipe, stopping the water from flowing freely into the elephant sprinkler. Milli asks for the audience's help to drive the submarine in that direction. Subsequently, children lead the way while characters provide clues about how to get to the rubber duck. After arriving at that place, the following passages can be observed:

Transcription 13 (min. 19:12)

- 1 Mil Umifriend (0.2) you <guided us to the rubber DUCKY:>?
 2 Bot you are an excellent navigator.

Here Milli puts emphasis on the leadership skills that children have, since they guided the whole team by encouraging them; the word *you* is stressed to indicate that it was the audience the responsible for accomplishing this task. Along with this, this compliment is reinforced by Bot who exalts the audience's abilities by using the adjective *excellent*, which is the only word that is stressed in the sentence he says.

Notwithstanding, not all the compliments in the programme are addressed to the children who watch the TV show. Compliments are also given to the characters in the show itself. For example, when Bot shows how the elephant sprinkler works on his belly-screen, Milli points out the steps they need to follow in order to fix it and Geo congratulates her for her reasoning:

Transcription 14 (min. 07:38)

- 2 Mil SO:: we need to check the lake (0.5) then the big pipe (.)
 then the SMALL pipes

3 Bot sounds like a pla::n
 4 Geo you're ALways thinking (.) milli
 5 Mil THANKS?

In this example, Geo emphasises Milli's eagerness of being always organising and, as a result, making plans about what they should do in order to achieve their goals. This is of great significance since Geo is not solely highlighting the fact that she made a plan in this specific instance, but the fact that she is always thinking as well, therefore, it is recognition for her hard work within the time the mission has been undertaken.

In the compliments and hortatives section, it has been shown some of the multiple instances where the positive reinforcement was provided through the show. This strategy is connected with behaviourism theory given the fact that it is used for encouraging and reinforcing the participation of children within the different activities, resulting in children that feel motivated and willing to give responses and collaborate; this strategy, in brief, fulfil the function of making viewers feel part of the group, and in a deeper manner, part of a community.

6.2 Discourse Strategies of Cognitive Model of Learning

Next the learning theory known as cognitivism will be presented. As it was discussed in the theoretical framework section, this approach focuses on the internal processes of the mind (Bower & Hilgard, 1981). It puts emphasis on how the input that is mentally constructed, gathered and received (Ertmer & Newby, 2013). Following this line, four discourse strategies at the verbal level related to cognitivism were established. First of all, an account of the context in which the specific evidence occurred will be provided. Next, the relation to the Cognitive theory will be explained by stating how it helps to construct learning. Finally, transcriptions or screenshots will be added when necessary.

The following table presents a categorisation of the main evidence associated to cognitivism found within the Episode "The Elephant Sprinkler" from the TV show *Team Umizoomi*. In this case, a brief review of the selected instance will be provided, together

with the specific minutes within the instance occurred and finally, the associated discourse strategy for each instance.

Table 6.2

Categorisation of the evidence and relation between Cognitivism and its discourse strategies

Associated Learning theory	Instance	Time	Associated Discourse strategy
Cognitivism	Explanation of the first task of the sequence: watering the flowers.	01:45 - 02:43	Connectors to create procedures
	Explanation of the following task of the sequence: Helping Kyla to fix the Elephant Sprinkler	02:43 - 03:50	Connectors to create procedures
	Breaking big task into smaller steps: by dividing it into three stages.	07:08 - 07:45	Connectors to create procedures
	Song How does it work? draws the attention on the functioning of the Elephant Sprinkler.	05:25 - 09:04	Songs
	Song Counting to 100 by 10s helps the audience to memorise the numbers and it summarises the activity.	10:00 - 10:50	Songs
	Geo breaks the task of building the submarine into three steps presented as three geometric figures.	11:34 - 12:28	Connectors to create procedures
	Milli uses words which rhyme with the word duck, which is the object that is stuck and causing the problem.	19:49 - 19:52	Rhymes
	Team umizoomi keeps using rhymes, such as Hug hug hug a duck because they are trying to get the duck unstuck.	19:54 - 19:57	Rhymes
	Song Crazy shake is sung once all the tasks have been finished and the problem has been solved.	19:12 - 19:43	Songs
	After receiving audience's help to build a submarine, Geo creates a sugar coat for what could be considered a difficult task,	12:20 - 12:30	Emotional Intensifiers

making it exciting and fun.		
Team Umizoomi emphasises the fun and exciting aspects of a complex machine by saying that submarines are super cool.	12:49 - 13:00	Emotional Intensifiers

Note: Table 6.2 shows the most representative examples of each discourse strategy associated to Cognitivism.

6.2.1 Rhymes

The first discourse strategy related to cognitivism is the use of rhymes. This strategy is considered within this learning theory since rhymes are a resource used for catching the attention of the audience, thus changing a humdrum speech into something more dynamic. In this way, rhymes convey learning unconsciously and effortlessly (Restle, Zaefferer & Vennemann, 2002; Rubin, 1997). One of the most significant instances in which this strategy is used, is when Team Umizoomi finds the problem with the small pipes. In the scene, they need to move a rubber duck that is blocking the water flow in the small pipe and therefore stopping the elephant sprinkler from working. After Geo's suggestion to squeeze some air out the toy, Milli says "Yeah Geo, then that duck can get unstuck" in minute 19:50.

Transcription 15 (min. 19:50)

- 1 Mil to free that duck. (.) we need to squee::ze some air out and
make him smaller. ((milli puts her hands together))
- 2 Bot good thinking milli? ((raising his arm))
- 3 Geo I KNOW? (.) we can give him a bi:::g hug.
- 4 Mil yeah geo (.) then that duck can get unstuck.

Here, 'duck' and 'unstuck' are intentionally used and stressed for the purpose of creating a rhyming and outstanding sentence that helps with the learning process. The link to cognitivism is created by the automatic mental process executed when exposed to this strategy. Hence, this process involves the association of words and sounds, thus facilitating the acquisition of new or highlighted information. Additionally, the rhyme itself helps to memorise what has been done to solve the problem. In this way, memorisation by means of

play on words through rhymes can help to quickly recall the situation (Bower & Bolton, 1969).

Next, to continue the discussion of this discourse strategy, it is possible to observe another instance in which rhymes are used, specifically in the minute 19:55 of the show. In this case, Team Umizoomi uses this strategy immediately after they had planned a way to remove the rubber duck that was stuck. At first, one member of the team tries to remove the object by force, but soon they realise that it is necessary to use a different method. Thus, they proceed to hug the duck to squeeze the air out. Here, Team Umizoomi says:

Transcription 16 (min. 19:55)

1 All hug hug (.) hug a duck?

The use of ‘hug’ and ‘duck’ serves the same purpose as the above mentioned evidence. The employment of a rhyme in this case also helps to facilitate learning since the input is easily recognised later on (Schiller & Willis, 2008); the TV show frequently uses this type of discourse strategy. Furthermore, rhymes help to get the attention of the audience, as they present the solution to the problem in a dynamic manner with identifiable sounds that are easily associated within the audience’s mind.

To sum up, the cognitive discourse strategy named rhymes refers to the different words that end with similar sounds observed through the show. In these cases, the use of rhymes helps to make learning processes easier to remember by the target audience, since the patterns used in these rhyming words or sentences are easy to recall (Restle & Zaefferer, 2002; Rubin, 1997). Furthermore, these rhymes serve as entertaining elements since they present the reality in a fun and interesting way. Due to the nature of these instances, it is possible to link them to the cognitivist theory, as it was stated by Ruiters, Loyens and Paas (2015) “it leads to better learning than simple rehearsal, because it offers a rich sensory experience with tunes, repetition, rhythm, and movement” (p. 458).

6.2.2 Emotional intensifiers

During the show, several emotional intensifiers are utilised by the characters to produce different kinds of effects. On the one hand, as the term suggests, this strategy helps to intensify certain type of emotions by means of linguistic resources that are manifested through the episode. On the other hand, one of its principal functions is to facilitate learning by disguising it as an enjoyable activity to the target audience. In this sense, the use of this particular strategy can be linked to the different sugar coat techniques addressed in the previous sections of this research.

As it was stated before, one of the important actions that the characters perform to achieve their final goal is to dive in the lake to investigate if there is any problem with the pipes. In order to do so, Geo proposes to create a submarine with the help of his superpower called *Super-Shapes*, which includes mathematical thinking and recognition of geometrical figures. Thus, Geo presents diverse types of geometric shapes and the audience must recognise them and name them out loud to make them real. After receiving the audience's help to create the submarine, Geo says:

Transcription 17 (min. 12:28)

1 Geo i real:ly like building with you (.) umifriend?

Besides of providing a positive reinforcement as it was mentioned in the previous theory, Geo also creates a sugar coat for what may be considered a difficult task, such as building a complicated machine. In this case, the phrase said by Geo works as an emotional intensifier since it provides an additional emotional context for the procedure in which the audience participates; by saying that he really likes building with the audience, he implies that they are facing an actually enjoyable assignment and that he is glad the audience participated. Through this kind of processes, it is possible to influence cognition and the perception of the tasks, making it more affordable and easy to manage (Elias & Loomis, 2002); it is precisely for this reason that these instances work as cognitive discourse strategies.

Immediately after the scene previously described, Team Umizoomi gets on the submarine that was built by Geo and the audience. In this occasion, it is Milli who provides a phrase that serves as a sugar coat for what could be considered a complex object, such as a submarine. Since the target audience, that is to say, children would probably find this transport hard to understand, Milli needs to reinforce the sense of fun and entertainment emphasised on the TV show. As the rest of the team describes what is happening at the moment, Milli expresses a new opinion about the submarine:

Transcription 18 (min. 12:57)

1 Bot going? (0.5) down.
 2 Geo we're ZOOming:.
 3 Mil submarines are super cool::.
 4 All whe::

Similarly to the previous instance, this dialogue and especially Milli's statement, allows for the audience's interest on the learning process. By transforming a complex object into an interesting conveyance, Milli attempts to make the audience feel fascinated about the whole task, just as Geo does when he emphasises the word zooming by raising his tone to reinforce the idea of enthusiasm. Subsequently, Team Umizoomi expresses excitement once again through cheering as it is possible to observe in line 4; they do this with the purpose of motivating the same reaction in the audience.

To sum up, it is possible to say that the discourse strategy categorised as emotional intensifier fulfils an important role among the cognitive strategies studied in this research and used during the TV show *Team Umizoomi*. Through these instances, the audience develops a different idea about the tasks that are being held, making them more bearable and pleasant, and thereby facilitating learning (Elias & Loomis, 2002). In this case, these strategies make it easier to keep the audience's attention focused on what happens on the show, therefore, they can understand and enjoy the processes they are going through, transforming the assignment in an optimal experience (Csikszentmihalyi, 1990).

Undoubtedly, through the use of emotional intensifiers it is possible to modify the way in which the experience is perceived by the target audience (Ekman, 1993; Mayer & Geher, 1996). Since this audience is composed by children, it is necessary to find a way of encouraging them to cooperate without falling into a monotonous game and the use of this strategy in particular might turn a difficult task into an enjoyable and pleasant activity.

6.2.3 Songs

Another strategy related to cognitive learning processes is the use of songs that help to understand in a better way different contents. In some cases, the rhythmical resources and the effects of musicality can definitely facilitate learning processes, sometimes by making easier to remember certain things due to the rhythmical nature of songs and its patterns, which usually stick to the audience's mind. These songs can have different functions through the show, such as helping children to memorise a specific assignment, celebrating the accomplishment of task, giving the show a more fun and enthusiastic character, and so on.

The first remarkable instance starts when Kayla asks for help to fix the elephant sprinkler in that very hot day. Team Umizoomi wonders how the elephant sprinkler works and sings a short song about this situation, saying: "How does it work? How does it work? How does it work work work?". Through this musicalised question, the team aims to emphasise the fact that they need to know how this apparatus works in order to fix it and that this is the first step to take when a difficult situation comes up, providing a cognitive technique to solve problems. On the other hand, the rhythmical strategies in this case allow the audience to focus their attention on this particular issue, helping thus to facilitate the learning processes involved in this case.

In a second instance, Team Umizoomi needs to measure the lake and, in order to do so, they use Milli's ponytails as it was mentioned before. After finishing this task and making sure that the lake is full, the team sings a song about counting to one hundred, which was the main purpose of the activity. In this case, the song allows the audience to

remember what they have already learnt, so they reinforce the knowledge previously acquired by using a rhythmical resource which fulfils the function of helping children to exercise their memory by repeating the numbers once again. In the following transcription we can observe the final lyrics of the song, which summarises the purpose of the activity and what has been done in this part of the TV show.

Transcription 19 (min. 10:49)

1 All we counted to a hundred and we did it by tens. (.) we did it with the help of our umifriend. ((they sing and dance))

Lastly, at the end of the episode, once all the tasks have been finished and the problem has been solved, they all sing and dance a song called *Crazy Shake* whereby they celebrate the accomplishment of the task and the success of the whole process. Before the song starts, Bot says: “I feel a celebration coming on!”. In the following transcription the lyrics of the song can be observed:

Transcription 20 (min. 21:39)

1 All ((they dance while they sing)) let's go? (1.0) shake your hands (0.3) hi::gh to the SKY? (0.5) up high:::? (.) shake your hands (0.5) low::: to your TOES down low:::?

In this case, besides of providing another positive reinforcement for the audience, by using songs, a cognitive strategy is also being developed, since the application of this method allows the audience to understand that the task has finished and everything has been done correctly. Nevertheless, the use of the song not only represents a celebration for the achieved task, but continues to introduce some concepts such as *High* and *Low* in order to perform the dance, indicating directions in a interactive and didactic way. In this sense, the target audience will continue to learn even when the mission of the episode has been accomplished.

To sum up, it is possible to understand the use of these songs as a discourse strategy related to cognitivism, since through these resources the audience keeps focused on a

particular task or issue. Additionally, they fulfil many functions which affect and manage the children's cognition. such as providing sequential structures, ways of celebrating the reaching of a goal, the introduction of new concepts through examples, memorisation of certain contents that children need to acquire at this stage, and so on (Millington, 2011; Saffran, Newport & Aslin, 1996; Smith, 2002). The use of songs is a strategy that can motivate viewers and make learning processes look easier and more enjoyable for the target audience, since they allow for fun and exciting instances (Millington, 2011).

6.2.4 Connectors to Create Procedures

In the show, several instances in which this discourse strategy is used can be found. In this case, the use of different types of connectors provides a sense of sequential development of events; these ordered situations allow children to exercise their cognition in order to connect the steps and create procedures in their mind (Sadock & Zwicky, 1995; Veenman, Van Hout-Wolters & Afflerbach, 2006). Below, two different examples were chosen in order to illustrate this. First, in the minute 07:05, Bot shows on his belly-screen how the water gets to the elephant sprinkler. He shows a diagram that displays the process on his belly-screen. Bot breaks the big task into three smaller steps; the first step consists of rain falling into a reservoir, then of water flowing to a big pipe, and finally of water being distributed into smaller pipes. Dividing a big process into smaller and simpler processes makes understanding easier (Dijk & Kintsch, 1983).

Transcription 21 (min. 07:05)

1 Bot first (0.3) rain falls from the sky (0.5) into a reservoir.
 (1.0) that's a special kind of lake. (1.0) then (0.3) the
 water flows out of the lake through a big:: pipe. (0.7) after
 that (0.5) the water flows from the big pipe (.) into smaller
 pipes that go everywhere in umi city (1.2) in::cluding? (0.5)
 the elephant sprinkler at the water playground.

Bot links the three stages by means of connectors in order to coherently put these steps together. He uses connectors such as *First*, *Then* and *After that* to guide the audience

through the process being described, so a better understanding of the series of actions can be achieved. Consequently, mental effort is reduced when the big process is broken into stages; children focus on the relevance of each stage instead of trying to figure out the big picture, which might be more complex and exhausting. Right after Bot explains the steps, Milli reviews once more the procedure:

Transcription 22 (min. 07:38)

1 Mil so: we need to check the lake. (0.7) then the big pipe. (0.7)
then the small pipes.

Once more this cognitive strategy is used to facilitate the memorisation of the process by the audience. Milli uses simpler connectors such as *then* and *so* to connect the ideas. In the second instance, Team Umizoomi is looking for a way to get to the bottom of the lake in the minute 11:30 of the show. Geo comes up with the idea of building a submarine with his superpower and he presents a blueprint with geometric figures. Next, he asks the audience for the three shapes that are drawn on the blueprint. Similar to the process discussed in evidence one, Geo breaks the big task of building the submarine into three smaller steps which are three shapes that represent the needed parts to assemble the submarine.

In this case, Geo connects the three stages by posing the same question each time “What shape goes here?”, thus he creates a sense of linkage between them. Unlike the previous evidence, Geo does not use explicit connectors to guide the audience; he asks the very same question as a connector to direct them instead. This evidence can be illustrated in the following transcription:

Transcription 23 (min. 11:40)

1 Geo you figure out what shapes are on my blueprint (0.5)
and then i'll make them (0.3) with my shape belt. (0.7) what
shape go:::es here. (2.3) ((Geo points to the blueprint)) a::
TRIANGLE::.. what shape go:::es here. (1.7) a:: RECTANGLE::..
what shape goes here? (2.0) an OVAL::..

In this case, the connection between the steps is made by the use of a linking question among the different answers that become the steps to create the submarine. Seemingly, the process of breaking the biggest task into smaller ones is usually made by three, since the spectrum of difficulty of this number is right in the middle, so children are likely to remember the steps. The division of a complex task into simpler steps allows children to focus their attention on one task at a time and requires less effort (Bruner et al., 1957).

The strategy categorised as connectors to create procedures presents a truly cognitive nature, since the formation of procedures in our minds is a fundamental part of human cognition (Kolers & Roediger, 1984). In this case, the linguistic resources that help to the creation of those organised processes are mainly the use of connectors such as first, second, then, next, among others. Nevertheless, at other times, it is possible to observe the use of a single question repeated through a certain task in order to create the procedure, as it is the case in the previous example. Additionally, since the creation of complex procedures in our mind might be a difficult task for the target audience, the characters divide the bigger tasks into smaller ones (Bruner et al., 1957), usually into three steps, thus they facilitate learning by helping children to remember certain procedures that are necessary to achieve the final goal (Cook, 2008; Lantolf & Thorne, 2006a).

6.3 Discourse Strategies of Sociocultural Model of Learning

Moving on in the analysis, the last learning theory to be discussed is sociocultural theory, which has at its core the pursuing of acquisition of knowledge in social contexts, establishing that at first, learning occurs through interaction and then in the mind, being always conditioned by cultural aspects (Bobbett, 2012; Cook, 2008; McLeod, 2015; Vygotsky, 1986). This theory emphasises teamwork, inclusion, cooperation and interaction as tools for learning to occur. Considering these aspects, six discourse strategies were established at the verbal level in relation with this theory. Firstly, the contexts of these strategies will be given in order to see when and how they were used; and secondly, the function and relationship between the use of these strategies and the learning theory will be

described. These aspects will be supported with transcriptions and/or images when necessary. The evidence concerning this theory will be displayed in the following table:

The following table presents a categorisation of the main evidence associated to sociocultural theory found within the Episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*. In this case, a brief review of the selected instance will be provided, together with the specific minutes within the instance occurred and finally, the associated discourse strategy for each instance.

Table 6.3

Categorisation of the evidence and relation between Sociocultural theory and its discourse strategies

Associated Learning theory	Instance	Time	Associated Discourse strategy
	Saying “Hi!” to the audience while facing the camera and introducing the topic.	00:54 - 01:45	Addressing Audience
	Team Umizoomi says “Will you help us fix the water sprinkler?”	03:44 - 03:47	Asking Questions
	After asking for help, Team Umizoomi makes a pause in order to let the audience answer.	01:08 - 01:11 02:09 - 02:11 03:47 - 03:49 08:18 - 08:24 08:53 - 08:56 11:46 - 12:06 14:11 - 14:15 15:22 - 16:13 18:00 - 18:12 18:28 - 19:11	Pauses
	Pointing towards the camera while talking to the audience: “we really gonna need your help”.	03:18 - 03:20	Addressing Audience
	Milli says: “umirrific” to express her happiness to the audience	03:50 - 03:51 18:57 - 18:58	Neologisms
Sociocultural theory	Team Umizoomi refers to the viewer as <i>Um</i> or <i>Umifriend</i> , concept created by the characters that integrates the audience as	00:01 - 00:04 03:56 - 04:01 04:51 - 04:52	Neologisms Addressing the

part of the team.	08:01 - 08:05 08:50 - 08:53 10:24 - 10:26 10:52 - 10:55 11:29 - 11:33 12:22 - 12:32 13:27 - 13:30 14:00 - 14:05 14:20 - 14:24 15:51 - 15:56 16:22 - 16:24 17:42 - 16:46 18:17 - 18:21 19:12 - 19:16 20:01 - 20:03 20:16 - 20:21 22:09 - 22:13	audience
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New words are used by adding the prefix umi- to trigger activities as a team	02:35 - 02:43 05:27 - 05:59 12:44 - 12:49 17:43 - 17:56	Neologisms
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Team Umizoomi asks for specific information that the viewer needs to observe or provide	01:06 - 01:08 02:06 - 02:09 08:50 - 08:53 11:46 - 12:06 15:22 - 16:13 18:00 - 18:12 18:28 - 19:11	Asking Questions
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Team Umizoomi tries to communicate with the fish but they do not understand. Thus, they speak to them in fishy language.	13:14 - 14:00	Code-Switching
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Team Umizoomi organises and/or mention activities in which the viewer works together with the team.	00:18 - 00:49 01:12 - 01:17 03:35 - 03:55 04:54 - 04:59 05:08 - 05:17 05:24 - 05:31 07:50 - 08:05 09:23 - 09:35 10:49 - 10:54 11:29 - 11:46 14:00 - 14:10	2nd person singular and/or 1st person plural to Indicate Inclusion
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15:50 - 15:58
 17:05 - 17:14
 17:37 - 17:52
 18:17 - 18:22
 19:36 - 20:22
 20:41 - 20:51

Note: Table 6.3 presents all the found instances regarding each discourse strategy related to Sociocultural theory.

6.3.1 Addressing the Audience

The following section deals with the first discourse strategy that was found in the TV episode that is addressing the audience and its relation with sociocultural theory. The first analysed part of the data corresponds to the opening song, which will be described and discussed later. The discourse strategy of addressing the audience occurs when the characters look at the screen and pretend to have a dialogue or a conversation with the audience, consisting on a commentary, a question, or an opinion/idea shared with the TV show audience. This idea can be illustrated through the first seconds of the programme, in which Milli, one of the main characters, is standing on a drinking fountain in a park of Umicity. She waves and greets to the camera, and introduces herself, as it is possible to see in the following transcription:

Transcription 24 (min. 00:53)

1 Mil oh hi? it's me (.) milli ((waves hand)) (0.3) i'm so happy
 you're here ((touches her forehead)) (0.5) fiu: (.) it's ho:t
 out today (.) in hot days (.) i like to water the flowers in
 the park (2.0) do you like flowe:rs ? (5.0) oh GOOD (.) you
 can help me water them

After greeting the audience and presenting herself, Milli expresses her joy by emphasising the word *so* to make more noticeable how happy she is about the audience's presence. Right after that, she presents the topic of the episode in an indirect manner by saying that it has been a hot day. She adds, in the same scene, that her favourite activity during hot days is watering flowers, so she asks the audience's opinion about flowers.

When she realises that the audience agrees with her, she celebrates and invites children to collaborate in the activity.

In the second instance of addressing the audience, from minute 03:02 to 03:52, Team Umizoomi states that viewer's collaboration is important to solve the situation with the elephant sprinkler. As Kayla explained through Bot's belly screen, the elephant sprinkler is not working, thus, children cannot play and refresh themselves in the water playground. After being informed of the problem, Milli mentions that they have to fix the elephant sprinkler, so she addresses the audience once again by saying "we are really going to need your help".

Transcription 25 (min. 03:34)

1 Mil we need to fix the water sprinkler so our friend kayla can
cool off and play (.) on this hot hot day (0.3) we real::y
gonna need you:r help

In this scene, Milli looks at the camera and points at the audience in order to make it clear who the addressees are. Moreover, both words *really* and *your* are lengthened, and the last one is stressed, giving an impression of urgency and relevance to the issue. After addressing children, Milli asks if they can help Team Umizoomi in the forthcoming assignment. When she receives a positive answer, Geo, Milli, and Bot rejoice and integrate the audience into the team.

The act of addressing the camera, as it was established in the theoretical framework section, represents an important instance of sociocultural strategies of inclusion, peer interaction and teamwork (Boblett, 2012; Cook, 2008; McLeod, 2015). During the show, the characters not only talk among themselves but, instead, they establish a dialogue with the audience, because one of the TV programme interests is the actual and active participation and inclusion of children, especially by engaging them directly. This type of discourse strategy allows them to be part of the show and, at the same time, part of a working social group.

6.3.2 Asking Questions

The discourse strategy of asking questions, as seen in the theoretical framework section, has an inclusive function as well, since it allows and generates cooperation by means of the request of information that the audience can provide by observing the circumstance. Since asking questions is inevitably made by addressing the audience, the former strategy combines with the latter to enrich the type of interaction that the TV programme attempts to achieve. In the same manner, since asking questions prompts for an answer, this strategy is also combined with pauses, as it will be seen in the corresponding section of pauses.

As it was contextualised in the previous discourse strategy, from minute 03:02 to 03:34, Team Umizoomi receives Kayla's call, who needs their help to fix the water sprinkler at the water playground. The team accepts the task and Milli mentions the importance of the audience's participation to solve the aforementioned issue. That is why, from minute 03:44 to 03:47, Milli asks the audience for help to go and fix the water sprinkler.

Transcription 26 (min. 03:44)

1 Mil we real:y gonna need you:r help (1.0) will you? help us fix
the water sprinkler

As it is observed in the question, the stress in the pronoun *you* and the rising tone right after that, demonstrates the interest of Milli to make the audience feel relevant and helpful, as well as her wish for integrating them into the mission. Milli formalises the cooperative style of the TV programme by asking the audience if they would like to help the team to solve the problem presented before and, consequently, to engage in a series of tasks related to the main one. In this way, Team Umizoomi does not only ask for opinions but also for help, making the audience a new member of the team, as it will be seen afterwards in the next discourse strategy.

By asking questions to the audience, the discourse strategy of addressing the audience is combined with another technique to create a collaborative type of interaction with the audience; therefore, children are not only addressed to be asked about their preferences and opinions, but also to cooperate and engage in activities that allow the progress of the programme. The discourse strategy of asking questions is used here with function related to sociocultural theory, enhancing concrete and meaningful participation of the children, thus allowing the process of scaffolding (Boblett, 2012), as it was mentioned previously in the theoretical framework section.

6.3.3 Questions and Pauses

Even though the discourse strategies of asking questions and pauses were categorised separately in Table 6.3, the analysis of the instances are related, since these two strategies in most cases function together to create an interaction between the viewer and the characters. As it was explained in the theoretical framework section, both strategies prompt the involvement of the audience, by creating the space (pauses) and encouraging participation (questions) in the future activity.

One of the most representative instances is the last assignment in the programme, in which Milli asks the viewer for directions to get to the rubber ducky that is the origin of the problem. Between minute 18:17 and 19:16, the children can see a map of the small pipes to have a complete view of what they need to answer (see Figure 3). After giving the instructions, four questions are made with their respective pauses in order to give the audience enough time to answer, as it is observed in the transcription:



Figure 2. Directions are asked to get to the rubber duckie

Transcription 27 (min. 18:17)

- 1 Mil ((gives instruction to audience)) should we go down. (.) or up? (3.0) up? (.) okay (3.0) now (.) should we go right or left? (3.0) right? (.) yeah? (3.5) next: turn (.) should we go down. (.) or up? (3.2) up? (.) umi:rrific (3.4) almost there (.) should we go left. or right? (3.1) right? (.) yeah? (0.3) here we go ((brief sound effect of celebration)) (2.1) umifriend (.) you: guide us to the rubber ducky:

The structure in the four questions is similar; Team Umizoomi emphasises the words that the viewer needs to consider for the answer. For instance, the first and third questions have *down* and *up* as stressed words, while the second and fourth questions have *right* and *left* presenting the same characteristics. These contrastive terms are also differentiated by means of intonation, in other words, the first option has a falling intonation while the second option has a rising intonation. Regarding the pauses, each one lasts around 3 seconds for the audience to answer, followed by a feedback given by Milli and the following question.

As it was seen, the strategies of asking questions and pauses blend effectively to form a structure that is repeated each time Team Umizoomi asks the audience for help. In the programme, both discourse strategies catch the viewer's attention as well as create the instance to participate and construct learning through social interaction; these are functions that can be associated with the sociocultural theory principle of collaboration, based on the MKO collaboration and the scaffolding process (Bobbett, 2012; Cook, 2008).

6.3.4 Use of Neologisms

In this section, instances that link neologisms and the sociocultural theory together are presented. Neologisms, within the programme context, refer to words that are created in order to have a unique vocabulary within the team. Particularly, the words have the prefix *umi-* following with either a noun or an adjective; some examples are *umicar*, *umifriend*, *umirrific*, and so on. In the first relevant instance, from minute 3:45 to 3:53, an adjective is used. After asking for the audience's help, Milli celebrated the agreement of them at minute 03:50 by saying *umirrific*, while the rest of the team smiled and expressed interjections of joy.

Transcription 28 (min. 03:50)

- 1 Mil will you ? help us fix the water sprinkler (4.0) you will?
(.) umirrific=
- 2 Geo =[yes]
- 3 Bot =[yeah]

Here, Milli rises her tone and stresses the modal verb *will* to show her enthusiasm about the fact that the audience is going to participate in their task. Additionally, the use of pauses helps to separate neologisms from the first chunk “you will?” and also to divide the word *umirrific* by two parts: *umi-* standing as the root of the adjective created by Milli, and *-rrific* which resembles the word *terrific*, a construction proper of the English language. The term *umirrific* is also repeated at minute 18:57, and in both uses it is expressed as a response of an affirmative or correct answer from the audience. The use of this neologism

represents a unique term of team members to celebrate the participation and collaboration of the audience in the activities.

As it was mentioned before, neologisms not only include the combination of the prefix *umi-* with adjectives, but also includes the use of the prefix with nouns that refer to either the audience or objects that appear in the programme. The first found evidence corresponds to a neologism that makes reference to children. Just before the episode, previous to the opening song of the programme, a voice can be heard. This voice, likely to be the presenter's, says: "calling all umis, team umizoomi!", as it is observed in the transcription below:

Transcription 29 (min. 00:01)

1 Pre calling a:ll umis (0.2) team umi: (.) zoomi: ((music starts))

The presenter lengthens the word *all* and makes a brief pause, as well as emphasises the words team umizoomi. He achieves in this way, not only to catch the attention of the viewer, but also to introduce the programme and its characters. In this instance, the discourse strategy of neologisms is combined with the strategy of addressing audience and, in this manner, the interaction and proximity with the audience are established. The following two examples have the same combination of strategies, however, in different situations that will be explained later.

The second instance in which the audience receives a neologistic noun occurs from minute 3:53 to 4:03, after Kayla tells Team Umizoomi her problem with the elephant sprinkler. When children grant the request for helping Kayla, the team rejoice and welcome the audience to the team. Milli names the viewers umifriend, being this instance the first time in which the term is used.

Transcription 30 (min. 03:56)

1 Mil now you're in team umizoomi (.) with us (1.1) we:'ll call you
(1.1) umifriend?
2 Bot (1.2) hello umifriend

3 Geo (.) welcome to the team

In the same way of the previous neologism *umirrific*, the use of pauses allows the separation of the new word from the rest of the utterance and, in addition to this, the stress in the first part of the new noun, *umi*, helps to divide the term into two parts, highlighting the innovative component. By using this neologism, Milli established a bond with the audience by making them part of the team and, furthermore, naming them as *umifriend*. This neologism provides an identity to the audience, highlighting the important role that is taken by them, representing a new member of the team, which is named with a term proper and exclusive of the of the TV programme and significant for the characters.

The use of neologisms and addressing the audience is also present when the participation of the viewer is needed. In this case, from minute 13:12 to 14:00, Team *Umizoomi* is diving in the submarine to their next task. When they find a shoal, Bot thinks that maybe they know the path to the big pipe. Geo asks the shoal but they do not understand him, so Bot asks *umifriend* for help to talk to the fish to ask for directions, as it is shown in the following transcription:

Transcription 31 (min. 13:27)

1 Bot let's speak to them in fishy language (1.0) *umifriend* (1.5)
help us talk to the fish

Taking into account that fish do not understand them, Bot suggests talking in *fishy language*. While facing the screen, he addresses the audience by using the word *umifriend*, following with a pause that gives time for the viewer to concentrate and listen to the rest of the message. In this manner, and as it was seen in the previous examples, the noun *umifriend* carries a specific meaning to make the audience feel included in the team and to encourage participation throughout the show.

Another instance that involves the use of neologistic nouns is from minute 02:33 to 02:54, however, this noun refers to an object that is part of one of the characters. Right after accomplishing the task of watering the flowers, a sound that resembles an alarm is heard.

Bot catches the attention of both the team and the audience by saying listen; he waits until the team is nearby him to then say that the sound corresponds to the *umialarm*.



Figure 3. Bot explains what the umialarm is

Transcription 32 (min. 02:33)

- 1 Bot ((alarm sounds)) (4.0) listen (4.0) ((alarm sounds)) it's the
umialarm (1.0) that sound means someone needs our help
- 2 Mil (0.2) when someone has a problem in umicity (.) we: fix it
with our
- 3 All [mighty math powers (1.0) ((guitar sounds)) we're team
umizoomi]

After Bot says that the sound they are hearing is the umialarm, he proceeds to explain its meaning, in other words, to make clear what the alarm stands for. The meaning of the concept of umialarm is not something that can be easily inferred by the audience, thus, it needs a proper explanation from Bot and Milli. This neologism stands for an important tool for Team Umizoomi, and that is the reason why it has a special name to call it, instead of merely use the word alarm. The pauses in Bot's discourse help to divide the explanation of the concept into three parts: one that allows the audience to listen to the alarm sound and

try to guess what is happening; a second part in which he introduces the concept; and a third part that explains its meaning. A micro pause is also used to divide the neologism by two, in the same manner that it was made for *umirrific* and *umifriend*.

As it was seen through the examples, neologisms are an essential component within team Umizoomi's interactions, since it carries a meaning of inclusion and exclusiveness by making the audience feel part of a convention of signs created by the team. The discussed functions of neologisms in the programme are addressing the audience, catching their attention, commenting on viewer's contributions, describing objects that the team uses, and making the audience feel part of a community or group.

When linking this strategy with the sociocultural theory, the main function is to create an environment that motivates audience to participate, and to make them feel part of a social group in which they give and receive knowledge with the aim of sharing experiences in which learning is the purpose (Boblett, 2012; Cook, 2008; John-Steiner & Mahn, 1996). This aspect is linked with the important role that cultural aspects play in the learning process, as neologisms are part of Team Umizoomi customs. As a consequence, the use of neologisms prompts the process of scaffolding within the different tasks.

6.3.5 2nd person singular and 1st person plural to indicate inclusion

The discourse strategy of 2nd person singular and 1st person plural to indicate inclusion, as explained in the theoretical framework section, has the function to encourage participation of the audience in learning instances. Within the programme, the use of pronouns *we* and *you* in sentences in which a plan is mentioned, indicate involvement and, at the same time, organises turns of participation. For example, a character does certain action, then the viewer collaborates as well, and consequently, a strategy is accomplished as a team.

In the opening song of the TV show, each member of Team Umizoomi gives a description of his or her ability or mighty math power. Along with this, the team also

mentions the audience's aptitudes such as mental agility or intelligence. Moreover, the team explains the manner in which children can contribute in assignments, as well as they can count on them (Milli, Geo, and Bot) to solve any problem, thus saving the day. The transcription below, illustrates what has been explained:

Transcription 33 (min. 00:21)

1 All umizoomi (.) umizoomi
 2 Mil we can measure
 3 Geo build it toge:ther
 4 Mil you can help us (.) you are so cleve:r
 5 Bot we got mighty (1.0) math po:wers
 6 All you can call us any hou:r

In this evidence, the use of 2nd person singular and 1st person plural is repeated in most of the lines, by alternating voices of the characters, thus highlighting the idea of teamwork, cooperation and inclusion of the audience. From lines 3 to 6, the last element is outstretched to point out the ideas the characters want to convey, which are the aptitudes of the audience that worth their inclusion in the tasks, the abilities of the team in general, and finally the idea that audience can rely on the team at any time. This last idea is also pointed out by the stressing of the adverb *any*. Furthermore, Milli starts the sequence and then Geo lengthens the word *together*, following with Milli using a 2nd person singular pronoun again plus the stress in her second use during the same line, which is separated by a brief pause.

In the second example of this discourse strategy, Milli organises the first activity with the viewer in the programme that was already analysed before, which is taking care of some flowers that are in the park. Since the viewer agrees on liking flowers, from minute 01:10 to 01:17, Milli rejoices at the audience's response, and then starts to plan an activity, by mentioning some ideas associated with gardening, as it is possible to observe in the transcription below:

Transcription 34 (min. 01:10)

1 Mil oh GOOD (.) you can help me water them (1.1) we can get water
from this water fountain

After Milli's celebration, the sentence refers to what the viewer can do, since Milli addresses to the viewer as *you* as well as emphasises the verb *water*. Consequently, there is a suggestion to actively participate in the proposed activity. After a pause, Milli adds a more specific instruction by pointing a source from which they can obtain water. In this second part of the sentence, the word *we* indicates teamwork plans, and the emphasis on the word *water* highlights the topic or the issue to work on as a group. In the forthcoming seconds, Geo arrives and Milli presents him to the viewers; they start filling the watering cans with water and they move to meet Bot and water the flowers as group along with the children.

The last example of this strategy is placed between minute 11:29 and 11:46, when Team Umizoomi states that they need to go under the lake to check the big pipe. Geo mentions he has an idea, and proposes to construct a submarine with his shape-belt. Since they want to find the object that is blocking the normal water stream, they need to dive into the lake. First, he suggests what he and the viewer can do together, following with responsibilities for each one of the two. The transcription below shows how Geo divides the task into steps to accomplish:

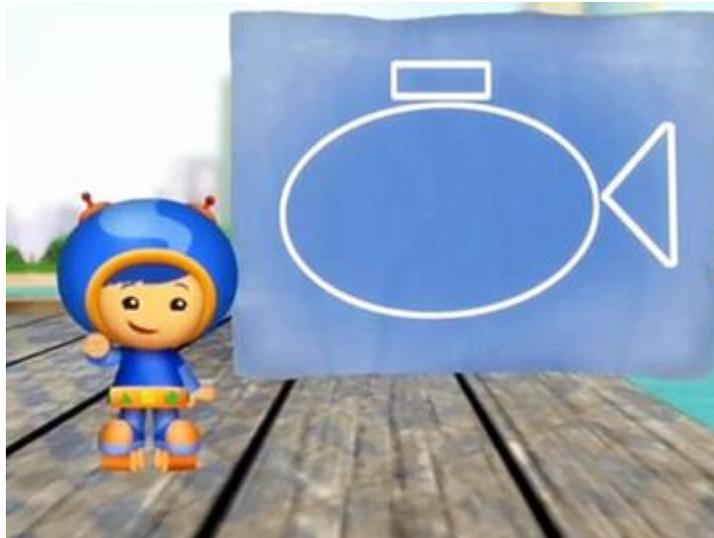


Figure 4. Geo proposes to build a submarine and gives instructions

Transcription 35 (min. 11:29)

1 Geo umifriend (0.7) I know how we can get to the bottom of the
lake? (.) we can build a submarine (0.1) with my shapes (1.7)
 let's do it (0.3) you: figure out what shapes are on my blue
print (.) and then i'll: make them (.) with my shape belt

Geo's discourse is mainly divided by pauses that distribute responsibilities in the assignment. After addressing to the viewer as *umifriend*, he introduces the idea that would help to solve the problem, in this case, a submarine that Geo and *umifriend* can built together; in this general objective, the subject is presented as a *we*, thus emphasising teamwork. In the next sentence, Geo stresses and lengthens the word *you* to make clear the viewer's part within the job. Finally, in the following sentence, the same resources are used, but in this case with the pronoun *I*.

In the analysed instances, the pronouns *we* and *you*, in contexts in which plans are made function as elements that allow collaborative and inclusive processes. As it was said before, the characters do not only talk among themselves, but also with the audience. Particularly, when they use the 2nd person plural pronoun, they refer to the audience and them altogether as a working group. The idea of teamwork, peer interaction, scaffolding and MKOs is prompted by the use of inclusive pronouns and direct reference to the people

that are watching the programme, making them part of the TV show and taking care of the permanence of their participatory role in the development of the episode (Cook, 2008; McLeod, 2015).

6.3.6 Code-Switching

The discourse strategy of code-switching is detected in only one occasion during this episode of the programme; however, its function is of great relevance to accomplish the assignment and carries a significant feature associated with the sociocultural theory. As it was explained before, code-switching involves the change of language within a conversation; the code is changed for another one in order to establish an effective communication between speakers of different languages. In the context of the programme, this strategy is used from minute 13:12 to 14:00; as it was explained in a previous discourse strategy, Team Umizoomi meets a shoal under the lake, and Geo asks for directions in English but the fish do not understand him. The misunderstanding can be illustrated in the transcription below:

Transcription 36 (min. 13:12)

- 1 Bot maybe those fish know the way to the big pipe
 2 Geo (0.1) hey fishies (.) which way to the big water pipe ((fish form a question mark)) (3.0) they're not understand:ing me
 3 Bot let's speak to them in fishy language (1.0) umifriend (1.5) help us talk to the fish (1.0) sa:y (1.0) bloopy gloopy: bloop (.) gloop

Geo realises in minute 13:22 that the fish cannot understand him and says: “they are not understanding me”; the word understanding is both stressed and lengthened, thus it prompts the instance to find a way to communicate effectively. Right after Geo mentions the problem, Bot suggests to speak in fishy language, thus, to switch the code. As it is shown above, the word fishy is emphasised in order to make clear that the solution to this communication problem is the code that they need to use. Bot asks umifriend to talk in fishy language, by imitating what he says. The shoal effectively answers to the question and

Bot translates it; Geo is surprised because they get to understand them. Finally, Bot and Geo say goodbye both in English and in fishy language, and the shoal responds as well.

The use of code-switching, in the aforementioned example, reflects how important cultural awareness is when communicating with others. Vygotsky's sociocultural theory considers culture an essential matter to construct knowledge among people (Cook, 2008); consequently, the awareness of differences in verbal interaction can be associated with this. This connection can be seen from a more specific point of view, when Geo realises the linguistic limitations, he also lacks knowledge that someone with more experience can give, in this case, Bot. The concepts of ZPD and MKO are present through this situation, Geo's limitations being related to the zone of proximal development, and Bot is related to the most knowledgeable other. Furthermore, through this experience, the audience is also encouraged to participate, and in this way, to learn and collaborate at the same time as stated in the learning notions of sociocultural theory (Boblett, 2012; Cook, 2008; Philipson & Færch, 1991).

6.4 Semiotic signs in Peircean model

Besides conducting an analysis of the selected data in terms of learning theories and discourse strategies, it is also possible to adopt a semiotic approach in order to understand the different decisions made in the construction of the episode. Subsequently, it is important to remember that, according to the Peircean model of Semiotic analysis, a sign cannot be separated from its interpreter; this means that an analysis on this respect will rather difficulty be objective or unequivocal.

Regarding the data, the episode The Elephant Sprinkler found in the TV show *Team Umizoomi* will be analysed based on the characterizations of Icon as “a sign which shares resemblance to its real or fictional object” (Krampen et al., 1987, pp. 5-6); Index as “a sign that relates to its objects (...) as a pointer or marker” (1987); and Symbol as “a sign determined by its object only in the sense that it is interpreted as being such, and thus totally independent of similarity or physical connection to its object” (1987).

There are some distinctive practices that can be directly linked with the classification previously discussed, such as code switches, diagrams that simplify different aspect of reality, the use of numbers, patterns and figures, just to name a few. These elements can be linked to different interpretations and uses of signs in the context of a learning-oriented programme discourse. All of these representations are accompanied by music, sounds and sparks, which can be seen as signs with the attributed purpose of catching the attention of the audience on the TV show.

The aforementioned examples are part of the set of instances which will be analysed in this section. As it was previously stated, these instances were classified into three categories: Icons, Indices and Symbols; their presence play an important role as facilitators or tools that mediate in the learning events of children (Berger, 2014). It is relevant to notice that these iconic, indexical and symbolic elements can appear through verbal or a non-verbal means within the show, in which they are interpreted by the audience and according to their interpretation these can be classified into the three mentioned types of sign, as it can be seen below.

The following table presents a categorisation of the main evidence associated to semiotics found within the Episode “The Elephant Sprinkler” from the TV show *Team Umizoomi*. In this case, a brief review of the selected instance will be provided, together with the specific minutes within the instance occurred and finally, the associated discourse strategy for each instance.

Table 6.4

Categorisation of the evidence according to the Peircean semiotic model and their effect on the audience.

Semiotic element	Instance and effect	Time
Icons	A diagram shows the way in which water gets to the elephant sprinkler, this creates an instance of learning by means of a representation of reality through a simple picture that can be easily understood.	06:20 - 06:46
	Milli's ponytails can be considered as an icon of a measuring tape or even a ruler, and this instance allows children to learn how to count in ten to ten.	09:45 - 10:20
	<i>Bloopy-gloopy</i> sounds of the fish are an icon to explain the change from a first language to the second language (it is also a symbol of cultural awareness and adaptation).	13:45 - 14:05
	A diagram in a blue print shows how a submarine is created through geometric figures that come from Geo's belt. The sign of the diagram is an icon for a submarine. Additionally, each geometrical figure is an icon for the different parts of the submarine. This creates an instance of learning due to the construction of a concrete object by means of simple steps.	11:35 - 12:20
	A question mark formed by the shoal, this creates an instance in which the audience can understand that the message emitted by the characters is not understood. The group of fish is an icon for question mark.	13:20 - 13:25
Indices	When the candles are brought, these are considered indices of celebration because of their relation to birthday parties, generating thus a sense of enthusiasm and excitement.	00:00 - 00:55
	Raising arms as an index of enthusiasm to cause the same effect on the audience, encouraging them to participate in a fun activity.	00:55 - 01:46
	Numbers, patterns and geometric figures are indices of maths, which is one of the main learning foci in the show.	00:00 - 00:55
	Hand gestures meaning <i>hot weather</i> is used to introduce the topic of the episode.	00:52 - 00:54
	The presence of children from different backgrounds is an index for multicultural integration, helping children to develop a greater	00:00 - 00:55

sense of tolerance and acceptance.

The presence of arrows that are indices of direction, in this case, this instance allows the learning of directions and these are accompanied by high and low tones of music. 18:30 - 19:12

The group of fish resembling a question mark is an index of question or of not understanding what the other characters are saying. 13:20 - 13:25

The sparking and lighting up of objects such as numbers, places, etc. are an index of *importance* or *something important*, in order to emphasise them, and also as a manner to keep the attention of the audience. 05:04 - 05:22
07:40 - 07:43
08:25 - 08:32
08:54 - 09:08
14:18 - 14:20
21:32 - 21:34

The lighting of the objects of the diagram is an index of important elements, remarking or differentiating a series of completed steps from novel steps to accomplish the mission in order to facilitate the sequence of these steps. 10:00 - 10:20
10:30 - 10:50
11:18 - 11:26
11:48 - 11:52
11:56 - 11:59
12:02 - 12:04
15:17 - 15:26
15:59 - 16:13
17:18 - 17:25

A hand gesture making a representation of an object of reality, in this case, this instance makes a link with an object of everyday life (a pair of goggles). 17:51 - 17:54

Music/sounds are an index for individuality. Several important elements throughout the episode are individualized by means of a distinctive sound or piece of music, which differentiates them from the rest. This is particularly significant for elements related to numbers or the process of counting. 07:20 - 07:40
09:56 - 10:13
14:20 - 14:25

A rubber ducky is an index for obstruction (same as the lock). 15:40 - 15:55

The lock in the water pipe is an index for obstruction (whereas it is also a symbol for problem to be solved). The water pipe is closed and only can be opened by figuring out a pattern. As there is an obstruction, children understand that there is a problem and it is necessary to think in order to solve it. 14:40 - 15:30
15:44 - 16:18

Cogs and bolts inside the clock are used to symbolise mental processes, because the audience is expected to go through those processes to achieve the final goal. 00:00 - 00:55

Symbols	A rubber ducky symbolises a problem to be solved. The presence of this problem promotes the sense of a need for mental exercise in order to solve it.	15:40 - 15:55
	A secret shortcut towards the lake symbolises different ways of facing a problem, helping children to think out of the box because in the future they will have to face difficult situations too.	07:40 - 08:10
	The use of bloopy-gloopy sounds symbolise the awareness that people should have when addressing other people and the ability of adapting to different social requirements. Children could understand that everybody is different and they cannot address and talk to everybody in the same manner.	13:45 - 14:05
	The lock in the water pipe is a symbol for problem to be solved (also index of obstruction). As with the ducky, the presence of this problem promotes the sense of a need for mental exercise in order to solve it.	14:40 - 15:30 15:44 - 16:18
	The presence of a discotheque ball in the head of Bot is a symbol of celebration, because the object is conventionally related to parties.	21:30 - 21:39
	<i>Extendo arms</i> symbolise brute strength. The fact that the arms could not open the gate of the water pipe symbolises that people should solve problems by thinking, not using brute strength or violence.	14:40 - 15:30

6.4.1 Icons

As it was established in the Methodology section, Icons share a resemblance with a real or fictional object (Krampen et al., 1987). There are several instances or traits that can be interpreted by the audience during this specific episode of *Team Umizoomi*. The importance of iconic elements is that they can be easily recognised as they are usually perceived through the senses, particularly by sight. Perceptions are interpreted by the audience in order to construct relevant meaning. There are at least three instances that are paramount to this inquiry, since they exemplify meaningful aspects of learning expressed in this episode. These instances are found within a context of problem resolution initiated by the calling of a child that has a real and concrete difficulty in a quotidian event.

In this case Kayla, a girl who acts as a representative figure of the audience, decides to call Team Umizoomi; she needs Team Umizoomi to fix the elephant sprinkler, which does not work properly. In order to do this, Kayla briefly explains her problem and the team accepts to help her. In this example, from minute 06:20 up to 06:46, Bot presents in its belly-screen a diagram that shows the process by which the sprinkler works.

This diagram provides a hint to the audience in order to discover the source of the water provided to the sprinkler. Furthermore, this schema of the operation working of the sprinkler creates a less complex representation of reality that can be more easily understood by the audience. The useless condition of the sprinkler required a solution; therefore, Team Umizoomi's members and the audience have to figure out where the failure occurs. The aforementioned instance is fully illustrated in the following transcription:

Transcription 37 (min. 06:16)

- 1 Bot here we are at the water playground
- 2 Mil and there is the elephant sprinkler (0.5) but there's still
no water coming out
- 3 Geo how much water should be coming out from the sprinkler (.)
bot?
- 4 Bot i can show you a picture of that (.) right here on my belly
(0.5) [belly belly scree:n] ((Bot pointing out its screen and
the camera zoom in the image of the diagram))
- 6 Bot (.) here is a picture of what the elephant sprinkler looks
like(0.5) when is working
- 7 Geo WOW. the working sprinkler looks like so much fun



Figure 5. A diagram shows the process of how the elephant sprinkler is supplied by the water's lake

This instance evidenced the use of a diagram as it can be seen in Figure 5 as a means of facilitating the comprehension of a complex process. The cycle of water supply is described through an iconic diagram which finally shows how the Elephant Sprinkler works, allowing children to understand it easily. At the same time, the team and the audience can make inferences about the place that may present the problem; therefore, the diagram provides the different steps to take into account to solve the situation.

Another instance that is shown has to do with one of the Milli's physical trait, specifically, her ponytails. Through her ponytails, Milli displays a superpower that permits to measure items by saying the phrase *Milli's Measure*, which makes her ponytails grow. In order to do this, Milli asks for the audience's help using the aforementioned phrase (as it can be observed in the Figure 6 below). This superpower can be evidenced from minute 09:45 up to 10:20, when Milli's ponytails grow and measure the depth of the lake. Through this action, Milli and Team Umizoomi realise that there is enough water in the lake for the sprinkler to operate appropriately.

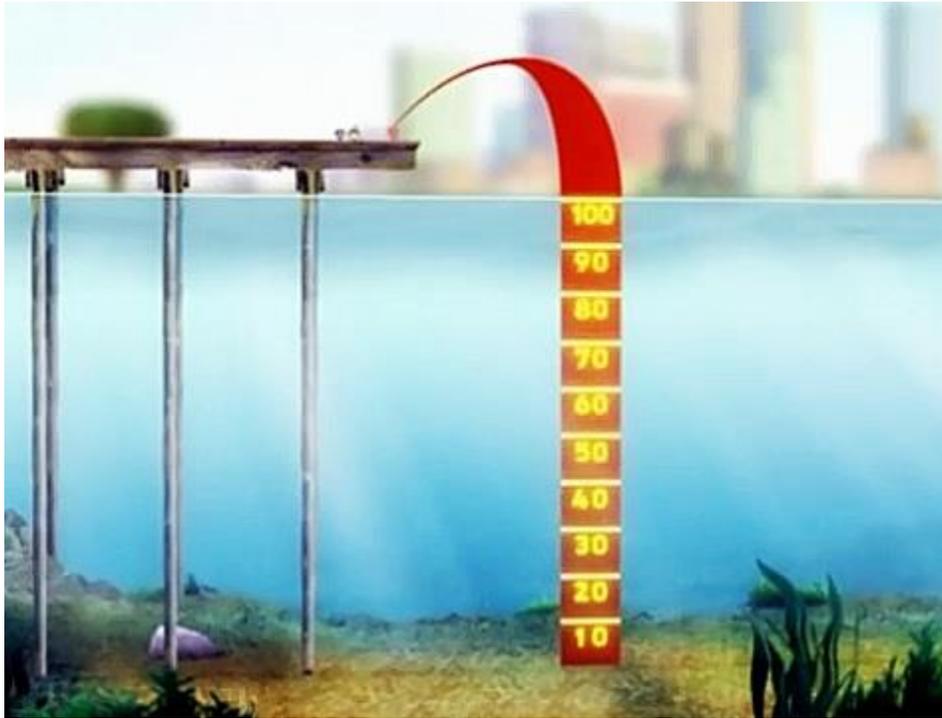


Figure 6. Milli's powerful ponytails

Based on the previous ideas, another iconic relation can be made by the audience when they see the ponytail submerged in the lake. Due to the long size and the sequence of numbers from ten up to one-hundred that children can observe in the ponytail, they can interpret it as a representation of a measuring tape or a ruler. Basically, this instance allows children to learn how to count to one-hundred by tens and, at the same time, the audience can make a link between the image of these ponytails and their resemblance with measuring tapes or rulers due to their general world knowledge.

Another instance occurs from minute 13:45 up to 14:05 and refers to the sounds produced by the shoal described in previous sections. In the episode, when Geo, Milli and Bot meet the fish, they ask them about the way towards the big pipe they need to find. However, the shoal does not understand what the characters say. Consequently, Bot suggests that they should speak to them in fishy language, and when they do it, the fish are able to understand and answer producing the same type of sounds, thus helping them to know the way towards the pipe.

As it can be seen in the line 2 of the Transcription 36, Geo expresses that the fish do not understand them, in spite of the similarity that this code presents with the team's language in terms of intonation, rhythm and pauses. The aspects aforementioned has a the main purpose to communicate with the shoal, Bot acts as a guide explaining to the audience that, in order to be intelligible understood by this new community, Team Umizoomi needs to change their own code to get the required information, as it can be observed in line 3 of the transcription 36.

Hence, these sounds can be interpreted as an icon for foreign language, since they resemble a language in several aspects. Firstly, they are used to communicate a certain message, more specifically, to answer a question made by the main characters of the show that are meant to talk the same language as the audience. Additionally, the sounds are produced in chunks and in a non-monotonous way, just as natural human language does. Furthermore, the fish who talk this language cannot understand the language of the other characters, which also resembles a common feature of foreign language in common social practices.

This iconic element resembles and reinforces the idea of diversity, adaptation and differences in linguistic and cultural practices among different groups of people. The use of this sign allows representing linguistic and cultural differences in a way in which is approachable and interesting to children. These new elements of fishy language could be applied in a conversational and environmental context to get concrete information.

Moreover, and within that same instance, an iconic element formed by the shoal is a question mark, indicating that they are not be able to understand and comprehend the code used by Team Umizoomi. This ability of language adaptation might facilitate the communication because of the application of the properties of one code to another that can be easily recognised, these properties are pauses, intonation and rhythm. In this manner, icons are signs that help to develop awareness of the environment, culture and knowledge itself.

6.4.2 Indices

While icons hold a relation of resemblance to a certain object, indices are markers of their objects, as they point out to them (Krampen et al., 1987). The presence of different signs that can be interpreted as indices in the episode have the function of pointing to more general or abstract ideas than the ones taken into account in an iconic relationship. These types of signs can be perceived as additional information to the audience, in order to suggest them and remind them of the aspects on which they should focus their attention. Some indices, such as background numbers, sparkles and lights, the presence of children from different cultures, and a gate in a water pipe are presented below with their respective possible interpretations in relation to their educational purpose.

One remarkable instance is given by the presence of children of different racial groups and cultural backgrounds, specifically in the opening song of the episode. For example, from minute 0:10 to 0:33 there are three different moments in which children of different ancestries appear celebrating, playing or sharing among themselves and with the characters. Additionally, throughout the whole episode, a variety of children with these characteristics can be seen in Umicity, representing a wide variety of communities.

The presence of these children can be interpreted as a sign of integration and diversity. This enables the identification of any child in the audience with the children appearing in the series, thus potentially allowing children to feel integrated into the team. In this example, the audience can figure out that children play a key role in the programme not only as observers, but as part of the Team Umizoomi. All these aspects can motivate the integration of children of distinctive origins, appearances, costumes, in conjunction with the collaboration among them as a team (Cook, 2008) in order to solve a problem. This instance is portrayed in Figure 7, from minutes 00:32 to 00:35, and can be regarded as a contribution to the current multicultural view of TV shows.



Figure 7. Children from different cultural backgrounds

This instance helps the audience at home to develop different social skills starting from the idea of sharing an activity, celebrating together and collaborating with children that belong to a different background, and all these aspects encourage the participation of the audience in doing activities provided by the show (Cook, 2008). These ideas can be directly linked with the concept of integration within a community. In other words, the audience generates a sense of cultural awareness, in which they gain knowledge by acknowledging the existence of different realities, cultures and societies. In this case, the show serves as a tool that facilitates the understanding of this inclusion process by means of teamwork and tolerance towards other individuals.

Continuing with the analysis, another example of Indices can be found between minutes 14:40 - 15:30 and 15:44 - 16:18. When the characters are attempting to discover the cause of the problem in the elephant sprinkler, one of the steps they take is searching for the big water pipe which carries water from the lake to the sprinkler. However, when they find it they realize it that it has a lock on it which obstructs its access.

The presence of a lock with a series of pattern in the big water pipe, in this case it is relevant to say that the lock can be identified as something that obstructs the free passing of the team Umizoomi, when they are trying to cross and pass through this pipe; under this context, this lock needs a kind of key to be opened, and with this idea the episode shows to the audience that there are two ways to open this 'closed pipe'. These are by force or by means of the solution of a series of numeric patterns that appear in the centre of the gate. Considering this, we observe in the episode that the first way does not work and the second one permits the opening of this pipe.



Figure 8. Sequence of numeric patterns in the locked water pipe (counting one by one)



Figure 9. Sequence of numeric patterns in the locked water pipe (counting by twos)

Through this example, the index leads to understand that children can learn several matters. For instance, there is not an only way to solve a problem, and specifically in this segment of the show, in which it is necessary to think in order to find a solution for the problem of the closed gate. The programme is trying to teach the audience that following the numeric pattern and thinking in the solution of a sequence of numbers provided are the right procedures.

Regarding indices, another example that is important to mention is the sparking and the lighting up of different objects. The use of these signs is a very common practice throughout the show and they can be considered as an index for relevance or centrality within the episode. These indices are used when important elements which are intended to be recognized and remembered by the audience, so they can be interpreted by the audience as markers that can be very helpful to discern focal elements in each task presented by the characters.

These lights and sparkles highlight a variety of objects that are going to be important along the development of the episode. Among these elements it is possible to mention the lake, the big pipe and smaller pipes, as it can be seen in Figure 11, from minutes 07:40 to 07:43. Another relevant elements are the point towards the presence of a shortcut door, (see Figure 15) a sequence of numbers in Milli's ponytails (as in Figure 12) from minutes 05:00 to 05:08, numbers (as in Figure 10) from minutes 10:00 to 10:20, and the numeric patterns presented in the lock of the big pipe.



Figure 10. Sparking of a sequence of numbers



Figure 11. Lighten up of the big pipe in the diagram to find the answer to solve the problem



Figure 12. Lighting of numbers while they are counting

The action of lighting allows keeping the audience concentrated on the objects that spark or shine to emphasise their presence and role along the show. Consequently, it facilitates the process of focusing the audience's attention on central elements. This interpretation can be defended on the basis of the characters reaction towards the objects which these indices are representing and also on the basis of the prominence of the objects within the tasks or the major plot of the episode.

Another instance is explicitly present from minute 00:00 to 00:55 as well as from minute 07:07 to 07:19, and it concerns the numbers, patterns and geometric shapes that appear throughout the whole episode. In a more specific manner, this evidence is seen through the background behind the characters, in places such as building walls, billboards of the city, and in the form of different characters' instruments, toys and clothes. These appearances are not overtly mentioned and they are seemingly a mere aesthetic resource displayed while the action of the characters takes place. As the picture shows, there are number-shaped walls on the top of buildings, and numbers drawn on billboards that appear while the main characters drive a helicopter over the city.

Similarly, billboards also depict images of geometric shapes within Umicity; buildings and other different elements in the city have a very simplified form that resembles different types of parallelepipeds. In the same manner, toys in the form of pyramids, spheres or cylinders appear in the background as the characters drive a car through a children's room. Moreover, from minutes 00:15 to 00:18 (see Figure 13) and from minutes 00:28 to 00:30 (see figure 14), there is a constant presence of shape patterns in the background as well as in different objects and even clothing. These patterns also can be taken as resembling geometric and general mathematical properties. Consequently, there is a rich variety of background signs which are not central for the development of the action.



Figure 13. Numbers in Umicity landscape



Figure 14. Geometric shapes as toys

Whereas numbers, geometric shapes and patterns can be seen as icons standing for Arithmetic and Geometry respectively, they further signal a common idea. These signs can be interpreted as indices for the mathematical content or main theme of the series. In the context of the episode, numbers, geometric shapes and patterns are meant to point towards the learning focus to which the audience should pay special attention, thus they contribute to the learning process that is intended in the programme.

In this case, as the interpreter is the audience of the show *Team Umizoomi*, there are several elements related to the characteristics of television series that affect the way in which the audience perceives the signs presented in the episode. In first place, the interpreter already knows that every TV programme follows a determined and particular topic or central plot. They additionally know that each series introduces its major topic through the opening song and by means of different signs throughout its episodes. Another piece of background information known by the audience is the notion that the major topics appearing in an episode will cause an abundant presence of elements related to that major idea in that episode.

The episode counts with an important presence of images of numbers, geometric shapes and patterns; these signs have background appearances which do not relate to any character's action. Moreover, they appear mainly in uncommon places, where they stand out, such as buildings' roofs. Therefore, the signs can be interpreted as indexes that fulfil the function of signalling the central role of Mathematics in the series, as this is the science which encompasses Arithmetic and Geometry.

Furthermore, this sign and its interpretation are supported by the fact that the content of the programme is strongly centered in the performance of mathematics-oriented activities. Numbers, patterns and geometric shapes are used by the characters in order to solve mathematical operations and the series aim at teaching basic Arithmetic and Geometry. In addition to this, this aim is never explicitly stated by the characters, therefore the presence of these indices most probably is meant to be a permanent reminder of the series content.

As a final example, throughout different moments of the whole episode, it is possible to perceive music or sounds accompanying the characters' actions. For instance, when the characters are looking for the big water pipe, the fish in the lake help them saying that the big water pipe is near a rock with five snails. Accordingly, the team continues driving until they find a rock with snails. As Transcription 38 shows, they need to count the snails in order to know if that is the rock the fish had previously mentioned. Then, from minute 12:22 to 12:38, each of the snails helps them numbering themselves by singing their number from the first to the fifth one.

Transcription 38 (min. 12:22)

- 1 Mil ((Milli, Geo and Bot find the rock with snails)) umifriend.
let's see how many snails there are. count with us.
- 2 Sky o::::ne ((singing in a low key))
- 3 Pur two:::: ((singing in a key a little higher than the previous one))
- 4 Yel three:::: ((singing in a key a little higher than the previous one))
- 5 Blu fou::::r ((singing in a key a little higher than the previous one))
- 6 Ora fi::::ve ((singing in a high key))
- 7 Mil five snails. this is the rock we are looking for.

As it can be seen, the snails sing in a way in which every number is uttered with a higher pitch than the preceding one. The difference in their singing pitches goes along with the difference among the colours of the snails. In a similar way, there is another instance occurring from minute 08:45 to 08:58, in which Milli intends to measure the distance from the bottom of the lake to the surface in order to figure out if the lake has enough water, as it has been analysed in previous sections. With the aim of accomplishing this, she makes one of her ponytails grow and uses it as a ruler. Then, she proceeds to count by tens from the bottom of the lake upwards the surface. The following transcription shows this process:

Transcription 39 (min. 09:48)

- 1 Bot ((Milli makes her ponytails grow and they reach the bottom of the lake)) if your ponytail reaches one hundred (0.1) milli. that means the lake has enough water for the elephant sprinkler.
- 2 Mil let's measure to see if my ponytail reaches one hundred (0.3) we can count by tens (0.1) ten? ((sound)) twenty? ((sound)) thirty? ((sound)) forty? ((sound)) fifty? ((sound)) sixty? ((sound)) seventy? ((sound)) eighty? ((sound)) ninety? ((sound)) one hundred ((longer sound)) this lake is full.

As shown in the transcription 39, every time a number is mentioned, a pair of musical notes imitates the pronunciation of the number. These two instances exemplify a resource that is constantly used in the episode. When numbers appear in a sequence, they have a particular characteristic sound which differentiates them from the others. In this context, sounds which accompany numbers signal difference among them and can be interpreted as an index for individuality. This interpretation can be made because each time that a new number appears, it is acoustically related to a sound which is also different from the others. This reiterated combination of auditory matters can be perceived as an indicator of distinctiveness.

Just like the example of the snails, the use of lower notes towards higher notes can also be interpreted as signalling the position of each number within the sequence. In this way, the understanding and learning of numbers and sequences of numbers is facilitated, and children can learn to identify a sequence of ascending sounds and visual effects with the numeric sequence of the process of counting.

6.4.3 Symbols

In contrast to indices, symbols are signs which hold no physical resemblance or connection to its object (Krampen et al., 1987). In the data, the use of different symbols shows a strong tendency towards the establishment of basic principles or common themes within the series. As they tend to convey a more general and abstract meaning and they

sometimes imply the existence of other signs. Some examples of these symbols are the idea that problems can be better solved by thinking and not by using brute strength or violence; that cultural diversity should be respected and in this way different people can understand each other; and that problems can appear at any moment, but they can be faced and solved if people take their time and think about it. All of these symbolic resources are coherent with the development of the episode and seem to be a central part of the basic content of the series.

In the episode, as it is observed from minute 07:40 to 8:10, one of the tasks requires to get to the water reservoir, in this case, the lake of the city. As it has been contextualised in previous sections, Team Umizoomi, after visiting the elephant sprinkler at the water playground, realise they have to check the lake conditions. In this context, Geo shows that the lake is far away from where they are at the moment. At this point, he asks Bot about what they should do, to which Bot expresses that they can take a secret shortcut to the lake. The task for the audience is to find where the shortcut door is in order to collaborate with the team. The characters find the shortcut and, by using it, they manage to get to the lake almost immediately.



Figure 15. Secret shortcut door**Figure 16. Milli and Bot coming out of the shortcut**

The shortcut shown in Figure 15 and Figure 16 symbolically stands for the idea that there are different ways to face a problem; in the same manner it is a symbol for *thinking out of the box* or the importance of creativity at the moment of solving a problem. In the context of a TV series which deals continually with problem-solving situations, the presence of a shortcut could be seen as something out of place, but in this case it is a helpful tool that allows finding a particular and innovative solution.

Shortcuts have the characteristic of being shorter or easier ways to get somewhere. Equally important, they represent a non-traditional option for a more standard way to reach an intended location. In this case, the problem of the distance to the lake is solved by avoiding the more traditional path towards a place, thus symbolising the possibility of finding and implementing non-traditional solutions. Bot's answer reminds the audience that the evident way is not necessarily what they have to do, that is to say, there is another manner that does not resemble the rest of the problem-solving processes performed in the rest of the episode, therefore emphasizing its innovative character.

In addition to this, the secret shortcut is displayed through a task in which the characters ask to the audience to help them. This fact further maintains the idea that the shortcut is a symbol for thinking. Accordingly, as the shortcut is not the traditional way to get to another place, then it requires an extra cognitive load. Finally, the shortcut is successful at the solution of the problem and the characters are able to get to the lake almost immediately, which signals the benefits of the shortcut and of thinking in a creative way.

Another instance occurs from minute 13:45 to 14:05, when Team Umizoomi meet a shoal while driving the submarine under the water (see Figure 17). As it was mentioned before, *bloopy-gloopy* sounds can be interpreted as an icon for a foreign language or a language different from the one of the characters and the audience. Also, as it was seen in Transcription 36, Bot mentions that they should talk to the fish in what he calls fishy language, so they can be understood and communicate with them.

This conversation can be seen as a symbol that represents the importance of cultural diversity and adaptation to different people's cultural requirements. It additionally symbolises that people are different and that a person should not expect from everybody to be the same as them or to express in the way in which they express themselves. The characters have to adapt to the new group they are meeting and talk to them in their language; once they do this, they can communicate without problems.



Figure 17. The main characters and the shoal

In the first place, this symbolic interpretation can be sustained if the audience understands the fish as a human group from another culture or the *bloopy-gloopy* sounds of the fish, as already mentioned, as the sign standing for a different language. Additionally, it is necessary to understand this different language as a sign for a different culture or group of people. This symbol requires the understanding of the sounds of the fish as a foreign language, as it is explained in reference to the previous description of iconic elements. This fact emphasises the idea of the diverse aspects in which interpretation takes place in the process of extracting or creating meaning from the elements that appear in a television programme.

All of these signs can be seen as part of a bigger and more general symbol. The characters have established that the fish do not understand when they talk to them in their own language, so the characters proceed talking in the language of the fish. Due to this, the fish are able to help them and share their knowledge about the location of the pipe. In the same manner, people meet other people with different customs and ways of expressing

themselves, and this diversity does not have to be a problem if the people involved accept this diversity and try to adapt without assuming that all people is the same.

The existence of a group of creatures talking a different language is already a sign of diversity. As the series has an educational function, it is possible to assume an intention for the appearance of this sign. Moreover, this intention is further supported with the example given by the characters; they do not avoid the shoal, they do not go asking to another group of creatures who speak their language, and they do not keep on trying to be understood using the same language as before. The decision of adapting and communicating is coherent with other signs appearing in the episode, which can be interpreted as markers for diversity, acceptance and adaptability, whether they use real children from different backgrounds, or other type of signs for the same function.

In addition, as they need to check the water pipes in order to discover why the elephant sprinkler is not working, they find the way towards the big water pipe which appeared on the diagram. Once they find the pipe, they realise that its access is being obstructed by a gate. At this point, Bot says he will try to open it with his extendo arms, but even after trying with all his strength to remove the gate, he is not able to do it. Bot stops and mentions that the gate must have some kind of lock, and then Milli realises that the lock has a numeric pattern on it. Hence, if they solve the pattern, they will be able to open the gate and enter to the pipe.

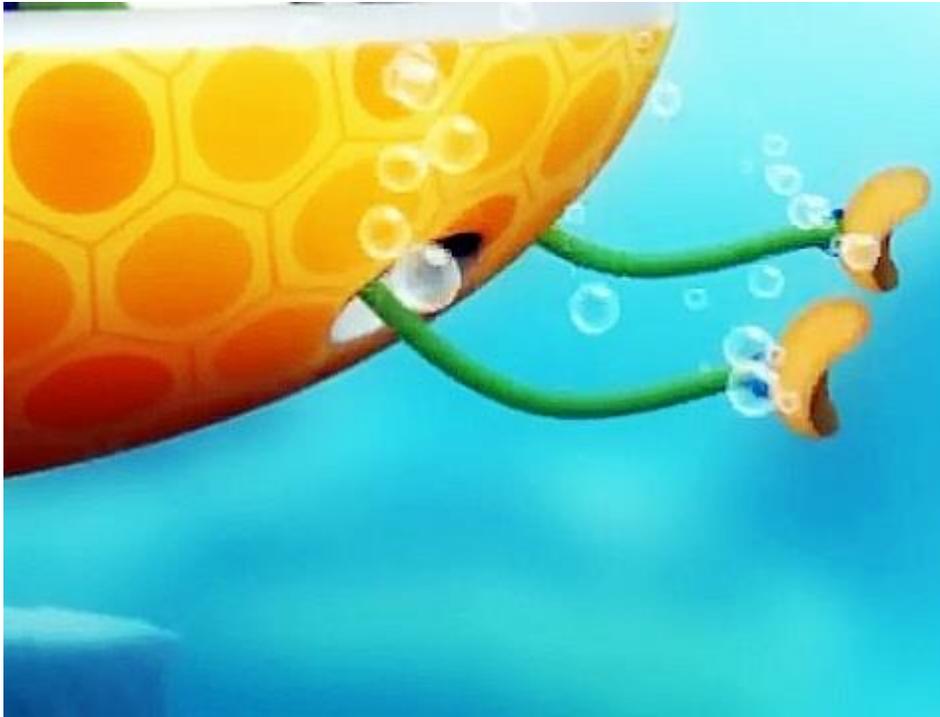


Figure 18. Bot's extendo arms

Bot's extendo arms from minutes 14:52 to 15:04 (see Figure 18) can be interpreted as a sign for brute strength. In the same manner, the pattern in the lock of the gate signals mental activity. The fact that he was unable to open the gate by using his arms is a sign that symbolises that problems should not be solved by using brute strength or violence, but by means of thinking. Bot tries to deal with the problem only accounting for the physical or concrete aspect of it without further thinking; he ignores the fact that there is a different approach that can be taken, which implies thinking and analysing of the situation. Additionally and most importantly, having in mind these aspects, he fails at opening the gate.

Different characters may attempt a solution to a problem; however, sometimes they may succeed or fail depending on different factors. In the context of a children's series, it is expected that there is a clear reason for character's success when facing a problem. Accordingly, this reason can be attributed to the characteristics of the way in which characters face or react to the problem. As Bot's reaction involved the sole use of brute strength, it is possible to assume that this instance is a sign for the defense of a different

approach. This is further supported by the fact that finally, they fulfil the task and open the gate by resorting to a mental exercise which was to figure out the missing number on a numeric pattern.

Moreover, this symbolic element is strengthened throughout the whole episode, since Geo, Milli and Bot are able to solve each one of the problems they face by means of mental tasks. Most of them are related to Mathematics, but they require other types of thinking as well. Hence, this symbol is used to emphasise and teach children one of the fundamental principles of the series: people will be able to find real and successful solutions to their problems if they think before reacting.

Regarding the use of signs in the episode, it can be said that icons, indices and symbols are used in the episode to signal crucial ideas that are not explicitly mentioned by the characters. As their meaning strongly depends on the interpreters of these signs, the audience's knowledge and expectations play a major role. Acceptance for diversity, the exercising of mental capacity in order to solve problems, the learning of mathematics, different ways of thinking and perceiving problems and all the aforementioned signs are all major topics to this series which are signalled by the elements studied in the present analysis.

Furthermore, the use of signs in the episode is coherent with the rest of the strategies used which have been previously analysed. There are differences of approach, indeed, when speaking, on the one hand, of discourse strategies related to learning theories, and, on the other hand, of the presence of icons, indices and symbols. However, the latter refer to objects that still reinforce the ideas presented in the episode by linguistic means. Among these ideas, the one which stands out among the function of signs in the episode, centres on the experience of learning as a cultural reality. Thus, it can be said that the study of this data from these two different points of view can be considered as complementary and each of them can be enriched by the other.

7. DISCUSSION

The main purpose of this study was to identify the different discursive strategies used in a children's television shows, namely the TV programme *Team Umizoomi*. Through the analysis of the three major learning theories it was possible to give an account of the communicative strategies presented in the show. These strategies are used with the intention to help children to acquire knowledge and different learning practices. For this purpose, the three learning theories considered in this study were: behaviourism, cognitivism and sociocultural theory, and additionally, the study of semiotics was included as well.

According to Morris and Todd (1999), behaviourism focuses on the study of behaviour in human beings; in addition to this, Watson (1919) states that behaviouristic approaches predict human activities by means of studying people's character. This theory can be divided into two models: the Classical Conditioning paradigm and the Operant Conditioning paradigm. The first paradigm, which was observed by Ivan Pavlov in his study of digestive glands in 1897, described a method that reaches a higher level of precision regarding stimulus control and measurement of responses. Then, the Operant Conditioning paradigm, which focuses on how organisms acquire a new behaviour through experience, led Skinner (1974) to coin the term reinforcement, which can be either positive or negative. It is relevant to mention that the presentation of stimulus consequences may promote the occurrence of certain behaviour.

The second learning theory addressed in this study was Cognitivism, which emerged as a response to the previously mentioned theory. Bower and Hilgard (1981) established that cognitive theories put emphasis on internal mental structures and on the process of acquiring knowledge, matters that were not considered in the behaviouristic theory. Ertmer and Newby (2013) stated that cognitive models focus on the conceptualisation of students' learning processes. Additionally, they assessed the issue of how input is acquired, received, organised, stored and retrieved by the mind (Uden, 2006). Over the years, Cognitive models gained importance in the field of teaching and learning, since cognitivist

researchers dealt with internal processes of the mind, where the information is processed and analysed in order to generate knowledge.

Another important theory reviewed is sociocultural theory, which had a significant role during the 1990s in the classroom teaching context. As it was claimed by Vygotsky (1986), students acquire different kinds of knowledge through individual human cognition and, equally important, by means of social interaction. The American psychologist Bruner (1983) highlighted the importance of Vygotsky's work in relation to the relevance of paternal input and social interaction as important factors that influence learning processes. He also emphasised the significance of scaffolding processes in order to internalise the linguistic code.

Regarding the study of semiotics, three levels of interpretation are established in the Peircean model (Krampen et al., 1987): Icons, Indices, and Symbols. This categorisation was based on the Peircean traits mentioned in Berger's book *Media analysis and techniques*, and its analysis allows the possibility of enriching a study based on linguistic discourse strategies with a focus on discourse and the signs which compose it. Besides, Semiotics complements the aforementioned learning theories in the TV show by a diversity of functions which can be verbal and nonverbal.

Additionally, television gained a fundamental role in people's lives in the last few decades. For this reason, and since watching TV is one of the most frequent tasks that children perform during the day (Chonchaiya & Pruksananonda, 2008), these television programmes designed for children might help them to develop certain skills. Rice, Huston, Truglio and Wright (1990) stated that programmes as *Sesame Street* focused on cognitive content, such as alphabet letters, but not in general vocabulary. In relation to this, it is important to mention that TV shows such as *Sesame Street*, were pioneers in the development of television programmes created exclusively for children.

Chonchaiya and Pruksananonda (2008) claimed that young children spend many hours in front of the television, no matter the country they come from. Furthermore,

Perlado and Sevillano (2003) declared that television is very important for children's everyday language and that it contributes to build their reality as well. It is believed that children can learn from watching television but, as Fisch (2005) stated, watching educational television can improve children's learning process. One of the characteristics of educational children's television is that the shows involved engage audience by using appealing elements, such as humour and games. Additionally, the content presented in the shows has an appropriate language in terms of complexity, which is an important factor since children can properly understand what is being said. One of the most outstanding features of a successful children TV show is the fact that the target audience is constantly encouraged to actively collaborate with the characters of the show.

The results obtained through this study established a dialogue with the Theoretical Framework that was previously reviewed. Regarding the purpose of distinguishing the most relevant discourse strategies related to each learning theory, in the case of behaviourism, three different types of discourse strategies were found in the data: imperatives; linguistic repetition; and compliments and hortatives. These three examples help children to gain knowledge. For example, in the show the characters use linguistic repetition in order to help children to internalise specific concepts, such as the term pattern; this word is repeated throughout the whole episode and children are expected to understand the concept at the end of the show.

Concerning the discourse strategies associated to cognitivism, four strategies were found: rhymes, emotional intensifiers, songs, and connectors to create procedures. These instances, as in the case of behaviourism, help children to acquire knowledge through internal information processing, development of procedures and memory exercises. Moreover, due to the nature of Cognitivist theory, these strategies are meant to be implemented according to the facilitation of cognitive process in children, such as memory and comprehension.

The third learning theory studied was sociocultural theory, in this case six discourse strategies were found: addressing the audience; asking questions; pauses; neologisms, code-

switching, and the use of 2nd person singular or 1st person plural to indicate inclusion. In this case, these discourse strategies are used in order to facilitate learning through social and cultural interaction, for example, by asking questions and generating pauses. The characters make a pause and wait for the audience's answer. In this section of the show children are encouraged to participate by answering the question during the time the characters remain in silence.

The semiotic aspects in the show were taken into account in this study in order to explore the relationship between learning and children's TV shows in depth. As it was shown in the Results section, the interpretation of the semiotic aspects can be divided into two according to the function that these aspects have in each instance. On the one hand, Semiotics supports the other three linguistic learning theories analysed before by means of emphasising the features that those learning theories present and, on the other hand, they have other methods of learning by their own.

First, in the semiotic analysis section, icons were analysed. This category of semiotics is mainly visual, and the different instances where icons are present are easily recognised by the audience. These representations help children to understand the specific situations that the characters of the show present along the episode. For instance, the ponytail of Milli that works as a measuring tape. The same occurs with the diagram that shows the picture of the elephant sprinkler twice; first, its correct functioning is shown and, then, the current state of it (i.e. not working). Additionally, icons are present in the use of a question mark as well as in a new sound that represents a new language that children do not understand.

Secondly, indices were analysed; the function of these signs relies on being an interactive method to point out certain elements during the show, for instance, by means of lights that indicate where children have to focus their attention. In addition to this, Indices work as indicators of emotions by means of gestures made by the characters, such as the different celebrations after a fulfilling experience or the supportive gesture with the hand that represents hot weather.

The importance of symbols in this TV show as signs that convey an abstract meaning without holding resemblance with the connected object, relies on teaching children aspects of life that are not connected with the specific subjects they are taught in schools, for instance, that problems can be solved in a rational manner and not by using brute force. Another significant feature shown by means of symbols is the multicultural factor; it comes to the scene through the appearance of children from different countries as well as through the use of *fishy* language as a new form of communication. This matter is essential for children to understand this as part of their knowledge and culture, reinforcing tolerance and the acceptance of diversity in the world. The fact that children are exposed to this situation facilitates the understanding of problem resolution techniques.

As seen in this study, the episode The Elephant Sprinkler of the television show *Team Umizoomi* shows that different discursive forms can fulfil different communicative functions. Even though the language of children TV shows is part of everyday life for many children, images, interactions, dialogues and a long list of elements present in children educational TV series perform specific functions, and can help to trace a determined theory behind the construction of their discourse. The discourse of the episode was analysed taking into account the influence that the aforementioned theories may have on teaching and children's educational process. A different approach to discourse was additionally studied from the point of view of semiotics, thus formulating more interpretive meaning relations within the elements in the episode.

Regarding discourse, learning, and children's TV shows, there are several relations that can be established between previous research and this study. Firstly, our results show how different discourse strategies can be implemented in order to fulfil an educational goal. As it was mentioned before, discourse has been structured in this episode in a manner in which verbal constructions support not only specific teaching objectives, but also the theories behind those objectives. Nonetheless, as it has been explained, it is possible to go beyond a single-approach perspective and account for the integrative nature of modern TV shows discourse, which can be enriched by both contemporary theories and classic perspectives.

The first learning theory analysed in the children TV show *Team Umizoomi* was behaviourism. Since the term was first coined by Watson (1913), it has had its consequences in the learning modality used in classrooms. In the case of children's TV shows, and specifically the analysed episode of *Team Umizoomi*, it was the theory used with less frequency, probably due to its antiquity and the appearance of new learning theories that have taken into account the learners' mental processes and their needs. However, currently behaviourism is still used in different manners in the learning process. Two significant factors of the behaviourist legacy are the importance of learning through experience and reinforcement, both postulated in the studies of Skinner (1948) about the operant conditioning.

Reinforcement is a feature applied nowadays in schools by the use of simple words such as *good job* or *well done*. In the case of children TV shows, the type of reinforcement used is always a positive one; *Team Umizoomi* characters show their joy of working with the audience several times, mentioning that working together is fun and giving thanks. This type of reinforcement was categorised as compliments and hortatives. Besides, there were other two found strategies: imperatives and linguistic repetition.

The use of imperatives in the episode implicates the participation of children in the activities, since it does not only actively maintains the concentration of children but also indirectly teaches them other matters, such as the discussed instance concerning the seat belts advice. Linguistic repetition reinforces the maintenance of new knowledge and, in this manner, it forms part of a gradual habit formation. During the episode, it is used in several moments of the shows, for instance, the word pattern is repeated constantly along the show as well as the adjectives *small* and *big*.

The second learning theory analysed in the children's TV show was Cognitivism, and its presence does not come randomly to the panorama. Since Piaget's (1936) application of tests to observe the way in which people think and the consequential discovery that children and adults think in a different manner, the development of

cognitivism helped to carry out further examination into new ways of learning. The models proposed by cognitivism assert that the learning processes include stages in which the input is received, organised, stored, and retrieved by the mind (Ertmer & Newby, 2013). As it was stated in the theoretical framework, the memory and the perception are conceptualised, therefore, the sensorial perception is converted into the input that finally is processed in the mind and remains in the memory (Shannon, 1948). Piaget (1952) pointed out the fact that children learn by playing and performing activities in an active manner.

Many of these ideas are reflected in the episode of *Team Umizoomi* as many characteristics of cognitivism were found in the data. Some elements as rhymes and songs presented in the results section are part of the cognitivist theory and their function is to help children to remember things in an easier manner. Rhymes are interactive activities that reinforce the mental effort and memorisation through phrases or words which sound similar (Bower & Bolton, 1969; Schiller & Willis, 2008). The same happens with songs, as they are catchy and provide a sugar-coat feature to the process of learning (Millington, 2011; Smith, 2002); hence, they accomplish the same function.

Another characteristic of cognitivism is the application of a gradual intensification of the mental effort that children have to do while learning. Gagné (1985) stated that children have to receive a simple task, master it, and then add more difficulty until the big last task. In the classroom, the monitor has to encourage students to have critical thinking. In the episode, this feature of cognitivism was applied through two different elements: emotional intensifiers and connectors to create procedures. The former, by means of the use of sugar-coat, may influence children to think that it is possible to find the right solution for a complex problem. The latter, divides a big problem into small pieces to resolve it by steps, creating the same effect that emotional intensifiers.

Nonetheless, sociocultural theory is the approach that represents, in a much more comprehensive way, the perspective adopted in this TV programme. There is an outstanding rich and varied presence of linguistic strategies and semiotic elements which encourage audience's involvement and sense of inclusion in a group. In the episode,

characters' interventions allow the conformation of a type of social reality which contains both the Umizoomi world and the audience's world. Accordingly, discourse in *The Elephant Sprinkler* is an example of Vygotsky's ideas and learning perspective; discourse strategies, independently of the level of awareness of the audience to this fact, are persistently put into practice accounting for the significance of social interaction and cooperation in the learning process.

In other words, the analysed data manifests the notion of learning as a social product; in the episode, characters fulfil the role of more experienced peers and they promote a group dynamic of mutual cooperation. Even though there is an evident use of different strategies representing behaviourist and cognitivist functions and educational goals, they are integrated into a wider discourse in which meaning is mediated by culture. Thus, it can be asserted that strategies from different learning theories are blended and cooperate at different levels in order to construct a single cohesive discourse. Furthermore, as in the case of the *Team Umizoomi* series, this discourse serves as a tool to promote certain learning behaviours which tend to mutual help and co-construction of meaning in what could have been a non-cooperative exercise of cognitive abilities.

Araya et al. (2014) carried out a similar study to the present one; it consisted on the study of data from different children TV shows in order to analyse discourse strategies related to sociocultural theory. Regarding their results, they are very similar to what has been found in our analysis regarding sociocultural theory matters, in addition, they also focused on how it is possible to understand in a better way, through these types of studies, different aspects of television programmes aimed at children.

Notwithstanding, as the authors focused on one learning theory only, the present study has a wider scope and enables the simultaneous vision of how different perspectives about learning can be translated into a script with educational purposes. In the context of a Sociocultural oriented classroom, many of the strategies used in this episode would be present, such as the encouragement of group participation, the presence of activities guided by different knowledgeable peers, and the addressing to others. However, this would occur

not in cognitive oriented and fixed terms (teacher and student structure), but in more social oriented ways, such as teammate, fellow student, and so on.

Additionally, it is possible to connect this study with previous studies in order to draw some conclusions about the importance of discourse in educational children's TV shows. This study in particular is held within the scope of works such as Peirce's, Danesi's, Berger's, and Foucault's. Each of them have expressed, from very different approaches and fields of knowledge, fundamental ideas such as the interpretative character of signs (Krampen et al., 1987), the ideological load of different types of discourse (Schiffrin, Tannen & Hamilton, 2001), the notion of a sign as meaningless by itself, thus gaining meaning in relation to other signs (Berger, 2002) and the different functions of discourse depending on different strategies implemented when using language.

Of significant interest are the notions of television as a sign (Berger, 2014), its influence in people's lives and the way they perceive reality (Danesi, 2002; Perlado & Sevillano, 2003), and children's vulnerability to television content (American Academy of Pediatrics, 2001). As mentioned in the review of the literature, TV shows may have a negative impact on children depending on the content of such shows. From a semiotic perspective, due to this strong influence that television has on younger populations, it is of extreme importance to be aware of the different possible interpretations of the signs or strategies (depending of the approach in which the data is studied) that are shown to children through this medium. This is especially relevant taking into account educational programmes which aim directly to teach a determined content. The way in which language (related in this study to learning theories) and signs (from a semiotic perspective) are used is likely to affect children's learning behaviour and their learning process as a whole.

Finally, the relevance of this study lies on the insight it can provide about the functions of discourse in children's TV programmes and its potential influence on children's learning process. This was attempted by means of the examination of an episode of one show including three different learning theories that have further developed into the learning process through time, plus the semiotic aspect that delivers more knowledge and

support to the learning theories. All these elements allowed a deep and complex analysis of this episode that, in spite of being only one part of the whole TV series, is more complete in terms of information about the use of these learning theories.

The study provides a diachronic panorama of the three learning theories, adding also appropriate information about the semiotics field. The analysis provided in the results section, the categorisation of the information, the order of the strategies with the exemplification, along with the explanations of these discourse strategies, provide tools for further research in other episodes or even more TV shows that are created specifically for children.

8. CONCLUSION

In this final section, the study aims to present the conclusions that can be obtained through the analysis of the results. As it was stated in previous sections, the main purpose of this research was to identify and categorise the different discourse strategies used within a specific episode of the TV show *Team Umizoomi*, and how they relate and facilitate learning processes in children. Below, an account of the implications of the inquiry is given, in conjunction with an explanation of the main limitations that were encountered during this study. Additionally, suggestions for further research are provided in order to advise future researchers regarding interesting topics that can be linked to the present research.

8.1 Implications and importance of the study

This study can be useful for many researchers and professionals. In the first place, it can be helpful for people responsible for educational programmes in kindergartens, who can improve certain practices, through the implementation of innovative approaches. It can also be favourable to screenwriters of television shows for children, since through this research they can find a basis to develop helpful strategies that aim at audience's learning; and additionally linguists involved in educational settings might be interested in linguistic strategies used in a learning environment. They can build up new techniques and, at the same time, the improvement of current education systems in their countries; child psychologists, who frequently deal with children, applied a diversity of tactics to catch their attention or to understand how they can respond to a certain input. Additionally, parents are concerned with TV shows that are suitable for their children's learning and personal development.

In other words, the results section of the present study can contribute to advance or progress on specific aspects of society, such as learning and teaching at an early age via discourse strategies in order to facilitate complex processes. Nevertheless, the implications of this study not only help in practical aspects such as the examples aforementioned, but

they may also have an impact on the theoretical aspects of these fields. Thus, encouraging further research related to learning theories and its connection with the use of language, which had not been clarified in previous studies, can narrow down the gap evidenced by the lack of information in these areas of study.

Additionally, in relation to the theoretical implications of the research, the results obtained could greatly enrich some fields such as, in the first place, applied linguistics, since our study is related to the acquisition of language and new trends in learning. In the second place, it would contribute to discourse analysis, in the sense that our analysis focuses on the processes present in the discourse of the show, as well as the functions they fulfil in a particular audience. Finally, it would benefit psycholinguistics, due to the focus of its studies on psychological strategies related to complex cognitive processes.

8.2 Limitations of the study

Among the constraints of this study, some of them can be the choice and use of a particular TV show. This selection may affect the generalisability of results found on this research. The use of a specific episode does not allow the identification of the strategies and situations that may have happened frequently in the show. Furthermore, choosing just one show does not permit an extensive analysis aimed to find common communicative strategies to all programmes whose purpose is teaching specific contents to children.

Moreover, the corresponding strategies to each learning theory and semiotic analysis were found and analysed without observing the reactions that these programmes caused in a real target audience, therefore opinions and feedback from children viewers were not considered. Regarding this issue, effectiveness, quality of each discourse strategy, and the effect on children could not be entirely confirmed because the impact generated on the target audience was not analysed in this particular instance.

Another limitation that can be observed in the present study is the fact that the analysis of the programme was conducted in English and, similarly, the original version of

Team Umizoomi in this language was chosen, creating a constraint regarding the implementation of this study to the audience of Chile, a Spanish speaking country. It is indeed possible to find the selected episode dubbed into Spanish within the data recorded from a free-to-air channel, specifically the television broadcast La Red; nevertheless, the original version was chosen due to the different strategies that could be lost in the translation process. However, this decision entails the implementation of the study to countries, areas and professionals concerned with the English language.

8.3 Suggestions for further studies

According to previous studies analysed in the Theoretical framework section, the existence of a link between the acquisition of language skills and the different learning theories had not been precisely described. However, in the present piece of research this relation was analysed via discourse strategies in coordination with semiotic elements classified into indices, icons and symbols stated by Peirce in Berger's book *Media analysis techniques*. In the following lines, some recommendations are specified for future research based on our study.

Regarding future studies and considering the aforementioned limitations, it can be said that, in order to understand the study more clearly, some connections can be made between the existence of a categorisation of the different semiotic elements and the learning theories considered in our research, i.e. behaviourism, cognitivism and sociocultural Theory. In addition to this, Peircean categorisation of semiotic elements of indices, icons and symbols and the learning theories mentioned can be used as tools to comprehend and understand the way in which children can learn and acquire a language. At the same time, these tools can be considered as a means to facilitate the process of learning.

Moreover, future studies could focus on the generalisability of the results through the inclusion of more episodes of *Team Umizoomi* or other episodes of different TV shows designed for this specific target audience in order to make a contrast between the use of the communicative strategies observed in this study and other investigations related to relevant

areas. Thus, a contrast can be made regarding the usefulness of these shows for the learning process. In this way, parents can choose the most appropriate one for this purpose.

Additionally, results obtained in this inquiry may be incorporated into a real situated context through researching and observing the effect that these television programmes cause in a target audience together with the discourse strategies found in these TV shows designed for children. In brief, this would concern the reactions that a group of these individuals can have while watching the specific episode of *Team Umizoomi*. It is important to mention that this group of participants would have to fulfil a series of requirements in order to represent the target audience that watches these programmes. By means of the observation of such reactions generated by children TV shows, future research can be conducted in terms of the effectiveness of discourse strategies and how these are perceived for the audience in a real-life context.

Furthermore, some studies can be carried out concerning the management of the audience as well as the study of the script-creation process within the production of children's TV shows. Following the same line, these future studies can consider specific aspects such as the real intentions behind the scriptwriters, what they want to portray in the shows and the criteria they use in order to develop strategies that can be useful for children during their process of learning through linguistic and discourse forms.

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10. APPENDIX**APPENDIX A****Transcription conventions**

(0.5)	Pauses in tenth of a second, no one thousand
[word]	Overlaps
=	Latching
(.)	Micropause
.	Falling intonation
?	Rising intonation
::	Prolongation or stretching of sound
-	Cut off or self-interruption
WOrd	Loud talk
<u>word</u>	Stress or emphasis
> word <	Compressed or rushed
< word >	Slowed or drawn out
Hhh	Hearable aspiration, breathing, laughter
((cough))	Description of events
(word)	Uncertainty on the transcriber's part

APPENDIX B

Table 10.1

Original corpus of TV networks and programmes

Nick Jr.	Disney Jr.	Disney XD	Discovery Kids	Cartoon Network
Max & Ruby	Higglytown	Karate Kid (Film)	The cat in the hat	The Amazing world of Gumball
Team Umizoomi	Heroes	George of the	Dino Dan	MAD
Bubble Guppies	Short: Topa-	Jungle II (Film)	Martha Speaks	LA CQ
Tickety Toc	Muni	Zeke and Luther	Sesame Street	Mister Young
Dora the Explorer	Care Bears	Estoy en la banda	Bananas in Pyjamas	Merrie Melodies
Winx	Short: Cars	Kick Buttowski.	Jelly Jamm	Regular show
SpongeBob	Mickey Mouse	Medio doble de	Hi-5	Pokemon: Black and
Squarepants	ClubHouse	riesgo	My Big Big Friend	White
	The Hive	Pucca	Backyardigans	Rudakai
	Happy Monster	Kid v/s Kat	Lazy Town	Monk the little dog
	Band	The Superhero	Mister Maker	Morvo the wonder
	Bob the Builder	squad show	Wild Kratts	chicken
	Jungle Junction	Dinosaur King	Sea Princesses	Ben 10
	Olivia	Animales en	Wow! Wow!	Ben 10 Omniverse
	Imagination	Calzones	Wubbzy!	Cine Cartoon: Spirit
	Movers	The Avengers	Caillou	of the forest (Film)
	Oso Special	Iron Man	Little People	Green Lantern
	Agent	Ultimate Spider-	Bob the Builder	Young Justice
	Rollie Pollie	man	Thomas & Friends	
	Ollie	Beyblade Metal		
	Short: Wiffle and	Masters		
	Fuzz			
	Short: Can you			
	Teach my			
	Alligator			
	Manners?			
	El payaso Plim			
	Plim			
	Poppy Cat			
	El jardín de			
	Clarilú			
	Jake and the			
	Never Land			
	Pirates			

Note: Table 10.1 shows the total number of TV programmes from cable networks before selection.