



Cartoon voices: a descriptive analysis

A voz no desenho animado: uma análise descritiva

La voz en el dibujo animado: un análisis descriptivo

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Abstract

Introduction: Television, especially cartoons, is a constant presence in children's modern-day life. Cartoon voices may represent influential standards in the construction of linguistic and social representations of children. **Objective:** this study will seek to describe the voice parameters of heroes and villains in cartoons and investigate whether there are vocal patterns that characterize and differentiate these characters. **Methods:** A cross-sectional, qualitative and descriptive study. It consisted of a sample of 23 lines from cartoon characters, heroes and villains, found on Brazilian Television. The samples were submitted to vocal perceptual analysis conducted by three experienced speech language pathologists, with the following voice parameters being analyzed: resonance, pitch, loudness, pace, rhythm and clarity of speech. Vocal abuse and psychodynamics of voice has also been analyzed. **Results:** Chest resonant quality was found predominantly in the voices of villains, as well as low pitch; while heroes presented a balanced resonant voice. Two hero characters show articulatory disorders in fricatives and alveolar trill. Vocal abuse was shown in 50% of the characters, both heroes and villains. No differences were observed regarding loudness, pace and rhythm between hero and villain voices. Psychodynamic voice aspects show that heroes have jovial, cheerful, courageous, distressed and anxious voices, while villains have mature, confident, threatening, authoritarian and aggressive ones. **Conclusions:** The voices of heroes and villains seem to differ, demonstrating certain patterns in vocal construction that characterize good and evil in the characters.

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Resumo

Introdução: A televisão é uma presença constante na infância contemporânea, em especial através dos desenhos animados. As vozes dos personagens nos desenhos animados podem representar padrões influentes na construção das representações linguísticas e sociais das crianças. **Objetivo:** Descrever parâmetros vocais de heróis e vilões nos desenhos animados e investigar a existência de padrões que caracterizem e diferenciem estes personagens. **Material e Método:** Estudo transversal, quali-quantitativo de caráter exploratório e descritivo. Constitui-se de uma amostra de 23 trechos de fala de personagens, heróis e vilões de desenhos animados presentes na televisão brasileira. As amostras foram submetidas à análise perceptivoauditiva vocal realizada por três fonoaudiólogos especialistas em voz. Foram analisados os seguintes parâmetros vocais: ressonância, pitch, loudness, modulação vocal, velocidade de fala e articulação. Também foi analisada a presença de abuso vocal e psicodinâmica vocal. **Resultados:** A ressonância laringofaríngea foi encontrada predominantemente nas vozes de personagens vilões, assim como pitch grave; enquanto os personagens heróis apresentaram uma ressonância equilibrada. Dois personagens heróis apresentaram distorções articulatórias em fricativas e líquidas alveolares. Abuso vocal à emissão foi encontrado em 50% dos personagens, tanto em heróis quanto vilões. Os aspectos psicodinâmicos da voz mostram que heróis apresentam vozes joviais, alegres, corajosas, aflitas e ansiosas, enquanto vilões apresentam vozes maduras, confiantes, ameaçadoras, autoritárias e agressivas. **Conclusões:** As vozes de heróis e vilões apresentam diferenças nos parâmetros vocais, demonstrando certa caricatura na construção vocal que caracteriza o bem e o mal nos personagens.

Palavras-chave: Qualidade da voz; Televisão; Criança.

Resumen

Introducción: La televisión es una presencia constante en la infancia contemporánea, en especial a través de los dibujos animados. Las voces de los personajes en los dibujos animados pueden representar padrones influyentes en la construcción de las representaciones lingüísticas y sociales de los niños. **Objetivo:** describir los parámetros vocales de los héroes y villanos en los dibujos animados e investigar si existen padrones vocales que caracterizan y diferencian estos personajes. **Material y Método:** Estudio transversal, cuali-cuantitativo de carácter exploratorio y descriptivo. Se constituyó una muestra de 23 trechos del habla, de héroes y villanos de los dibujos animados presentes en la televisión brasileña. Las muestras fueron sometidas al analice perceptivo-auditivo vocal realizado por tres fonoaudiólogos especialistas en voz. Fueron analizados los siguientes parámetros vocales: resonancia, pitch, loudness, modulación vocal, velocidad del habla, articulación. También se analizó la presencia de abuso vocal e psicodinámica vocal. **Resultados:** La resonancia laringofaríngea fue encontrada predominantemente en las voces de personajes villanos, así como pitch grave; en cuanto a los personajes héroes presentaron una resonancia equilibrada. Dos personajes héroes presentan distorsiones articulatorias en fricativas y líquidas alveolares. El abuso vocal en la emisión fue encontrado en 50% de los personajes héroes y villanos. La psicodinámica vocal muestra que los héroes presentan voces joviales, alegres, valientes, aflictivas y ansiosas, en cuanto a los villanos presentan voces maduras, seguras, amenazadoras, autoritarias y agresivas. **Conclusiones:** Las voces de héroes y villanos presentan diferencias en los parámetros vocales, demostrando cierta caricatura en la construcción vocal que caracteriza el bien y el mal en los personajes.

Palabras clave: Pérdida auditiva; Acufeno; Policía; Ruido en el ambiente de trabajo..

Introduction

Children in Brazil spend a considerable amount of time in contact with television programmes. From very early, TV occupies a central place in children's daily lives. Consequently, TV content has an important social role and helps to shape habits, language and culture.¹

Childhood is a stage of social construction. Kids are co-constructors of society; just as adults, they are exposed to social forces and are active in the production process of their own culture.² Amongst those social representations built by children, cartoons play a very important part, as, through animated characters, they can become tools for building social and linguistic representations.

Along with image and text, voice has a key role in helping to shape a cartoon character, as it carries important information regarding physical and emotional parameters such as gender, age, personality and mood. Thus, cartoon characters can be recognised by their vocal characteristics; and, when presented in a caricatured form by patterns that do not include the diversity of everyday life, they can have an effect in children's communication development. Detecting the existence of such distortions seems, therefore, essential to understand, in future surveys, their effects in linguistic representations and in the construction of vocal patterns.

The hero/villain theme, commonly found in children's television programmes, has often been researched within various fields of humanities and social sciences.^{3,4} The topic of vocal characterisation, as well as its repercussions, however, seems to have been scarcely explored in academia. A recent study on gender has observed that female characters tend to be more sentimental, with high-pitched voices and frequent crying. Additionally, it argues that the Good/Evil dichotomy is represented either by fluid and serene or strong and harsh vocal expression, respectively.⁵ Other reports also look into the voice of characters in movies, attempting to understand vocal construction and linguistic representations of elderly⁶ and suicidal characters.⁷

Within this scenario, this survey intends to describe the vocal parameters of heroes and villains and to investigate the existence of vocal patterns in such cartoon characters.

Methods

This is a qualitative-quantitative study of a descriptive and exploratory nature, composed by a convenience sample taken from the voices of cartoon characters portrayed as heroes and villains in Brazilian network television (therefore vocalised in Brazilian-Portuguese language).

We began by examining the weekly schedule of children's programmes in Brazilian network television, selecting all the cartoons featuring characters represented as heroes and villains. The titles selected are as follows: Ben 10; Justice League (Liga da Justiça); Justice League Unlimited (Liga da Justiça Sem Limites); The Avengers: Earth's Mightiest Heroes (Os Vingadores: Os Super-Heróis Mais Poderosos da Terra); Totally Spies! (Três Espiãs Demais); X Man Evolution; Ultimate Spider Man (Ultimate Homem Aranha); Nutri Ventures; Jackie Chan Adventures (As Aventuras de Jack Chan); Kung Fu Panda: Legends of Awesomeness (Kung Fu Panda: Lendas do Dragão Guerreiro) and Sym-Bionic Titan (Titã Simbiônico).

Thirty speech samples were initially collected. Shorter-than-six-second monologues, as well as low quality voice-recording, have been excluded. Samples in which dialogue content contributed to define characters as hero or villain have also been excluded, as they could interfere with our voice evaluating process.

In order to guarantee voice-recording quality, the selected cartoons were analysed from digital copies available on YouTube. The selected samples were extracted and edited using Windows Movie Maker, leaving only the audio portion. Files were then randomly (hero/villain samples) saved in a CD-R for further analysis.

Twenty-three dialogue excerpts composed the final sample, with length varying between six and ten seconds. It included twelve hero characters (nine male, three female) and eleven villain characters (nine male, two female). Samples were then submitted for auditory-perceptual evaluation to three experienced speech language pathologists, unaware of the study's aim and of the type of characterisation (hero/villain) being surveyed. Evaluations were individually performed, using a protocol especially developed for this study (see Appendix 1). Vocal parameters investigated were as follows: resonance, pitch, loudness, voice modulation, speed of speech, existence of speech distortions, vocal abuse, as well as vocal

psychodynamics.⁸ In the auditory-perceptual evaluation, judges were requested to identify the presence of vocal abuse and describe it qualitatively, without using any previously defined terms by the research team.

Results were then submitted to descriptive statistical analysis, and frequency percentages were calculated.

Regarding ethics, all data researched is public domain, with subjects being cartoon characters;

consequently, in this case, the Informed Consent is not necessary for this research.

Results

Os The auditory-perceptual evaluation results are explained in Tables 1 and 2, whereas vocal psychodynamic aspects can be found in Table 3.

TABLE 1 AUDITORY-PERCEPTUAL EVALUATION OF CHARACTERS' VOICES

Vocal Parameters	Heroes	Villains
	n (%)	n(%)
Resonance		
Balanced	8(67)	3(27)
Laryngeal	4(33)	7(64)
Hypernasal I	0(0)	1(9)
Hyponasal	0(0)	0(0)
Total	12(100)	11(100)
Pitch		
Adapted	5(42)	2(22)
High	4(33)	2(22)
Low	3(25)	5(56)
Total	12(100)	9(100)*
Loudness		
Adapted	9(82)	7(64)
Strong	2(18)	4(36)
Weak	0(0)	0(0)
Total	11(100)*	11(100)
Voice modulation		
Adequate	7(58)	6(55)
Excessive	4(33)	5(45)
Restricted	1(8)	0(0)
Total	12(100)	11(100)
Speech pace		
Adequate	10(83)	7(64)
Accelerated	2(17)	1(9)
Slow	0(0)	3(27)
Total	12(100)	11(100)
Articulation		
Adequate	10(83)	11(100)
With distortions	2(17)	0(0)

Total	12(100)	11(100)
Vocal abuse		
No	6(50)	4(40)
yes	6(50)	6(60)
Total	12(100)	10(100)*

* Voices excluded from the analysis, as they have not been chosen by evaluators.

TABLE 2 - MOST FREQUENT ATTRIBUTES IN CHARACTERS' VOCAL PSYCHODYNAMICS

Vocal psychodynamics	Heroes	Villains
Positive attributes	Expressive	Expressive
	Honest	Mature
	Youthful	Confident
	Brave	Pleasant
	Happy	Calm
	Charismatic	Brave
Negative attributes	Afflicted	Expressive
	Anxious	Mature
	Tense	Confident
	Annoying	Pleasant
	Infantilised	Calm
	Persuasive	Brave

TABLE 3- CHARACTERS' POSITIVE AND NEGATIVE ATTRIBUTES

Vocal psychodynamics	Heroes	Villains
	n(%)	n(%)
Positive attributes	6 (50)	4 (36)
Negative attributes	5 (42)	6 (55)
Indifferent	1 (8)	1 (9)
Total	12 (100)	11 (100)

Laryngeal resonance was found predominantly in the voices of villains, along with low pitch, whereas heroes presented a balanced resonance and adapted pitch.

No significant variations between heroes and villains have been found regarding loudness and vocal modulation. As for speech pace, most hero and villain voices were deemed adequate.

Only two hero characters showed speech distortions - those were described as distortions in alveolar fricatives and palatal liquids.

Vocal abuse was found in 50% (heroes) and 60% (villains) of the characters. Aspects most frequently pointed out by judges were: poor breath control for speaking, vocal tension, resonant unbalance, vocal fry at the end of sentences, as well as the existence of vocal attack.

In regards to the psychodynamic aspects of character voice, heroes and villains presented both positive and negative attributes.

Discussion

A prominent part of every child's universe, the topic of television programmes and cartoon characters has not yet received sufficient research attention in the field of Voice, Speech and Language Disorders; thus this study has elected the vocal construction of cartoon characters - heroes and villains - as its central focus. Although we recognise the limitations of the present survey - such as sample size, number of evaluators and subjectivity inherent to the methodology^{9,10,11} results have revealed a tendency to use caricatured vocal models for both heroes e villains, verifying the outcome of previous studies on the topic^{5,12} and the presence of vocal abuse in most of the characters.

Vocal parameters are related to the adjustments in the sound-producing source and in the vocal tract. They involve changes in the position of lips, tongue, jaw, pharynx and larynx, causing vocal variation and flexibility^{13, 14}, revealed in different forms to produce resonance, loudness, modulation, speed and articulation, and constitute the vocal identity of the speaker.

In this study, laryngeal resonance was predominantly found in villainous characters, while a balanced resonance was more frequently found in hero characters. The balanced use of resonance, without excessive concentration of energy in any specific region of the vocal tract, allows the projection of sound and better freedom to express emotions. The laryngeal resonance produces a squeezed emission, generally found in speakers with difficulty in working out aggressiveness.⁸

Pitch has a direct relation with speech intention. Emission in a higher tone, associated to a bigger modulation and accelerated speed, characterises a happier speech; sadness is characterised by the use of a lower pitch, associated to a slower speech pace.¹² A study that examined the voice of Disney characters, representing the Good/Evil dichotomy, concluded that Good was represented by a breathy vocal quality, higher pitch and reduced loudness, while characters representing Evil were described as having voices with a rough quality, lower pitch and elevated loudness.¹⁵ In our research, we also found that low pitch is more often found in villain characters, while heroes' voices are portrayed with a higher or adequate pitch.

There were no critical differences between heroes and villains detected when it came to aspects

such as loudness and modulation. Vocal modulation, however, appears excessive in nearly 50% of the characters analysed, both heroes and villains. Moments of higher emotional mobilisation can be accompanied by changes in loudness, interfering with modulation control¹⁶. The protocol used has not allowed evaluators to characterise the variation of modulation (top-down or bottom-up) depicted in characters' voices. It is suggested that such criterion is included in further studies, in order to investigate peculiarities that may change modulation in heroes and villains voices, as vocal modulation remains a determinant component in emotion recognition.¹⁷

Speech pace was considered adequate in most characters, both heroes and villains. However, the accelerated speed of two hero characters' speech was also described as an afflicted, anxious, stressed, tense voice, which could be related to the high pitch, to the excessive modulation and to the poor breath control for speaking, also mentioned in the analysis. A survey that searched a connection between anxiety and communication performance has verified those findings, pointing out the relation between anxiety state, pitch elevation, speech pace and breath control for speaking.¹⁸

The evaluation of vocal psychodynamics relates personality aspects and emotions associated to the voice, describing the effect produced by the speaker's vocal quality on the listener.⁸ In this study, the analysis of psychodynamic aspects of characters' voices has demonstrated that heroes present youthful, happy, charismatic, brave, afflicted, anxious, tense voices, while villains present voices that are mature, confident, calm, threatening, authoritarian and aggressive. This result suggests that, despite the presence of positive and negative attributes in both heroes and villains, they tend to show different psychodynamic characteristics. While heroes are afflicted, villains are threatening; while heroes are youthful and happy, villains are mature and confident.

The relation between vocal characteristics and psychodynamic aspects reflect the role of subjective emotional elements in the production of voice. In literature, negative aspects of vocal psychodynamics, such as discouragement and sadness, were associated with suicidal characters in Hollywood feature films.⁶ Another study points out that the Good/Evil dichotomy is depicted in cartoon characters by a fluid or a harsh vocal emission, respectively⁴.

An adequate articulation offers credibility to the speaker, exhibiting desire of being understood and clarity of thoughts. An imprecise articulation can exhibit lack of interest in being understood.⁸In this study, despite most of heroes and villains having presented a clear articulation, two hero characters have exhibited speech distortions in alveolar fricatives and palatal liquids, which, in the auditory-perceptual evaluation, demonstrates a lateral tongue position in the /s/ production and a tongue back position in the /r/ production, respectively.

Vocal abuse was detected in 50% of the characters, both good and evil. The most commonly aspects found were poor breath control for speaking, vocal tension, resonant unbalance, vocal fry at the end of sentences, increased loudness as well as the existence of vocal attack. A study comparing voice habits of risk amongst family members of dysphonic and non-dysphonic children shows that the habit of imitating the voices of characters, acquaintances or heroes was significantly more present in dysphonic children than in the control group¹⁹. Another study points to a prevalence of vocal behaviour of risk for dysphonia, like screaming, talking in excess, vocal competition and a difficulty in respecting speaking turns²⁰. Parents' perception of vocal behaviour in children also point to a high figure percentage of vocal abuse, including voice imitation, even without the presence of dysphonia²¹.

Cartoon characters tend to be role models for most children. Keeping in mind their precocious ability of recognising voices²², it could be argued that both vocal abuse and speech distortions could become accepted vocal models since early childhood. Taking into account children's interpretation of animated cartoons, movies and television series, it is important not to ignore the effects of cultural practices. It is in the discursive order of narratives, fables, tales, cartoons and other productions that culture signalises and legitimates to children the paths to be followed, the modes of being and acting²³.

Normatization triggers a form of subjetivation that will not always allow reflection and new forms of being. A study on the representation of doll's bodies observed that, after presenting a black Barbie doll dressed as a fairy to a group of small children, they interpreted it an evil doll, referring to the fact that such doll "could not be a fairy

because her skin is black"²⁴. This study concludes that young subjects are susceptible to models of race and body.

Similarly, through perceptual information and the ability of voice recognition, children construct their linguistic representations. A survey shows that children store vocal characteristics in the long-term memory, and that those characteristics are related to the recognition of the speaker's identity. It concludes that since the age of three, children are capable of recognising the voices of familiar cartoon characters²².

Television attracts viewers through the realness of its sound and vision as well as through the possibility of emotional identification, which allows one to, symbolically, experience "being in the world"²¹. Mythologies and old parables, passed on through oral history, are not as prevalent as they used to in the daily life of contemporary children. Oral transmission by parents and grandparents - enriched by their speaking traits, communication and vocal assets, as well as by the prospect of a dialogical setting (where one can interrupt, question and participate) - is less much common nowadays.

The inexistence of a narrator that could mediate all the subtleties regularly experienced through television, or of a more careful character building by the medium, reduces the diversity and the richness of communicative experiences in children. Villains that are always represented with scary and lower voices, or heroes that always sound young and cheerful, can limit children's perception about life's diversity.

Considering the findings of this study, which indicate the presence of vocal patterns in TV cartoon characters, we suggest that this subject deserves further investigation. Qualitative methodologies can help to understand social and linguistic representations of such vocal models for both children and adults in contemporary society.

Conclusion

Through this study, it was possible to identify perceptual differences between hero and villain voices. The parameters pointing to such differences are resonance and pitch. Moreover, this study observed the presence of vocal abuse and speech distortions in both hero and villain characters.

The psychodynamic aspects of voice show that both hero and villain characters show positive and negative attributes.

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Appendix1 - VOCAL EVALUATION PROTOCOL

1 RESSONANCE:

() balanced () hypernasal () hyponasal

2 PITCH :

() adapted () high () low

3 LOUDNESS

() adapted () strong () weak

4 VOICE MODULATION

() appropriate to speech () restricted () excessive

5 SPEED OF SPEECH:

() appropriate to speech () slow () accelerated

8 ARTICULATION

() appropriate () imprecise () exaggerated

() with speech distortions (describe phoneme): _____

9 VOCAL ABUSE

() no () yes (describe): _____

10 VOCAL PSYCHODYNAMICS:(mark with an X all the adjectives that, in your view, characterise this voice)

- | | | | |
|------------------|-----------------|-----------------|------------------|
| () Happy | () Brave | () Accelerated | () Afflicted |
| () Enthusiastic | () Youthful | () Rude | () Sad |
| () Angry | () Surprised | () Leadership | () Sweet |
| () Aggressive | () Tired | () Distrustful | () Weak |
| () Candid | () Discouraged | () Perseverant | () Infantilised |
| () Lovable | () Immature | () Hopeless | () Seductive |
| () Kind | () Calm | () Charismatic | () Anxious |
| () Confident | () Persuasive | () Expressive | () Mature |
| () Pleasant | () Tense | () Annoying | () Threatening |
| () Authoritaria | () Arrogant | | |

