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TED TALKS: A GENRE ANALYSIS

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TED Talks: a genre analysis

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ABSTRACT

This research aims at investigating TED Talks that belong to the category of science as a genre. The analysis focuses on the communicative purposes of the genre as well as the rhetorical structure, characterized by its moves and steps. The corpus comprises 10 talks selected on the website TED Talks. The criteria to select the talks were the talks that belong to the category of science, their length - 12 to 18 minutes, and the speakers´ reputation; the ones selected are professors and researchers of well-known universities worldwide. The data is discussed in the light of Bhatia´s (1996, 2004, 2012) and Swales´s (1981, 1990, 1998, 2004) theories of genre analysis. Results demonstrate that in terms of its communicative purpose, TED aims at celebrating ideas to a diverse audience worldwide, as various topics are comprehended. Regarding analysis of the rhetorical structure of TED Talks, the investigation focused on Swales´ analytical framework for moves and steps. Results reveal a constant pattern of moves and steps along the corpus, as all of them contained the five moves identified by the analysis. It was established five obligatory move types and their corresponding steps: *topic introduction, speaker presentation, topic development, concluding messages, and acknowledgments/gratitude.* The moves are also cyclical, that is, they appear more than once in the talks, but mainly following one specific order. This study also allowed us to generate a deeper view of (spoken) genres, their features, and the way individuals may benefit from them in their lives.

Keywords: TED Talks; genre analysis; communicative purpose; rhetorical structure.
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RESUMO

Esta pesquisa visa investigar TED Talks que pertencem a categoria da ciência como gênero. A análise centra-se nos propósitos comunicativos do gênero, bem como a estrutura retórica, caracterizada por seus movimentos e passos. O corpus compreende 10 *talks* selecionados no site TED Talks. Os critérios para selecionar os *talks* foram aqueles que pertencem à categoria da ciência, sua duração - 12 a 18 minutos e a reputação dos apresentadores; os selecionados são professores e pesquisadores de universidades conhecidas em todo o mundo. Os dados são discutidos à luz das teorias da análise de gênero de Bhatia (1996, 2004, 2012) e Swales (1981, 1990, 1998, 2004). Os resultados demonstram que, em termos de seu propósito comunicativo, TED visa celebrar ideias para uma audiência diversificada em todo o mundo, pelo fato de vários tópicos serem abrangidos. Em relação à análise da estrutura retórica dos TED Talks, a investigação centrou-se na estrutura analítica de Swales com seus movimentos e passos. Os resultados revelam um padrão constante de movimentos e passos ao longo do corpus, já que todos eles continham os cinco movimentos identificados pela análise. Foram estabelecidos cinco tipos de movimentos obrigatórios e as etapas correspondentes: introdução do tópico, apresentação dos apresentadores, desenvolvimento do tópico, mensagens de conclusão e agradecimentos. Os movimentos também são cíclicos, ou seja, eles aparecem mais de uma vez nos *talks*, mas normalmente seguindo uma ordem específica. Este estudo também nos permitiu gerar uma visão mais profunda dos gêneros (orais), suas características e a maneira como as pessoas podem se beneficiar com eles em suas vidas.

Palavras-chave: TED Talks; Análise de gênero; propósito comunicativo; estrutura retórica.

LIST OF ABBREVIATIONS

CARS	Create a Research Space
CMC	Computer-Mediated Communication
DNA	DeoxyriboNucleic Acid
EAP	English for Academic Purposes
EGP	English for General Purposes
EMP	English for Medical Purposes
EOP	English for Occupational Purposes
ESL	English as a Second Language
ESP	English for Specific Purposes
MIT	Massachusetts Institute of Technology
PISF	Probable in some fields, but unlikely in others
PPGI	Programa de Pós-Graduação em Inglês
RA	Research Article
RGS	Rhetorical Genre Studies
RQ	Research Question
SFL	Systemic-Functional Linguistics
TED	Technology, Entertainment and Design
UFSC	Universidade Federal de Santa Catarina
WWW	World Wide Web

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1. INTRODUCTION

Genre studies have attained significant status during the past decades. Even though in the past genres were mostly observed in the realm of literature, nowadays they go far beyond this field to encompass all forms of discourse, and try to examine various types of text produced in distinct situational contexts by different communities with different purposes (Meurer & Motta-Roth, 2002).

All texts produced by human beings, either oral or written, are materialized in a genre. In the law area, there is the trial and the petition; in the police field there is the police report and the infraction notice; in a domestic setting there is the recipe and the supermarket list; and in a school there is the test, the presentation and the written assignment, for instance (Moritz, Matielo & Dellagnelo, 2015).

As genres are seen in different areas of human activities, they circulate in different spheres. One of these spheres is the internet, along with this, rapid changes regarding technological innovation occur in human´s lives and genres play an important role when it comes to communication. With the advance of the internet, new ways of communications appeared, and, as a consequence, other channels for spreading information have been created as well as new genres are now evident, such as chats, forums, blogs, e-mails, among others.

Research on genre has been carried out by various scholars (Bazerman, 2010; Bonini, 2001; Marcuschi, 2004; Martin, 1984; Meurer, 2003; Moritz, 2006, and Swales, 1990) in the field of applied linguistics following different approaches in the last few decades. When it comes to internet genres, there are studies that have been carried out by various scholars from different fields (e.g. Antunes, Costa & Pino, 2006; Crowston & Williams, 2000; Dillon & Gushrowski, 2000; Emigh & Herring, 2005; Fortanet & Palmer, 1999; Furuta & Marshall, 1996; Gruber, 1997; Herring, Scheidt, Bonus & Wright, 2004; Killoran, 2003; Santini, 2007; Yates, Orlikowski & Okamura, 1999; Yates & Sumner, 1997) and will be detailed in the respective section.

Regarding spoken genres, it is relevant to mention academic lectures and conference presentations (e.g., Dubois, 1980; Flowerdew & Miller, 1996; Thompson, 1994; Rowley-Jolivet & Carter- Thomas, 2005), dissertation defenses (Rescki, 2005, 2006), and TED talks (e.g., Barbier, 2013; Chang & Huang, 2015; Campagnone, 2015; Ludewig, 2017; Scotto di Carlo. 2014a; Scotto di Carlo, 2015b; Sugimoto, 2013)

One of the new ways of spreading information throughout the internet is TED (Technology, Entertainment and Design), a nonprofit

organization devoted to spreading ideas, in the form of short talks. It began in 1984 as a conference where Technology, Entertainment and Design converged, and today it covers a great number of topics — from science to business to global issues — in more than 100 languages. TED talks are one among other projects presented on TED´s website: www.ted.com, and it is available to anyone who has access to the internet and interested in the multiple topics broadcast there.

Caliendo (2014b) states that TED talks overlap a number of genre types, such as: university lectures, newspaper articles, conference presentations and TV science programmes, mixing different semiotic modes, i.e. spoken, written, video and audio. Additionally, the author also points out that TED talks provide a clear example of the way in which web-mediated popularization discourse has generated new genres, which result from the influence of different discursive and professional practices and purposes (e.g. informational, promotional and providing entertainment).

It is within and through genres that humans both produce and challenge the social reality (Meurer, 2003), thus, it is licit that a genre like TED talks, with such broad scope, being broadcast all over the world, cannot be neglected. In this vein, this study aims to investigate the configuration of the genre TED talks. As such, the general research question to be addressed in this research is: How are TED talks that belong to the category of science configured as exemplars of the same genre? In order to do so, two specific questions will be investigated: (1) What is the communicative purpose of TED Talks that belong to the category of science? (2) Which rhetorical structure, in terms of moves and steps, characterize TED talks that belong to the category of science as exemplars of the same genre? The analysis will, therefore, focus on the communicative purpose of TED talks and on their rhetorical structure.

1.1 SIGNIFICANCE OF THE STUDY

As stated by Nascimento (2009), genres have a central role in our lives as they mediate, represent and materialize language practices and the analysis of genres attempts to describe and explain why members of a discourse community use language the way they do.

Devitt (2004, p.1) states the importance and significance that genre occupies in our lives, despite being many times an unconscious process while making use of them by an individual:

> Genre pervades human lives. As people go about their business, interacting with others and trying to get along in the world, they use genres to ease their way, to meet expectations, to save time. People recognize genres, though not usually the power of genres. People say, “I heard the best *joke* today,” “I have to give a *lecture* at nine thirty,” “I´ve gotten into *mysteries*,” and “Do you have a *travel brochure* for the Apostle Island?” Genres have the power to help or hurt human interaction, to ease communication or to deceive, to enable someone to speak or to discourage someone from saying something different. People learn how to do *small talk* to ease the social discomfort of large group gatherings and meeting new people, but advertisers learn how to disguise *sales letters* as *winning sweepstakes entries*. Outraged citizens can express themselves in *letters to the editor*, but first-year college students may struggle to dissociate their personal experience from their *research papers*. Genre has significance for people´s lives.

Based on the aforementioned, genres play a fundamental role regarding communication which occurs in individuals´ lives. In other words, different kinds of communication are mediated through a genre and although people might be many times unaware of this process due to the fact of being an automatic process, they may rapidly recognize a genre in various situations of their daily lives, as previously discussed.

As TED talks have become an important event for creating and sharing knowledge and individuals watch their talks worldwide because of its relevance with a great variety of topics, TED has expanded its audience over the years and became really popular with several activities both online and in site as it organizes face to face events. Also, understanding their nature may contribute to a richer understanding of the social and contextual functions of that genre

The choice to investigate this genre is also due to the fact it has deserved little attention from the scientific community and to the best of my knowledge, so far, there are only a few studies (e.g. Chang & Huang, 2015) in the configuration of this genre. In addition, by examining and explaining the configuration of the genre, the study will extend existing knowledge in the field and have the literature expanded.

1.2 ORGANIZATION OF THE STUDY

This study is divided into five sections: the first section introduces the research, and I briefly explain what this study is about, the reason for choosing this topic and the significance of the study. In the second section, I ground my research in the light of the literature of Genre Studies and studies on the Internet Genres. In the third section, there is a description of the method: the context of TED Talks, corpus, and procedures for data collection and analysis. In the fourth section, results and discussions are presented. In the fifth section, I present the final remarks. Having introduced the general view of the research, the second section moves to the review of the literature.

2. REVIEW OF THE LITERATURE

In this section, the theoretical framework that anchors the present study is presented. The review starts with a panorama of genre studies, focusing on different schools or orientations of genres as a means of demonstrating how the authors connect to one another, and then moves on to the genres that circulate on the internet, and the category of science popularization genres.

2.1 GENRE STUDIES

Genres are seen in different areas of human activities and, even though many times individuals make use of genres in an unconscious way, they make part of people´s daily lives whenever communication occurs. Taking that into account, it is relevant to situate them in history. Bathia (2004) reported that, the study of genres has been undertaken since Aristotle´s Rhetoric. However, the author adds that it became popular in the late 90´s and early 2000´s and it has emphasized discourse contextualization in social institutions such as commerce, government, and education. The focus of the present study, though, is not genres in the literature field, following Aristotle, but in the linguistic sphere, specifically in academic and professional settings.

As claimed by Bhatia (1996), genre theory extends from discourse analysis to linguistic description, often trying to answer the following question: *why do members of specific discourse communities use the language the way they do?* One of the problems of such popularity in a concept is that the more popular it becomes, the more variations in interpretations, orientations and frameworks may emerge. Sometimes, these variations become so significant and deep that a person may find it difficult to recognize it as a single construct, or a uniform entity.

A seminal article written by Hyon (1996) mentions different approaches to genre studies. According to the scholar, three main traditions have deserved attention: English for Specific Purposes (ESP), New Rhetoric (Reynolds, 1998) and a distinctive Australian approach that broadly draws on systemic functional linguistics. Although these traditions differ from one another among the theorists and practitioners, they still consist of similarities, such as the social, purposeful and functional orientation to text construction (Johns, 2002).

One of the first important schools of genre, which appeared in the USA, was motivated by teachers of writing in order to teach rhetoric and writing courses, and regarding the studies of rhetorical traditions, they

identify genres as typical responses to recurring rhetorical situations (Bhatia, 1996). Within the teaching of writing, it emerged the school Rhetorical Genre Studies (RGS), which has Miller and Bazerman as two of the most important theoreticians.

Miller (1984) claims that genres are typified rhetorical actions based on recurrent situations. In other words, a lecture or any other kind of genre, for instance, would be recognized by a determination of the typified rhetorical situation. She also takes the notion of recurrence of rhetorical situations, linking it to the typicality of responses and constructs her view of genre. In this view, she determines genres as a form of social action, in which acquire meaning from situation and from social context in which a situation arises.

According to Bazerman (2013) there is no limit of genres and an individual may recognize genres as they present typified configurations. He assumes that we form expectations and hypotheses about a document we receive because of the previous knowledge we have about the configuration of that document, for instance. In this way, if there are gross violations to the expected interactions, we may wonder what is going on.

According to Bitzer (1968, p. 13), humans do form expectations of genres and are able to identify them, mainly because of their recurring rhetorical situations:

> From day to day, year to year, comparable situations occur, prompting comparable responses; hence rhetorical forms are born, and a special vocabulary, grammar, and style are established... The situations recur and, because we experience situations and the rhetorical responses to them, a form of discourse is not only established but comes to have power of its own - the tradition itself tends to function as constraint upon any new response in the form.

Still regarding genres as typified rhetorical actions, Berkenkotter and Huckin (1995) outline five principles concerned with their dynamic rhetorical structure*:* (1) genres are dynamic forms that are regulated by humans and the context they are inserted in, in which meaning and coherence are perceived, (2) genre knowledge is derived from communicative activities of daily and professional lives, in this way, it is a form of "situated cognition", (3) since genre knowledge is concerned with form and content, it contains a sense of rhetorical appropriateness, in other words, certain actions of a genre will recur for certain purposes and in particular situations, (4) a social setting is relevant while investigating

a configuration of a genre and (5) genre conventions relate to a discourse community's norms, epistemology, ideology, and social ontology.

The other major orientation to genre theory, called the Australian School, has seen genre as a staged, goal oriented social process. It started in Australia and derives its inspiration from systemic-functional linguistics (SFL) and social semiotics, which has Hasan and Martin as two of the most important theorists. This view of genre analysis is focused on educational outcome, particularly in the teaching and learning of economically and culturally disadvantaged school-age people in Australia (Bhatia, 1996). As a staged, goal oriented social process, it means essentially that when looking at genres we are especially interested in the way they achieve their social purpose (Martin 1993).

The third orientation to genre theory, that will be the focus of this research, is the ESP, which has Swales and Bhatia as two of the most important authors. It has emerged in the U. K. within the broader framework of discourse analysis for applied linguistic purposes, especially the teaching of English for specific purposes, and it focuses on studying and teaching specialized varieties of English, most often to non-native speakers of English, in advanced academic and professional settings (Bhatia, 1996). In this approach, Swales (1990/2004) "creates a research space" (CARS) model of genre studies, which will be described along this section.

Since the main concern of this genre orientation has been with the application of genre analysis for teaching of English for specific purpose, more specifically for academic purposes, and these professionals work with non-native speakers of English, advanced learners, who are somehow linguistically disadvantaged for the fact they are still in the process of learning, as mentioned before, Bhatia (1993) points out the importance of trying to answer the following question while examining a genre in this tradition*: why do members of discourse communities use the language the way they do?*

Bawarshi and Reiff (2010) state that ESP has appeared in the 1960s and ESP researchers started to investigate genre as a research and pedagogical tool in the 1980s with Swales´ work in his book *Genre Analysis: English in Academic and Research Settings*, which has mainly brought genre analysis into ESP research and teaching. The authors also consider an umbrella term to other more specialized fields of study, such as English for Academic Purposes (EAP), English for Occupational Purposes (EOP), and English for Medical Purposes (EMP).

ESP helps advanced non-native English speaking students acquire "knowledge of relevant genres so they can act effectively in their target

contexts" (Bawarshi & Reiff, 2010). The authors also point out that examples of such genres are: research articles, literature reviews, conference abstracts, research presentations, grant proposals, job application letters, academic lectures, various medical texts, legislative documents. According to the authors, in this approach, the study of genres may help gain access to ways of communicating the target culture in particular professional, academic, and occupational communities.

Regarding the ESP approach, Bhatia (2006) raises some important practical issues of a genre, such as:

> 1. How do we identify genres? Recurrence of rhetorical situations; Consistency of Communicative purposes; Regularities of discourse structuring; Combination of these. 2. What is the role of Field, Mode and Tenor of discourse? 3. Will change in audience and participation make any difference? 4. How do we situate genre in institutionalized settings? Study of contextual configuration; Study of institutional context; Study of text corpus; Study of discursive practices and disciplinary cultures; Study of specialist discourse communities.5. How do we go about analyzing a genre? The role of communicative purpose(s); The role of moves and sub-moves; The role of strategies. 6. Any guiding principles? Communicative Purposes are discriminative; Moves and sub-moves identify patterns of variation; Strategies are non-discriminative.

Based on the aforementioned, ESP approach to genre analysis demonstrates that a genre involves a 'class of communicative events' in which language plays a fundamental role, not only in a sense of discourse, but also the environment and culture surrounding it, as claimed by Swales (1990). When it comes to Rhetorical Genre Studies (RGS), Tenuta and Oliveira (2011) point out that it is relevant to be aware of the importance of genres as social actions, which organize discursive practices and encourage people to participate in these practices. In other words, according to Bawarshi and Reiff (2010) whereas ESP is interested in understanding genre as communicative tools within social contexts, RGS is focused on sociological concepts.

SFL and ESP genre approaches compare to and differ from one another in different points. They both view social context and function related to linguistic features. And they both attempt to make their

disadvantaged students aware of the connections between language and social function that genres encompass. Additionally, both ESP and SFL genre scholars believe that they enable their disadvantaged learners to understand relevant genres with their teaching practices. However, they differ in their audience, while SFL genre deals mainly with economically and culturally disadvantaged school-age children in Australia, ESP genre´s audience is mostly advanced, international students in British and U.S. universities, but still linguistically disadvantaged for the fact they are within a learning process (Bawarshi & Reiff , 2010).

In ESP, an approach related to John Swales, Tony Dudley-Evans and Susan Hunston, a genre is seen as "a class of communicative events, the members of which share some set of communicative purposes" (Swales, 1990, p. 58). As can be noticed, communicative purpose is a key element in this definition, which remains important in many other approaches to genre analysis. Askehave & Swales (2001) claim that since the number of genres has increased, and genre theories have become more complex, the concept of communicative purpose has also become more complex, thus it is not so easily and evidently identified. Despite the difficulty to recognize the communicative purpose**,** which sometimes analysts face, the authors state it is seen as a privileged criterion, as it shapes the genre and provides it with a schematic structure – its rhetorical organization and it allows the analyst to maintain a narrow concept of genre, as mentioned previously, i.e., if two similar texts have different communicative purposes, they might be categorized under different genres.

Swales (2004) revisits this concept and points out that although he recognizes that the task of identifying the communicative purpose in many texts is not an easy one, the text type itself may be recognizable. He also states that it is "sensible to abandon social purpose as an immediate or quick method for sorting discourses into generic categories, while retaining it as a valuable long-term outcome of analysis" (Swales, 2004, p. 72). In this new publication, the author redefines the concept of genre by extending from a single concept, as in "definitions prevent us from seeing newly explored or newly emergent genres for what they really are" (p. 61). He also attempts to comprehend this broad definition by citing metaphors regarding perspectives on genre, as they follow: genre as frame, genre as standard, genre as biological species, genres as families, genres as institutions, and genres as speech acts.

Since a communicative purpose, thus, is not so easily and quickly identifiable, according to Askehave and Swales (2001), theorists and practitioners also might not decide, by only using the communicative

purpose itself, which of texts, A, B, C, and/or D belong to genre X and which to genre Y because those theorists and practitioners are unlikely to know at the outset what the communicative purposes of texts A, B, C, and D actually are. Rather, the authors claim what is firstly recognized to genre theorists and practitioners is not purpose but form and content. For instance, the communicative purpose of the genre shopping list seems easy to recognize – remember what people should buy at a supermarket, however its communicative purpose could also be primarily to impose disciplines on themselves ('if not on the list, don´t buy it'). A shopping list could also be another genre, such as a poem. In this way, a communicative purpose requires careful investigation (Askehave & Swales, 2001).

A genre prototype is determined mainly by its communicative purpose, and Swales´s groundbreaking investigation, which analyzes the communicative purposes of a discourse community, has played a primordial role in English for Academic Purposes (EAP) and English for Specific Purposes (ESP) pedagogical approaches (Swales, 2004).

Another concept that is important in the definition of genre stated by Swales is the discourse community. Swales (1990) defines characteristics of discourse community for a genre. First, a discourse community has a set of common public goals which is either understood or stated clearly. Second, there must be intercommunication among its members in order to achieve, and organize the goals, such as diverse meetings. Third, those who compose a discourse community ought to rely on others who use these mechanisms to participate in the life of the discourse community. Fourth, new genres, which must be identified and determined by members of a discourse community, are perceived in the latter in order to achieve the communicative progress. Five, since a discourse community has new genres, it aims at acquiring specific lexis as well as specialized terminology, such as abbreviations and acronyms. Finally, a discourse community is made up of experts in the target content, in which new knowledge of shared goals and communicative purpose will be incorporated to new members. The author still complement that genres will help members of a discourse community to realize their goals as well as genres make new members to enter and participate of a discourse community's shared goals.

Whereas Swales has described a discourse community as groups that have goals or purposes, other writers (e.g. Johns 1997; Porter 1986), however, have suggested that a discourse community may have common interests, but not necessarily common goals, such as a family or the alumni body of a university, for instance. However many questions have not been

well defined regarding discourse communities, as their size (large or small), and their stability as well as the genre´s stability. Other authors (e.g. Canagarajah 2002), however, suggest that those inflexible rules must be deconstructed to encourage novices to appropriate in the discourse community, and innovative it as well (Borg, 2003).

In 1998 Swales revisited the concept of discourse community as to accommodate the analysis of spoken communication, in other words, while in 1990 Swale´s concept was concerned only with written communication, in 1998, the author joined written communication with spoken communication (Borg, 2003).

When it comes to oral genres, Evans (2013) and Kim (2006) point out that the most common spoken genres seen in oral presentations for English-language learners belong to academic and workplace settings; therefore, their performances in relation to academic and professional success must be taken into consideration in order to understand the communicative purpose of spoken genres.

On the other hand, Chang and Huang (2015) state that in countries where English is not spoken by a large group of people nor it is a primary language in schools, oral presentation skills are often taught in universities through an English for general purposes (EGP) approach rather than a narrowly focused English for academic/specific purposes (EAP/ESP) approach. The authors add by saying that oral presentation activities in these EGP courses do not have clear specific audiences, purposes, and communicative contexts. In this way, they aim at improving undergraduate students´ overall skills in spoken language in its whole process of acquiring/learning English. However, there is not much literature available regarding instructions for oral presentations, methods or the development of instructional material. (De Grez, Valcke, & Roozen, 2009; Evans, 2013; Hardwood, 2005).

According to Carter-Thomas and Rowley-Jolivet (2003), a methodological problem may be encountered in spoken genres. Even though the analysis of written academic genres, such as Research Articles (RAs), for instance, in which sections are clearly identified – introduction, review of literature, method, discussion, etc, the outset and cut-off points of spoken genres seem to be less easily and clearly identifiable. This way, whereas they are clearly materialized in the RA, it might not be so evident in a spoken monologue. Furthermore, spoken genres, according to the authors, are more flexible than written genres, since the real-time and impromptu decisions of the speaker are evident, mainly in presentations, and also the rules are far less codified.

Regarding the flexibility of (spoken) genres, Swales (1990) states that genres are not created overnight, they still can be manipulated according to conditions of use; in this way, genre analysis is dynamic and not static. However, such liberties, innovations, creativities, whatever one may call them, are often a very subtle process.

Swales (1990, 2004)´s method of analyzing a genre also includes the analysis of its rhetorical structure, characterized by the moves and steps. A move is "a section of a text that has its own purpose", which "contributes to the overall communicative purposes of the genre", and within the moves there are their steps (Connor, Upton, & Kanoksilapatham, 2007, p. 23). Thus, the construction of an established written or spoken text is organized by a series of moves and steps (Henry & Roseberry, 1998; Tardy, 2011).

Swales (1990, 2004)´s influential analysis of the research article introduction explains this rhetorical structure. While analyzing the research article (RA) introductions, Swales first identifies the typical "moves" authors make within the introduction. According to the author, the introduction is characterized by 3 moves: I) "establishing a territory" (move 1); II) "establishing a niche" (move 2); III) "occupying the niche" (move 3). Each of these moves is realized by different steps, which are identified by Swales. From there, Swales examines steps more specifically by analyzing text-patterning and lexico-grammatical features within different steps (Bawarshi & Reiff, 2010).

In his last version of the "create a research space" (CARS) model of genre studies, Swales proposes (Swales, 2004, pp. 230-232):

Figure 1 - Swales´ CARS model (2004)

MOVE 1	ESTABLISHING A TERRITORY (citations required)
	via
	Topic generalizations of increasing specificity
MOVE 2	ESTABLISHING A NICHE (citations possible)
	via
	Step 1A Indicating a gap
	or
	Step 1B Adding to what is known
	Step 2 (optional) Presenting possible justification
MOVE 3	PRESENTING THE PRESENT WORK (citations possible)
	via
	Step 1 (obligatory) Announcing present research descriptively and/or purposively
	Step 2* (optional) Presenting Research Questions (RQ) or hypotheses
	Step 3 (optional) Definitional clarifications

Step 4 (optional) Summarizing methods
Step 5 (PISF**) Announcing principal outcomes
Step 6 (PISF) Stating the value of the present research
Step 7 (PISF) Outlining the structure of the paper

* Steps 2-4 are not only optional but less fixed in the order of occurrence than the others

** PISF: Probable in some fields, but unlikely in others

In the first move proposed by Swales, establishing a territory, citations are required, the importance of the research (optional) must be established and previous research (obligatory) must be introduced and reviewed. In the second move, establishing a niche, where citations are possible, it must be indicated a gap from previous research and added new ideas/knowledge. And in the third move, presenting the present work, the niche will be occupied when the nature of the research (obligatory) is established, research questions and hypotheses (optional) are listed, the method (optional) is summarized, the principal outcomes are announced, the value of the research is stated, and the structure of the paper is outlined. It is also important to bear in mind that although the moves and steps proposed by Swales in research articles increase specificity (from move 1 to move 3), they may be cyclical and vary according to different fields of research.

Many ESP/EAP scholars, including Swales himself, adopted Swales´ model of rhetorical structure to analyze spoken genres. Following the Swalean tradition, Thompson (1994) analyzed 18 lecture introductions across disciplines and identified two main moves in the introduction of academic lectures: *setting up the lecture framework* (consisting of four or five possible steps) and *putting the topic into context* (consisting of three possible steps). According to his results, it is possible to perceive a variation in the sequencing of moves and steps.

Other two move analyses of oral genres were carried out. Firstly in Rowley-Jolivet and Carter-Thomas's (2005) found introductions to conference presentations to be made up of three main moves: *setting up the framework, contextualizing the topic*, and *stating the research rationale*. In Chang and Huang (2015), it was found the TED Talks move model to consist of seven moves: *listener orientation, topic introduction, speaker presentation, topic development, closure, concluding messages, acknowledgments/gratitude.* The models emphasize the flexibility of a non-linear ordering and non-obligatory occurrence of moves that is typically found in spoken genres (Chang & Huang, 2015).

Figure 2 - Chang and Huang´s TED talks model (2015)

Move	Step
Listener orientation	Greet audience
	Engage in meta-level discussion
Topic introduction	Set the scene
	Announce topic
	Outline Structure
Speaker presentation	Introduce oneself
	Establish authority
	Show stance/position
Topic development	Present an argument
	Offer an explanation
	Describe a process/series of events Closure
Concluding messages	Call for action
	Make generalization/offer speculation
	Acknowledge/appreciate

* Moves 1 and 3 are non-obligatory moves

As stated above, despite the different tradition to genre analyses, their theories cover a lot of common ground, such as recurrence of rhetorical situations, regularities of structural forms and shared communicative purposes. Therefore, on one hand the orientations differ in some points, on the other, they are not mutually exclusive, but inclusive. In other words, they are interconnected and this communication ends up enriching genre literature (Bhatia, 1996).

Regarding the common ground that different schools of genre have in common, Bhatia (1996) also complements by stating their variation according to the use of language and the specific set of communicative goals that a genre category and social setting are inserted in. This way, he specifies the three interrelated aspects of conventions aforementioned that are discussed in genre literature: (1) Recurrence of rhetorical situations, (2) Regularities of structural forms and (3) Shared communicative purposes. The first one is related to sociocultural contexts and may be too general for specific contexts. The second, on the other hand, is too specific and problematic for general contexts, such as the first one. And the third will balance the previous ones, since it connects them, in a sense that its communicative purposes are concerned with specific rhetorical contexts and determine specific choices in structural and lexico-grammatical forms. He also reasons that these aspects of conventions discussed in the genre literature pointed out above possibly recognize the significant role that the communicative purpose plays in the identification and interpretation of a genre.

In this subsection, genre theory and some of the genre approaches, as rhetorical genre studies (RGS), systemic-functional linguistics (SFL), and English for specific purposes (ESP) were discussed. Also, differences among these schools of genres were presented, as well as similarities and how those genre approaches are interconnected to one another, which end up enriching genre studies.

As a researcher, my definition of genre is based mainly in the authors who compose the ESP approach, since the focus of this research prevails on investigating the rhetorical organization, as well as the communicative purpose of TED Talks. As previously discussed, it is important to bear in mind, however, that the schools of genre approached in this study comprise of connections and similarities, which include features from one orientation into another.

Genres develop over the years and due to the advance of the internet, new genres have appeared, as well as old genres have been adapted and framed online according to their specific needs. Taking that into consideration, and as TED talks circulate on the internet sphere, in the following subsection, internet genres and their development over time will be discussed.

2.2 STUDIES ON INTERNET GENRES

The growth of the World Wide Web (www or web) has been significantly observed over the last decades and from 2000 to 2017 worldwide, the number of internet users has increased by 933,8 percent, having 3,732 million users, that is 49.6% of the world population on March 31, 2017 (Internet World Stats 2017).

According to Bhatia (1996), genres experience a propensity for innovation and in the competitive world we live in, with rapid changes, genres have become vehicles for a more complex and dynamic interchange of communication. In this way, the explosion of information technology and genres on the internet are seen more and more frequently in the contemporary world.

According to Crowston (2010), the internet offers a positive setting for the development of genres. Its openness to public, easiness to access information and study contribute to the creation of new genres of communication. However, the author also raises an important issue concerning genre recognition that should be taken into consideration and requires careful attention, which is the fact that genres that circulate in this sphere are still being improved; in this way, there is a number of genres

that may not be considered trustworthy and reliable, as they might be under modification of features.

Internet genre studies have been carried out by various scholars from different fields: a genre analysis of weblogs (e.g. Herring, Scheidt, Bonus & Wright, 2004); the use of genre analysis in the design of electronic meeting systems (Antunes, Costa & Pino, 2006); a structurational approach to studying communications and media (Yates, Orlikowski & Okamura, 1999); genre of web pages through the users´ perspective (Santini, 2007); digital genres and the new burden of fixity (Yates & Sumner, 1997); reproduced and emergent genres of communication on the World Wide Web (Crowston & Williams, 2000); genre as reflection of technology in the World Wide Web (Furuta & Marshall, 1996); genres and the web (Dillon & Gushrowski, 2000); e-mail discussion lists (Gruber, 1997); genres of self-presentation on personal home pages (Killoran, 2003); the emergence of a new genre: advertising on the internet (netvertising) (Fortanet & Palmer, 1999); and a genre analysis of online encyclopedias (Emigh & Herring, 2005).

There should be proper attention regarding specific genres on these categories. In other words, the discussion in the field of Computer-Mediated Communication (CMC) is relevant to comprehend the field of genres that comprise and circulate on the internet. Although this area is somehow new when compared to the life of human language, CMC seems to be a perfect field for testing, comparing and revising concepts of genre, that is, an ideal way to initiate cross-disciplinary discussion of genre and whether the new genres on the internet are just discovered or they are old genres which have been brought to the internet as well (Giltrow & Stein, 2009).

Blake (2013) states that CMC has some subdivisions such as First-Generation CMC tools that include e-mail, electronic mailing lists, and discussion forums, also known as thread bulletin boards. Second-Generation CMC tools comprise asynchronous internet tools, such as Blogs and Wikis. And more recently it has been Synchronous CMC with voice and video tools that encompass chats and instant messaging, for instance.

Another fact that should be taken into account when analyzing communication on the internet is visual language. Lester (2006) states that our society has become visually mediated; in other words, the presence of images, rather than only words, is an important fact regarding innovations technologies. Although visual communication varies among genres, this feature plays an important role when it comes to online genres.

One of this dynamic new vehicles of communication and information that was created with the advent of internet is TED talks, which is one among other projects presented on TED´s website: www.ted.com, in the form of short talks (18 minutes or less), which are available to anyone who has access to the internet and interested in the multiple topics broadcasted there.

Since TED talks are available to anyone who has access to the internet, they became popular over the years. According to Chawla (2015), TED's genre consists of characteristics from science popularizations and, therefore, plays a role in popularizing research. Taking that into account, it is also relevant the discussion of science popularization genres, as well as the way TED Talks belong to this category, which is the focus of the following subsection.

2.3 SCIENCE POPULARIZATION GENRES

Calsamiglia and Van Dijck (2004) state that science popularization comprehends a range of diverse communicative events or genres, which recontextualize scientific discourse by transforming specialized knowledge into 'everyday' or 'lay' knowledge. A medium used for this recontextualization is the journalistic sphere, where a journalist aims to make use of scientific popularization to transmit knowledge appropriately to lay audiences from the original findings published in research papers, for instance. The authors exemplify such strategy by stating:

> popularization discourse needs to be formulated in such a way that non-specialized readers are able to construct lay versions of specialized knowledge and integrate these with their existing knowledge. Thus, various strategies of explanation, such as definitions, examples, or metaphors, among many others, are the semantic means that allow language users to relate new knowledge to old knowledge. (2004, p. 370)

According to Mueller (2002), science popularization plays an important role in the scientific findings that are presented to lay audiences, due to the fact that these people may not be prepared to understand the original texts published by the researchers. The author states, therefore, that these audiences depend on recontextualization, mediators and entities that make use of various communication channels and languages to transmit scientific knowledge to the various segments of society.

When it comes to the contemporary model of science popularization, Beacco, Claudel, Doury, Petit, and Rebould-Touré (2002) state that different "voices" are added into the text, such as comments, critics, opinions, as well as different social segments, as witnesses, politicians, and the public, on the information transmitted. The authors complement, hence, that other genres are also incorporated in science popularization texts.

According to Scotto di Carlo (2014a), science popularizations have narrowed down on a three-point triangular communication space, which the author calls a "meeting point" among scientists, the public and mediators, who are usually journalists, as previously mentioned. These mediators, however, may have an important role in transmitting knowledge appropriately, but they also may distort information while adapting the language to lay audience (Hilgartner, 1990). Since many times the mediators themselves are not specialists in that field, they may not only misunderstand the original finding, but also transmit the knowledge in a partial form, as a way to summarize the research or without even noticing that.

When it comes to the transmission of scientific knowledge to a lay audience, Sugimoto and Thelwall (2013: 663) raises another important issue by pointing out and questioning the reliability that a non-specialized audience attributes to science popularization genres that circulate on the Internet. In other words, there is a number of information posted online by those mediators who claim to be based in scientific findings, which is sometimes fully distorted, instead. Regarding different sources of information, the authors also remind us of those ones from the past, such as traditional media (magazines, newspaper, radio and television), which were the only source that this lay audience used to rely on. Nowadays, due to an increasing number of sources, which are easily disseminated, the reliability of new media is more frequently called into question.

The genre to be investigated in this study, TED talks that focus on scientific research, attempts to transmit scientific knowledge to a lay audience; therefore, they are a new way of popularization, and very often the scientists who present the talks are the mediators themselves (Scotto di Carlo, 2014a). The authors state that these scientists have a new way to present scientific knowledge to reach the lay audience, rather than merely mediating scientific discourse into everyday language, which might somehow put some distance between the scientific community and the audience. In other words, while many science popularization genres are mediated through a journalist, who may create the aforementioned distance between the scientific community and the audience, TED talks´

mediators are usually the scientists themselves, who have carried out the research. Thus, they provide all the knowledge about their studies and this may bring the audience closer to their studies while presenting the talks, since they are the autors of the studies and, thus, the most reliable source.

Bearing that in mind, Theunissen and Chan (2014) states that since TED talks belong to the science popularization field, TED speakers, thus, adapt their speech in order to make it understandable to a wider variety of non-specialized public, which has little or no background in the topic broadcast. As the scientists are mainly the mediators themselves, the previous concerns regarding the distortion of information, or understating contradictory information, do not seem to be perceived in this genre.

Although TED Talks belong to the science popularization sphere of genres, Caliendo and Bongo (2012) state that they may be characterized as a new hybrid genre, as they comprise features of scientific research papers and popularized texts. According to the authors, TED Talks differ from other forms of popularizations, in the sense that there is a video followed by transcriptions, translations, a blog, and a comment. These features embody TED Talks as a phenomenon of genre and modality mixture (Scotto di Carlo, 2015b, p.202).

This section presented the theoretical background that anchors the present work, presenting different approaches to genre studies, studies on internet genres, and the concept of science popularization genres as those concepts involve the investigation of TED talks proposed here.

In the following section, the method of the study will be detailed with its context, corpus and procedures for data collection and analysis, procedures for analyzing the communicative purpose, as well as the procedures for analyzing the rhetorical organization of TED Talks.

3. METHOD

The aim of this research is to investigate TED Talks as genre, its communicative purpose, and the genre's organization - its rhetorical structure - often characterized by the rhetorical moves and steps it undertakes. The method used to reach this aim, the context, the corpus and the procedures for data collection, procedures for data analysis, i.e. analyzing the communicative purpose, and procedures for analyzing TED talks´ rhetorical organization are exposed in the next subsections.

3.1 CONTEXT: TED TALKS

The information regarding TED Talks´ context is found on its website: www.ted.com, and it is presented in details in the following paragraphs of this subsection.

TED (Technology, Entertainment and Design) started in 1984 as a conference with specialists of three fields: Technology, Entertainment and Design, but nowadays, it covers a variety of different topics and has its motto presented as: Ideas worth Spreading. TED has expanded its audience over the years and became really popular with several activities both online and in site as it organizes face to face events such as: TED conferences, TED Talks, projects developed by the TED Prize, the global TEDx community, and TED-Ed lesson series.

TED conference is a big and broad event, which takes place weekly all over the world and brings important ideas from different disciplines, exploring the connections among these disciplines. As they take in the program, attendees and speakers can interact to one another by exchanging experiences from different and various fields of knowledge.

More than a thousand people attend this five-day conference about Technology, Entertainment and Design -- as well as science, business, the arts and the global issues facing our world. Over 70 speakers appear on the main stage to give 18-minute talks and shorter presentations, including music, performance and comedy. One of the requirements to participate in a conference as part of the audience is to apply for membership. Due to limited seating and high demand, conferences sell out very quickly.

As stated previously, a conference is a longer event with several activities, although the main purpose of the attendees is to watch TED talks that are broadcast live. Despite the conference being paid, people have free online access to them as they are displayed at the website.

These online TED talks can be accessed by using an alphabetical order search, by the duration, the name of the speaker and also certain

features such as: newest, oldest, most viewed, jaw-dropping, funny, persuasive, courageous, ingenuous, fascinating, inspiring, beautiful and informative. The audios are mostly in English with speakers from different parts of the world – native and non-native - but it offers subtitles in more than 100 languages. It also includes a written summary and a full biography of the speaker.

3.2 CORPUS AND PROCEDURES FOR DATA COLLECTION

The researcher selected 10 talks presented by academic speakers to be the corpus of the present research. The criteria to select the talks were, firstly, its main field, i.e., talks that belong to the category of science. As mentioned previously, TED talks are categorized according to the field they belong to. I randomly chose the field of science to select my corpus from. Secondly, as TED talks vary in their length, and you can choose at the platform the talks according to their duration, I selected the ones which have from 12 to 18 minutes. Finally, the speakers´ reputation; was the last criterion for corpus selection, each speaker´s curriculum vitae was investigated, and the ones selected are professors and researchers of well-known universities worldwide.

The talks selected following the criteria mentioned above were then collected on the website: www.ted.com, on April, 2017, and they are listed as follow:

1. A new way to study the brain´s invisible secret
2. We can start winning the war against cancer
3. Your words may predict your future mental health
4. What makes a good life? Lessons from the longest study on happiness
5. What veterinarians know that physicians don´t?
6. How to make hard choices?
7. What we can do to die well
8. How to make stress your friend
9. Txtng is killing language. JK!!!
10. Meet your microbes

Additionally, an e-mail was sent to TED organizers on August, 2017, asking if the speakers would receive a training course or any kind of preparation, due to the fact that the corpus investigated follows a similar organization in their rhetorical structure and the talks present similar moves and steps. The researcher also perceived that a few of the speakers

greet the audience. Therefore, the e-mail was sent to check whether or not there was any kind of preparation regarding those issues.

3.3 PROCEDURES FOR DATA ANALYSIS

The study was carried out following a qualitative research method and will be discussed in the light of Swales´s and Bhatia´s theories about Genre Analysis. Since the aforementioned theoreticians seem to be the two most important in the ESP genre orientation, the investigation of this research followed some of the main steps for ESP genre analysis, which started by identifying the communicative purpose of the selected talks, and then it moved to an analysis of the genre's rhetorical moves and steps.

As already stated, my general research question is: How are TED talks that belong to the category of science configured as exemplars of the same genre? Two specific questions were investigated: (1) What is the communicative purpose of TED Talks that belong to the category of science? (2) Which rhetorical structure, in terms of moves and steps, characterize TED talks that belong to the category of science as exemplars of the same genre?

3.3.1 Procedures for analyzing the communicative purpose

In order to investigate the communicative purpose of a genre, some issues are taken into consideration, which Swales (1990:58) points out:

> A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constrains choice of content and style. Communicative purpose is both a privileged criterion and one that operates to keep the scope of a genre as here conceived narrowly focused on comparable rhetorical action....The genre names inherited and produced by discourse communities and imported by others constitute valuable ethnographic communication, but typically need further validation (Swales 1990: 58)

Being the communicative purpose a complex concept, and not so easily and quickly identified, the existence of a clear communicative purpose in the talks selected was verified and identified. This investigation was based on the concept that a communicative purpose comprises an event that involves oral and social interaction materialized as a discourse where participants engage interactively and have a meaningful mutual goal (Swales, 1990). Also, in order to identify the communicative purpose, the author suggested his move-step approach. He states that the moves are bigger than the steps and they carry the intention of the communication. The steps, on the other hand, are smaller than the moves.

The communicative purpose in the current study, though, was investigated in the genre as a whole, and the analysis of the communicative purpose carried out by the researcher was based on his evidences of TED talks´ mutual goals while watching the talks and from the information contained in the website, as well as the e-mail exchanged with TED organizers.

3.3.2 Procedures for analyzing TED Talks´ rhetorical organization

In order to answer the second research question, the rhetorical structure, characterized by the rhetorical moves and steps it undertakes, was investigated. The configurations of previous studies were taken into account, such as the procedures used to analyze the moves and steps of different genres (Swales, 1990/2004, Thompson, 1994, Rowley-Jolivet & Carter-Thomas, 2005 and Chang & Huang, 2015).

The moves and steps characterized by Swales research article introductions are one of the studies the researcher of the present study has considered. As previously stated, while analyzing the Research Article Introduction, Swales creates a research space (CARS) and identifies the following moves: “establishing a territory” (move 1) to “establishing a niche” (move 2) to “occupying the niche” (move 3). Within these movies, the author identifies some obligatory and optional steps detailed in figure 1. And finally, he investigates steps more specifically by analyzing text-patterning and lexico-grammatical features within different steps (Bawarshi & Reiff, 2010).

Another study the researcher of the present study has taken into consideration was Thompson´s (1994), which analyzed 18 lecture introductions across disciplines and identified two main moves: *setting up the lecture framework* (consisting of four or five possible steps) and *putting the topic into context* (consisting of three possible steps). It is possible to perceive a variation in the sequencing of moves and steps.

Other two move analyses of oral genres were carried out. First by Rowley-Jolivet and Carter-Thomas's (2005), who found introductions to conference presentations to be made up of a move model that consists of three main moves: *setting up the framework, contextualizing the topic*, and *stating the research rationale*, and also by Chang and Huang (2015), the most used in the present research, as the author investigated the rhetorical structure of TED talks. According to the authors, TED Talks move model comprise seven moves: *listener orientation, topic introduction, speaker presentation, topic development, closure, concluding messages, acknowledgments/gratitude.* As previously stated, when it comes to spoken genres, they present a more flexible array of moves and steps, and therefore, the moves found in the authors´ study are cyclical, that is they appeared more than once in the talks, as well as the presence of non-obligatory occurrence of moves were also found. The authors state that the moves considered obligatory were: *topic introduction, topic development, closure, concluding messages, and acknowledgments/gratitude*, while the others were considered non-obligatory: *listener orientation, and speaker presentation.* According to Kanoksilapatham (2007), moves which occur in 60% of the corpus are considered obligatory.

As mentioned previously, since Chang and Huang´s analysis was carried out specifically for TED talks, it was used as a starting point to analyze the corpus. Also the other three models described above were taken into consideration along the investigation of the rhetorical structure of TED Talks in this study.

The investigation began by watching, and piloting on two TED talks chosen randomly, reading their corresponding transcripts and applying the move configuration established by Chang and Huang (2015). Through comparison, a carefully investigation was carried out on discrepancies in the assignment of moves and steps as well as inclusion and exclusion of move types when necessary, and the researcher also analyzed in what ways, cyclical, or obligatory the moves in steps were perceived, for instance.

In order to better identify moves and steps, the use of linguistic signals along the data was identified **i) explicit lexemes** (Nwogu, 1990): words that signal the content and function of each move and also demonstrate stages of development of the text; **ii) validity markers** (Vande Kopple, 1985): linguistic devices, such as *perhaps*, *probably*, *may*, *can*, that flag the writers/speakers´ judgment of the content presented; and **iii) summary statements** (Nwogu, 1990): concluding phrases that indicate the beginning of a concluding move, for instance: to

sum up, summarizing. Nevertheless, according to Dudley-Evans (1994) lexical clues are sometimes not so evident.

The researcher, therefore, took into account four studies previously detailed, being one of them specifically on TED talks and also some signals based in Jolivet and Carter-Thomas´s (2005) study. In their study, some sets of textual clues were used to determine the cut-off points. The researchers used textual clues in order to analyze the transcript, such as content itself, frame markers (*Well, So, OK*…), and tense-shifts and structures such as pseudo-clefts (*So what we decided to do was…*). In the following section, the results and discussions for the present study will be presented.

4. RESULTS AND DISCUSSIONS

As previously stated, this study aims to investigate TED Talks as a genre. In order to do so, the researcher analyzed its communicative purpose, and the genre's organization - its schematic structure - often characterized by the rhetorical moves and steps it undertakes.

The general research question addressed in this research is: How are TED talks that belong to the category of science configured as exemplars of the same genre? Two specific questions were investigated: (1) What is the communicative purpose of the TED Talks that belong to the category of science? (2) Which rhetorical structure, in terms of moves and steps, characterize TED talks that belong to the category of science as exemplars of the same genre? The results presented in this chapter are divided into two subsections, the first one dealing with the overall findings of the communicative purpose taken from the website and evidence the researcher gathered in his analysis of the respective literature. The second subsection comprehends the outcome of the rhetorical organization characterized by the moves and steps of the talks analyzed.

4.1 COMMUNICATIVE PURPOSE

As previously discussed, the communicative purpose, which frequently serves as a starting point for ESP genre analysis, provides the rationale for a genre, and configures its internal structure. A class of communicative events is typified by a genre that has been created in response to some shared set of communicative purposes; furthermore, Swales states that a genre prototype is determined mainly by its communicative purpose (Bawarshi & Reiff, 2010).

A communicative purpose requires careful investigation, in the sense that a genre may have more than one communicative purpose. Although many times it seems easy to recognize the communicative purpose of a genre, as previously exemplified with the genre shopping list, which individuals may primarily think that the communicative purpose would be to remember what they should buy at the supermarket, sometimes there might be the less obvious purpose, as controlling people from buying more than necessary, for instance (Askehave & Swales, 2001).

Two analyzes were taken into consideration. Firstly, the information displayed on the website was examined in order to check whether the communicative purpose could be grasped though that text. Second, the researcher´s evidences, which were based on the literature

previously discussed, were taken into account, as well as his careful investigation by watching the talks. Thus, the following paragraphs describe the communicative purpose of TED Talks.

According to TED´s website, TED is a global community, which invites individuals from different fields and cultures to have a deeper understanding of global issues. TED´s organizers believe that speakers will tease the audience in the sense of giving the chance for individuals of different ways of thinking and deconstructing preconceived ideas. They also state that all the events they provide — Conferences, TED Talks, projects developed by the TED Prize, TEDx community, and TED-Ed lesson series aim at spreading ideas worldwide.

As previously discussed, the most common oral genres are seen in oral presentation in academic and professional settings, however when it comes to genres that comprise a broader category, not specific to academic and workplace settings, Chang and Huang (2015) mention a term named English for General Purposes (EGP) and state that genres of this field do not have clear specific audiences, purposes, and communicative contexts. In this way, genres of this category may consist of unique features which vary from each other. And since TED talks belong to a different class of genre, science popularization, it is possible to assert they do not comprehend academic or workplace settings. Still, spoken genres somehow lack literature regarding established patterns of the communicative purpose (De Grez, Valcke, & Roozen, 2009; Evans, 2013; Hardwood, 2005).

Since the talks are presented by specialist researchers of the target field, they attempt to make the audience reflect on the talks. Due to the number of topics provided in the list, which range from science to business to global issues, in more than 100 languages, the viewers are able to explore the fields they are not familiar with, as well as deepen their knowledge in certain areas by watching talks in subjects they are somehow already knowledgeable. As previously mentioned TED´s communicative purpose is to celebrate ideas to a diverse audience worldwide, since various topics are comprehended. Bhatia (2012) also raises some “private intentions” TED speakers may use, such as building up their image as experts and promoting their research, rather than merely informing mass audience or training novices in their disciplines. TED´s motto: “Ideas worth spreading”, therefore, attempts to summarize the discussion in the investigation of the communicative purpose.

4.2 RHETORICAL ORGANIZATION

According to Jolivet and Carter-Thomas (2003), move analysis was primarily exclusive used to investigate written discourse rather than an oral monologue. The authors, who analyzed introduction of conferences, still point out the difficulty in investigating the outset of a spoken genre. However, over the years, the approach has been also used to investigate oral monologues.

In Jolivet and Carter-Thomas´s (2005) study, two sets of clues were used to determine the cut-off points: textual and visual clues. The textual clues were analyzed in the transcript, such as content itself, frame markers (*Well, So, OK*…), tense-shifts and structures such as pseudo-clefts (*So what we decided to do was…*).

As speakers do not usually use metadiscourse markers to signal the transition from a section to another, identifying where an introduction finishes, for instance, is less evident (Thompson 2003). Therefore, spoken genres seem to be more complex to investigate due to the lack of a clear ending of a section and the beginning of a new one, for instance. In this vein, Yaakon (2013) claimed that while analyzing university lecture introductions, an intuitive choice was made regarding the function a speaker tries to convey, and confirmed by a second rater. Therefore, the researcher of this study followed textual clues, as well as intuition, when necessary.

As previously stated, the researcher took into consideration four studies (Swales, 1990/2004, Thompson, 1994, Rowley-Jolivet & Carter-Thomas, 2005 and Chang & Huang, 2015) in order to identify the rhetorical organization of the present research. From the four studies taken into account, the researcher could only identify moves established in Chang & Huang (2015) research, as expected, since it is specifically for TED talks. Their study consists of five obligatory moves: *topic introduction, topic development, closure, concluding messages,* and *acknowledgments/gratitude*, and two non-obligatory moves: *listener orientation, and speaker presentation.* The other studies the researcher took also took into account, differ the rhetorical structure characterized by the moves and steps.

The move analysis in the present study established five obligatory moves and their corresponding steps: *topic introduction, speaker presentation, topic development, concluding messages*, and, *acknowledgments/gratitude*. All the five moves were also found in Chang & Huang (2015) analysis. Nevertheless, different from their study, the researcher has not found non-obligatory moves in any of the talks. All the

five moves were encountered in 100% of the corpus. Also, the moves are cyclical, that is, they appear more than once in the talks, but mainly following the order presented on Table 1.

Moves and Steps in TED Talks

Table 1 - Moves and Steps in TED Talks

Move	Step Frequency (%)
1. Topic introduction	Set the scene (90%) Announce the topic (80%)
2. Speaker presentation	Establish authority (70%) Show stance/position (90%)
3. Topic development	Present an argument (90%) Offer an explanation (100%) Describe a process/series of events (90%)
4. Concluding messages	Call for action (100%) Make generalization/offer speculation (90%)
5. Acknowledgements/gratitude	(100%)

*Although the moves were found in all the 10 talks (100%), as previously discussed, the steps were not found in all the 10 talks. For example, in move 1, the first step "set the scene", for instance, was found in 9 talks (90%), the second step announce the topic was found in 8 talks (80%), and so on as described below.

According to Chang & Huang (2015), the *topic introduction* move aims to introduce the topic to the audience, and all the talks started with this move. They were realized by 2 steps: *set the scene,* in which the authors provide background information (e.g., what has been going on in the speaker´s life, or with certain groups of people) and therefore establishes the rationale for the talk. In the step *Announce the topic*, some speakers present the topic directly, while others try to paraphrase it (Chang & Huang , 2015). The first step, *set the scene*, was found in 9 talks (in 90 % of the talks), and some examples are displayed as follow:

But what we're trying to do in my group at MIT is to figure out if we can do something similar to the brain. Can we make it bigger, big enough that you can peer inside and see all the tiny building blocks, the biomolecules, how they're organized in three dimensions, the structure, the ground truth structure of the brain, if you will? If we could get that, maybe we could have a better understanding of how the brain is organized to yield thoughts and emotions and actions and sensations. Maybe we could try to pinpoint the exact changes in the brain that result in diseases, diseases like Alzheimer's and epilepsy and

Parkinson's, for which there are few treatments, much less cures, and for which, very often, we don't know the cause or the origins and what's really causing them to occur. Now, our group at MITis trying to take a different point of view from the way neuroscience has been done over the last hundred years. We're designers. We're inventors. We're trying to figure out how to build technologies that let us look at and repair the brain. And the reason is, the brain is incredibly, incredibly complicated. (TED 1)

In this talk, neuroengineer Ed Boyden reveals he wants to know how the tiny biomolecules in our brains generate emotions, thoughts and feelings - and also the molecular changes that lead to disorders like epilepsy and Alzheimer's.

In the excerpt above, the speaker mentions what is happening with a certain group of people. The speaker starts by stating what they are trying to do in their Massachusetts Institute of Technology (MIT) group: *But what we're trying to do in my group at MIT* , and along the passage he uses the first person plural, which evidences once again that certain group of people/researchers: *We're designers. We're inventors. We're trying to figure out how to build technologies that let us look at and repair the brain.* Now we move to example 2:

I´m going to start by sharing with you a story about a good friend of mine. His name is Ehud, and a few years ago, Ehud was diagnosed with brain cancer. And not just any type of brain cancer: he was diagnosed with one of the most deadly form of brain cancer. In fact, it was so deadly that the doctors told him that they only have 12 months, and during those 12 months, they have to find a treatment. They have to find a cure, and if they cannot find a cure, he will die. (TED 2)

In this talk, Adam de la Zerda, who is an assistant professor at the Departments of Structural Biology and Electrical Engineering (courtesy) at Stanford University – School of Medicine, debates about the latest advances in the war against cancer.

In this passage, the speaker starts by telling the story of a friend who was diagnosed with cancer: *I´m going to start by sharing with you a story about a good friend of mine. His name is Ehud, and a few years ago, Ehud was diagnosed with brain cancer,* the main topic of the talk. Therefore, he sets the scene and provides the background rationale for the talk. The last example of this step is displayed as follows:

What keeps us healthy and happy as we go through life? If you were going to invest now in your future best self, where would you put your time and your energy? There was a recent survey of millennials asking them what their most important life goals were, and over 80 percent said that a major life goal for them was to get rich. And

another 50 percent of those same young adults said that another major life goal was to become famous. (TED 4)

In this talk, Robert Waldinger who is Clinical Professor of Psychiatry at Harvard Medical School, discusses the Harvard Study of Adult Development. The Study tracked the lives of two groups of men for over 75 years, and it now follows their Baby Boomer children to understand how childhood experience reaches across decades to affect health and wellbeing in middle age.

In this passage, as in the first example presented, the speaker also states what has been happening with a certain group of people: *asking them what their most important life goals were, and over 80 percent said that a major life goal for them was to get rich. And another 50 percent of those same young adults said…*Nevertheless there is a difference from the first passage. While in the first passage the speaker uses the example of researchers, in this passage the speaker talks about the participants of the research: *There was a recent survey of millennials asking them what their most important life goals were, and over 80 percent said…*Both of them, however, provide background information with a certain group of people, as well as establish the rationale for the talk.

Moving to the second step of move 1, *Announce the topic* was present in 8 talks, and some occurrences are demonstrated in the following excerpts:

Here I'd like to propose that in the same way we can reconstruct how the ancient Greek cities looked just based on a few bricks, that the writings of a culture are the archaeological records, the fossils, of human thought. (TED 3)

In this talk, neuroscientist Mariano Sigman reflects on ancient Greece and the origins of introspection to investigate how words hint at people´s inner lives and details a word-mapping algorithm that could predict the development of schizophrenia.

It is possible to perceive in the passage above how the speaker presents the topic, in other words, what he would like to propose with that talk: *Here I'd like to propose that…*Now we move to the second example:

But I fear that something I've been teaching for the last 10 years is doing more harm than good, and it has to do with stress. For years I've been telling people, stress makes you sick. It increases the risk of everything from the common cold to cardiovascular disease. Basically, I've turned stress into the enemy. But I have changed my mind about stress, and today, I want to change yours. (TED 8)

In this talk, Stanford University psychologist Kelly McGonigal "translates" her academic research about the "upside of stress," which will look at both why stress is good for us, and what makes us good at stress. In her words: "The old understanding of stress as an unhelpful relic of our animal instincts is being replaced by the understanding that stress actually makes us socially smart - it's what allows us to be fully human."

In this passage, the speaker announces the topic directly by somehow preparing the audience for what comes next. Since the topic approaches a new perspective of stress, she mentions how she has changed her mind, and it is exactly what the topic is about, deconstructing stress as being only or always harmful to people´s health: *Basically, I've turned stress into the enemy. But I have changed my mind about stress, and today, I want to change yours.* By announcing the topic directly, she also seems to make the audience gets curious about her new perspective, research, and results. The last example of this step is displayed as follows:

And something festered inside me after this happened. What I thought about was, what caused the diabetes? You see, diabetes is an autoimmune disease where your body fights itself, and at the time people thought that somehow maybe exposure to a pathogen had triggered my immune system to fight the pathogen and then kill the cells that make insulin. And this is what I thought for a long period of time, and that's in fact what medicine and people have focused on quite a bit, the microbes that do bad things. And that's where I need my assistant here now. You may recognize her. So, I went yesterday, I apologize, I skipped a few of the talks, and I went over to the National Academy of Sciences building, and they sell toys, giant microbes. And here we go! So you have caught flesh-eating disease if you caught that one. I gotta get back out my baseball ability here. (TED 10)

In this talk, Jonathan Eisen who studies the ecology and evolution of microbial communities, states that our bodies are covered in a sea of microbes - both the pathogens that make us sick and the "good" microbes, about which we know less, that might be keeping us healthy.

In the passage above, the speaker announces the topic by making the audience reflect on the questions posed in the beginning of the excerpt: *what caused the diabetes?* Afterwards, he guides the audience by telling what has happened on the previous: *So, I went yesterday, I apologize, I skipped a few of the talks, and I went over to the National Academy of Sciences building, and they sell toys, giant microbes*, which is related the topic presented.

The second move identified in the analysis is the *speaker presentation*. According to Chang & Huang (2015), the *speaker*

presentation move introduces the speaker's background and helps the audience see the connection between the speaker and his/her topic. This move comprises two steps, *establish authority* and *show stance/position*. The first one functions to introduce the speaker's achievements and/or knowledge, and assert their credentials in delivering the talk (Chang & Huang, 2015). And the second one, *show stance/position*, signals the moment the speaker explains their attitude towards the topic under discussion (Chang & Huang, 2015). The first step was observed in 7 talks, and some examples are displayed in the following excerpts:

We did that. The Harvard Study of Adult Development may be the longest study of adult life that's ever been done. For 75 years, we've tracked the lives of 724 men, year after year, asking about their work, their home lives, their health, and of course asking all along the way without knowing how their life stories were going to turn out. Studies like this are exceedingly rare. Almost all projects of this kind fall apart within a decade because too many people drop out of the study, or funding for the research dries up, or the researchers get distracted, or they die, and nobody moves the ball further down the field. But through a combination of luck and the persistence of several generations of researchers, this study has survived. About 60 of our original 724 men are still alive, still participating in the study, most of them in their 90s. And we are now beginning to study the more than 2,000 children of these men. And I'm the fourth director of the study. (TED 4)

Regarding the analysis of two steps, the focus will be mainly in the most salient one (Bunton, 2005; Yang & Allison, 2003). In this vein, although the speaker also talks about a group of people, this was considered the *establish territory* step within the *speaker presentation* move, as the achievements, the importance and relevance of the study were also clearly emphasized. He states: *studies like this are extremely rare. Almost all project of this kind fall apart within a decade because…*It was possible to notice that the speaker also asserted his credentials in delivering the talk when he talks *"The Harvard Study of Adult Development".*

In the next example, the speaker of the talk is a physician, Barbara Natterson-Horowitz who shares how a species-spanning approach to health can improve medical care of the human animal -- particularly when it comes to mental health.

Now most of the time, I was working at UCLA Medical Center with physicians, discussing symptoms and diagnoses and treatments for my human patients, but some of the time, I was working at the Los Angeles Zoo with veterinarians, discussing symptoms and diagnoses and

treatments for their animal patients. And occasionally, on the very same day, I went on rounds at UCLA Medical Center and at the Los Angeles Zoo. And here's what started coming into very clear focus for me. Physicians and veterinarians were essentially taking care of the same disorders in their animal and human patients: congestive heart failure, brain tumors, leukemia, diabetes, arthritis, ALS, breast cancer, even psychiatric syndromes like depression, anxiety, compulsions, eating disorders and self-injury. (TED 5)

In the excerpt above, the speaker clearly demonstrates her experience, and her professional background to the audience: *Now most of the time, I was working at UCLA Medical Center with physicians, discussing symptoms and diagnoses and treatments for my human patients, but some of the time, I was working at the Los Angeles Zoo with veterinarians, discussing symptoms and diagnoses and treatments for their animal patients. And occasionally, on the very same day, I went on rounds at UCLA Medical Center and at the Los Angeles Zoo.* The way she establishes authority provides essential information to viewers, as they will better understand her career path, as well as her relationship with the topic presented.

In the following example, the speaker talks about the connection between DeoxyriboNucleic Acid (DNA) sequence and microbes:

And that's what I've been doing for 20 years, using DNA sequencing, collecting samples from various places, including the human body, reading the DNA sequence and then using that DNA sequencing to tell us about the microbes that are in a particular place. (TED 10)

In this passage, the speaker demonstrates his credentials by acknowledging what he has been doing for twenty years in the research itself: *And that's what I've been doing for 20 years…* Again, he somehow guides the audience, and emphasizes the importance of his work and the talk, rather than only mentioning a group of people, as occurred in move 1; therefore, he establishes territory.

As for the second step, *show stance/position*, it was observed in 9 talks, and examples are shown in the following excerpts:

Now, the good news, they said, is that there are tons of different treatments to choose from, but the bad news is that in order for them to tell if a treatment is even working or not, well, that takes them about three months or so. So they cannot try that many things. (TED 2)

As previously stated, although the move analysis of the present research and Chang and Huang (2015) analysis were specifically for TED Talks, they differ from each other. In the move analysis of this study, it was established five moves and their corresponding steps and all the five

moves were also found in the authors´ study. However, differently from their research, this study has not found non-obligatory moves in any of the talks. In other words, all the moves were found in 100% of the 10 talks characterized with the steps that were detailed in the results section. In the passage above, the speaker shows his position concerning the topic; in other words, he explains his attitude toward the topic under discussion by stating the pros and cons: *Now, the good news, they said, is that there are tons of different treatments to choose from, but the bad news is that in order for them to tell if a treatment is even working or not, well, that takes them about three months or so.* Since the topic of the talk is the war against cancer, the speaker shows his position firstly stating the range of treatments available, which seems positive, once he talks about good news. On the other hand he also shows his caution in relation to a number of treatments, in the sense of pointing out that each attempt takes too long for a person who only has 12 months to live, using bad news to signal his argument.

In the next example, philosopher Ruth Chang discusses the reasons why some choices are so hard – and what that means for the human condition. Along the talk, she claims that it is because we think about these decisions in the wrong way and invites the audience for shaping a new framework of who we truly are. In this talk about "how to make hard choices", the speaker shows her position by stating the mistake of thinking that in hard choices one alternative is really better than the other. Her position could be noticed in the passage below:

Fear of being an unemployed philosopher led me to become a lawyer, and as I discovered, lawyering didn't quite fit. It wasn't who I was. So now I'm a philosopher, and I study hard choices, and I can tell you, that fear of the unknown, while a common motivational default in dealing with hard choices, rests on a misconception of them. It's a mistake to think that in hard choices, one alternative really is better than the other, but we're too stupid to know which, and since we don't know which, we might as well take the least risky option. Even taking two alternatives side by side with full information, a choice can still be hard. Hard choices are hard not because of us or our ignorance; they're hard because there is no best option. (TED 6)

Along the talk of the example above, she gives more details which are demonstrated and identified in different moves and steps, but at that moment she explains her attitude toward the topic under discussion: *It's a mistake to think that in hard choices, one alternative really is better than the other, but we're too stupid to know which, and since we don't know*

which, we might as well take the least risky option. Even taking two alternatives side by side with full information, a choice can still be hard.

The talk presented in the passage below is about language. John McWhorter posits that there are a lot more features to take into consideration while texting – linguistically and culturally, for instance. He thinks about language in relation to race, politics and the shared cultural history. The speaker, therefore, shows his position regarding the formal speech that was used in old times, as it follows:

That´s beautiful, but let´s face it, nobody talks that way. Or at least, they shouldn´t if they´re interested in reproducing. That – (Laughter) is not the way any human being speaks causally. (TED 9)

The third move identified in my corpus is the *topic development* move. According to Chang and Huang (2015), in this move, the speakers explain, describe, support, and expand the main theme of the talk. The move is accomplished by three steps: *present an argument, offer an explanation,* and *describe a process/series of events.* The authors state that when presenting arguments, an emotional appeal may be used by the narrator, or logical evidence to invite the audience to new ways of thinking, doing, and understanding things. *Offer an explanation* was a step observed very often with cyclical passages along the talks, and it explains a new idea, object, trend, or concept under discussion, as well as examples, statistical details, and analogies that may be employed by the speakers (Chang & Huang, 2015). According to the authors, when speakers explain how something is or was made/done or has happened through a series of steps, a possible step is named d*escribe a process/series of events.* The step *present an argument* was observed in 9 talks, and some examples are shown in the following excerpts:

Self-injury. Some human patients harm themselves. Some pluck out patches of hair, others actually cut themselves. Some animal patients also harm themselves. There are birds that pluck out feathers. There are stallions that repetitively bite their flanks until they bleed. But veterinarians have very specific and very effective ways of treating and even preventing self-injury in their self-injuring animals. Shouldn't this veterinary knowledge be put into the hands of psychotherapists and parents and patients struggling with self-injury? (TED 5)

In the excerpt above, there was an emotional appeal when the speaker talks about self-injury: *Self-injury. Some human patients harm themselves. Some pluck out patches of hair, others actually cut themselves. Some animal patients also harm themselves.* Human beings are normally touched with sufferings that people and animals are victims of. When it comes to the question posed at the end of the passage, the

speaker also invites the audience to new ways of thinking. In other words, she tries to deconstruct the viewer´s thoughts, as she provides the chance for perspective change in the topic under discussion: *Shouldn't this veterinary knowledge be put into the hands of psychotherapists and parents and patients struggling with self-injury?* Now we move to the next example:

Something I experience every day in my practice, and I'm sure, something many of you on your own journeys have experienced: more is not more. Those individuals who had more tests, more bells, more whistles, more chemotherapy, more surgery, more whatever -- the more that we do to someone, it decreases the quality of their life. And it shortens it, most often. (TED 7)

In this passage, it can also be perceived an emotional appeal as the speaker invites the audience to perspective change, in the sense that more is not necessarily the best thing: *more is not more… the more that we do to someone, it decreases the quality of their life.* He explains that more treatments (chemotherapy, surgery, and so on) are not always the best choice. The death is still a taboo in our society, due to the fact that humans are afraid of the "unknown" and avoid thinking about that. Taking that into account, the speaker, who is a palliative care physician, proposes to the audience new ways of thinking, doing, and understanding things. In other words, people should somehow accept things as a natural flow, rather than fight against them, and, again, there is "emotional appeal". The last example of this step is displayed as follows:

And the cool thing is that all of these physical benefits of oxytocin are enhanced by social contact and social support. So when you reach out to others under stress, either to seek support or to help someone else, you release more of this hormone, your stress response becomes healthier, and you actually recover faster from stress. I find this amazing, that your stress response has a built-in mechanism for stress resilience, and that mechanism is human connection. (TED 8)

Since stress has become a major problem in today´s society, in this passage, the speaker invites the audience to a new way of thinking about that topic. In other words, she tries to deconstruct some viewpoints concerning stress, such as seeing the good side of that, and the presence of resilience for that whole mechanism: *your stress response has a built-in mechanism for stress resilience, and that mechanism is human connection* Along the talk, she gives more details on what she meant in this passage.

The second step, *Offer an explanation* was observed in all the 10 talks and some examples are displayed as follow:

Now, we don't know how the neurons in the brain are organized to form networks, and we don't know how the biomolecules are organized within neurons to form these complex, organized machines. If we really want to understand this, we're going to need new technologies. But if we could get such maps, if we could look at the organization of molecules and neurons and neurons and networks, maybe we could really understand how the brain conducts information from sensory regions, mixes it with emotion and feeling, and generates our decisions and actions. Maybe we could pinpoint the exact set of molecular changes that occur in a brain disorder. And once we know how those molecules have changed, whether they've increased in number or changed in pattern, we could use those as targets for new drugs, for new ways of delivering energy into the brain in order to repair the brain computations that are afflicted in patients who suffer from brain disorders. (TED 1)

This step was very often present all the 10 talks. Speakers "offered an explanation" several times. For instance, they start developing an idea, then the explanation "was offered", afterwards another idea was developed (in the same talk) and again, speakers "offered another explanation". In the passage above the speaker explains a new idea, and concept under discussion. One example that evidences this step is when the speaker says: *if we really need to understand this, we are going to need new technologies.* The speaker also made use of analogy when he says: *But if we could get such maps, if we could look at the organization of molecules and neurons and neurons and networks, maybe we could really understand how the brain conducts information from sensory regions, mixes it with emotion and feeling, and generates our decisions and actions.* Now we move to the next example:

And there are different ways that we can construct the space of words. One is just asking the experts, a bit like we do with dictionaries. Another possibility is following the simple assumption that when two words are related, they tend to appear in the same sentences, in the same paragraphs, in the same documents, more often than would be expected just by pure chance. And this simple hypothesis, this simple method, with some computational tricks that have to do with the fact that this is a very complex and high-dimensional space, turns out to be quite effective. (TED 3)

In this excerpt, the speaker uses examples in order to guide the audience concerning his explanation, in other words, to clarify the topic approached to the viewers: *And there are different ways that we can construct the space of words. One is just asking the experts, a bit like we do with dictionaries. Another possibility is following the simple*

assumption that when two words are related, they tend to appear in the same sentences, in the same paragraphs, in the same documents, more often than would be expected just by pure chance. As discussed in the review of literature section, this technique is visible in science popularized speeches, which were identified in TED Talks. According to Theunissen and Chan (2014) TED speakers adapt their speech in order to make it understandable to a wider variety of non-specialized public, which has little or no background in the topic broadcast. Calsamiglia and Van Dijck (2004) add by stating that popularized discourse are formulated so that the audience can understand specialized knowledge and integrate that to their previous knowledge; therefore, speakers make the use of examples and metaphors, among other techniques to facilitate understanding. And the last example of this step follows below:

As history has gone by, it's been natural for there to be a certain amount of bleed between speech and writing. So, for example, in a distant era now, it was common when one gave a speech to basically talk like writing. So I mean the kind of speech that you see someone giving in an old movie where they clear their throat, and they go, "Ahem, ladies and gentlemen," and then they speak in a certain way which has nothing to do with casual speech. It's formal. It uses long sentences like this Gibbon one. It's basically talking like you write, and so, for example, we're thinking so much these days about Lincoln because of the movie. The Gettysburg Address was not the main meal of that event. For two hours before that, Edward Everett spoke on a topic that, frankly, cannot engage us today and barely did then. The point of it was to listen to him speaking like writing. Ordinary people stood and listened to that for two hours. It was perfectly natural. That's what people did then, speaking like writing. (TED 9)

In this passage, the speaker used examples to explain and guide the audience when he says: *so, for example, in a distant era now, It was common when one gave a speech to basically talk like writing…and so, for example, we´re thinking so much these days…* signaling the step "offer an explanation".

The third step, d*escribe a process/series of events* was present in 9 talks. Examples are displayed in the following excerpts:

Well, unfortunately, three months later, we got the news, it didn't work. And so Ehud goes into his second treatment. And again, the same story. "It feels so bad, something's gotta be working there."And then three months later, again we get bad news. Ehud is going into his third treatment, and then his fourth treatment. And then, as predicted, Ehud dies. (TED 2)

In this step, the speaker guides the audience in time, and therefore *describes a process/series of events*. In the passage above, the step was signaled by some textual clues, such as *so*, *then*, and *then*, which evidence a sequence, as used in Jolivet and Carter-Thomas´s (2005) study. Another example is displayed as follows:

And so what we did is, we measured speech at day one, and then we asked whether the properties of the speech could predict, within a window of almost three years, the future development of psychosis. But despite our hopes, we got failure after failure. There was just not enough information in semantics to predict the future organization of the mind. It was good enough to distinguish between a group of schizophrenics and a control group, a bit like we had done for the ancient texts, but not to predict the future onset of psychosis. (TED 3)

As previously stated, in this talk, neuroscientist Mariano Sigman discusses ancient Greece and the origins of introspection to investigate how individuals´ words refer to their intimate lives and studies a word-mapping algorithm that could predict the development of schizophrenia. The speaker also guides the audience by stating a sequence in time in this passage. A clear series of events was perceived, again with textual clues, observed in Jolivet and Carter-Thomas´s (2005) study, when the speaker says: *and so we did is…and then…*And the last example follows below:

Since 1938, we've tracked the lives of two groups of men. The first group started in the study when they were sophomores at Harvard College. They all finished college during World War II, and then most went off to serve in the war. And the second group that we've followed was a group of boys from Boston's poorest neighborhoods, boys who were chosen for the study specifically because they were from some of the most troubled and disadvantaged families in the Boston of the 1930s. Most lived in tenements, many without hot and cold running water. (TED 4)

In the aforementioned passage, the speaker describes a process of the research carried out. In other words, he describes, step by step, what was done in the participants' lives throughout the research. Although he does not use the words 'first', 'second', and so on, a time sequence is clearly indicated along the passage with some textual clues, as *an then*, which was also identified in the previous passages of this step.

The next move identified in the corpus is called *concluding messages.* Chang and Huang (2015) state that in that move, the purpose of the talk is reflected, often trying to answer the "so what" question, and it has two possible steps: *call for action and make a generalization/offer speculation.* The authors state that speakers may tell their audience how

they are expected to think and act after the talk by making a *call for action*. In the second step *make a generalization/offer speculation*, Chang and Huang (2015) state that speakers try to bring new possibilities, and comment on their implications by making a forecast based on the topic, and they may comment on their presentation's broader implications (e.g., to the world, a larger community, or a discipline), or ask questions to encourage listeners to think more about the ideas presented. Examples of the step *call for action* that were found in all the 10 talks are displayed in some examples as follow:

So now we can take actual brain circuitry -- here's a piece of the brain involved with, for example, memory - and we can zoom in. We can start to actually look at how circuits are configured. Maybe someday we could read out a memory. Maybe we could actually look at how circuits are configured to process emotions, how the actual wiring of our brain is organized in order to make us who we are. And of course, we can pinpoint, hopefully, the actual problems in the brain at a molecular level. What if we could actually look into cells in the brain and figure out, wow, here are the 17 molecules that have altered in this brain tissue that has been undergoing epilepsy or changing in Parkinson's disease or otherwise being altered? If we get that systematic list of things that are going wrong, those become our therapeutic targets. We can build drugs that bind those. We can maybe aim energy at different parts of the brain in order to help people with Parkinson's or epilepsy or other conditions that affect over a billion people around the world. (TED 1)

In this excerpt, the speaker invites the audience to reflect on his presentation by posing a question: *What if we could actually look into cells in the brain and figure out, wow, here are the 17 molecules that have altered in this brain tissue that has been undergoing epilepsy or changing in Parkinson's disease or otherwise being altered?*, making an assumption: *Maybe someday we could read out a memory. Maybe we could actually look at how circuits are configured to process emotions, how the actual wiring of our brain is organized in order to make us who we are,* and somehow teasing the audience in order to offer new ways of thinking, and acting regarding the possibilities and expectations proposed by him: *If we get that systematic list of things that are going wrong, those become our therapeutic targets. We can build drugs that bind those. We can maybe aim energy at different parts of the brain in order to help people with Parkinson's or epilepsy or other conditions that affect over a billion people around the world.* Now we move to the next example:

After all, we humans are animals, too, and it's time for us physicians to embrace our patients' and our own animal natures and join veterinarians in a species-spanning approach to health. Because it turns out, some of the best and most humanistic medicine is being practiced by doctors whose patients aren't human. And one of the best ways we can take care of the human patient is by paying close attention to how all the other patients on the planet live, grow, get sick and heal. (TED 5)

In the passage above, the speaker tries to make the audience think and act in a different way by pointing out and concluding the message with a *"call for action"*. This step is visible when she says: *And one of the best ways we can take care of the human patient is by paying close attention to how all the other patients on the planet live, grow, get sick and heal.* Another example of this step is displayed below:

Far from being sources of agony and dread, hard choices are precious opportunities for us to celebrate what is special about the human condition, that the reasons that govern our choices as correct or incorrect sometimes run out, and it is here, in the space of hard choices, that we have the power to create reasons for ourselves to become the distinctive people that we are. And that's why hard choices are not a curse but a godsend. (TED 6)

In this passage, the speaker concludes the message by deconstructing the problem of hard choices in individuals´ lives. Again, she "calls for action" and invites the audience to think and act differently with this concluding message. While many of us seem to see hard choices as troublesome decisions, the cause of anxiety, and psychological conflicts, she tries to show a different perspective when she says: *Far from being sources of agony and dread, hard choices are precious opportunities for us to celebrate what is special about the human condition.*

For the second step *make a generalization/offer speculation,* which was observed in 9 talks, some examples are displayed in the following excerpts:

To my colleagues, to my patients, to my government, to all human beings, I ask that we stand and we shout and we demand the best care possible, so that we can live better today and ensure a better life tomorrow. We need to shift today so that we can live tomorrow. (TED 7)

In the passage above, the speaker clearly offers new possibilities by encouraging listeners to think about the ideas presented. He is somehow calling attention and showing how important those ideas are; therefore, in other words, he urges change concerning our quality of life, in the talk named "what we can do to die well" when he says: *to my*

*colleagues, to my patients, to my government, to all human beings, I ask that we stand and we shout and we demand…*Another example of this step is displayed below:

So in closing, if I could go into the future, if I could go into 2033, the first thing I would ask is whether David Simon had done a sequel to "The Wire." I would want to know. And — I really would ask that —and then I'd want to know actually what was going on on "Downton Abbey." That'd be the second thing. And then the third thing would be, please show me a sheaf of texts written by 16-year-old girls, because I would want to know where this language had developed since our times, and ideally I would then send them back to you and me now so we could examine this linguistic miracle happening right under our noses. (TED 9)

In this concluding passage, the speaker comments on his implication of the topic discussed by making a forecast based on the topic. It is signaled by the conditional sentences he uses along the passage: *if…would…could…*And a last example follows in this passage:

And what we need now is to start thinking about this microbial community in the context of everything in human medicine. It doesn't mean that it affects every part of us, but it might. What we need is a full field guide to the microbes that live in and on people, so that we can understand what they're doing to our lives. We are them. They are us. (TED 10)

In this passage the speaker tries to make the audience think more about the ideas presented, when he says: *And what we need now is to start thinking about this microbial community in the context of everything in human medicine.*

The final move identified in the current research is *acknowledgements/gratitude*, in which according to Chang and Huang (2015), speakers acknowledge or pay compliments to their audience, or show appreciation for the opportunity to be invited to speak at TED. They were observed in all the 10 talks, as follow some examples:

Thank you (6)

Thank you very much. (TED 7)

Thank you. (TED 8)

All the speakers express gratitude for having the opportunity to be there and convey the message for the audience, and show appreciation for the audience interest in the topic broadcast. The three examples above show this appreciation and all other occurrences are similar to these ones, as demonstrated in the appendix of the current thesis.

From the findings previously discussed and since the researcher could easily identify the moves and steps presented above, an e-mail was sent to TED organizers asking if the speakers would receive a training course or any kind of preparation, as it was noticed through the analysis that all the talks followed almost the same rhetorical structure. They promptly responded with the following message:

The TED conference speaking coaches don't dictate a single approach to giving a TED talk, but they do work with speakers to find the most effective and engaging format for their particular idea. Our experience over the decades of TED's existence has helped us determine the most effective ways to explain an innovative idea so that it makes sense to a non-expert. TED talks are typically bold and dynamic in nature, so the speaker needs to do a good job provoking new ways of thinking, and promoting new discussion and actions from her or his audience (TED support team, personal communication, August 17, 2017).

As we could notice, the person who answered the e-mail stated that there is some kind of work with the speakers. It is believed that this work with the speakers to find the most effective and engaging format, which was described in the response of the e-mail, has contributed for having a similar rhetorical organization. Also, another possibility is that the genre itself is stable, or still, both of the assumptions, the work with the speakers and stability of the genre, situation present in Chang and Huang (2015) research´s data that were also TED Talks.

As previously stated, the present study examined the communicative purpose, and the rhetorical structure - often characterized by the rhetorical moves and steps it undertakes - of 10 TED Talks, which aimed to explore TED Talks as a pedagogical resource for oral presentations. The communicative purposes were identified through the website, and the researcher´s evidence gathered while watching the talks and reading the respective literature. Five moves (and their component steps) were identified. In Chang and Huang´s (2015) study, the rhetorical structure of 58 talks was examined and seven move types (and their component steps) were identified. Chang and Huang (2015) state that a genre prototype was established.

Even though the moves and steps of the current research are present in Chang and Huang´s (2015) study, there are also some differences. While the authors found 5 obligatory moves and 2 non-obligatory moves, we could identify 5 obligatory moves. Also, the obligatory move *closure* and the non-obligatory move *listener orientation* were not found in my study, and the move *speaker presentation* found in the present research was non-obligatory in the authors´ study, therefore, the prototype Chang

and Huang (2015) established differ in the previous features of the present research. We suggest that the reason these differences occur is that the present study belong specifically to the category of science, different from the authors´ research that comprised different fields.

As previously discussed, Swales (2004) revisits the concept of communicative purpose by pointing out that even though establishing the communicative purpose of a genre is not an easy task in many texts, it may be possible to recognize it, and he also adds that a genre prototype is determined mainly by its communicative purpose. When it comes to spoken genres, Evans (2013) and Kim (2006) state that they are mainly seen in academic and workplace settings. However, spoken genres that comprise other categories that do not belong to the academic and workplace settings, do not have clear specific audiences, purposes, and communicative contexts (Chang & Huang, 2015). Also previously discussed, spoken genres that belong to other categories that are not academic or workplace still lack established patterns and supported literature (De Grez, Valcke, & Roozen, 2009; Evans, 2013; Hardwood, 2005).

Regarding the rhetorical structure of a genre, a method of analysis is characterized by the moves and steps as first approached by Swales (1990). A move is "a section of a text that has its own purpose", which "contributes to the overall communicative purposes of the genre", and within the moves there are the steps (Connor, Upton, & Kanoksilapatham, 2007, p. 23). Thus, the construction of an established written or spoken text is organized by a series of moves and steps (Henry & Roseberry, 1998; Tardy, 2011).

This research tried to make contributions to a richer understanding of the nature of TED Talks, as it has become an important event for creating and sharing knowledge. Since individuals watch their talks worldwide because of its relevance with a great variety of topics, TED Talks has expanded its audience over the years and became really popular. Also, understanding their nature may contribute to a richer understanding of the social and contextual functions of that genre. In addition, by examining and explaining the configuration of the genre, the study will hopefully extend existing knowledge in the field and have the literature expanded.

Taking that into consideration, Devitt (2004) points out the importance that genre occupies in our lives by stating that we use genres to interact to one another and get along in the world. Still, this interaction may be positive when individuals help someone or negative when individuals hurt someone; through a genre people are also able to

encourage or discourage someone to speak, and we talk about genres all the time by saying I heard that joke, or I attended that lecture, for instance.

In the following chapter, I will present the final remarks, which comprehend the answers to the research questions, pedagogical implications, the limitations of the study and suggestions for future research.

5. FINAL REMARKS

This chapter aims at presenting the specific conclusions: TED´s communicative purpose, and the genre´s rhetorical organization – its rhetorical structure - characterized by the moves and steps it undertakes, turning to the general conclusions of the current research, whose objective was to examine how TED Talks are approached as a genre. In order to reach my specific and general objectives, two specific questions and one general research question were raised to establish the basis of this research:

1. What is the communicative purpose of the genre TED Talks that belong to the category of science?
2. Which rhetorical structure, in terms of moves and steps, characterize TED Talks that belong to the category of science as exemplars of the same genre?
3. How are TED talks that belong to the category of science configured as exemplars of the same genre?

The following subsections demonstrate the conclusions reached after the analysis of the previous research questions.

Subsection 5.1 investigates how the communicative purpose is approached. Subsection 5.2 analyzes the rhetorical organization characterized by the moves and steps identified in the data, and subsection 5.3 displays the conclusions obtained regarding the configurations of TED Talks as exemplars of the same genre.

5.1 WHAT IS THE COMMUNICATIVE PURPOSE OF THE TED TALKS THAT BELONG TO THE CATEGORY OF SCIENCE?

This section aims at determining the communicative purposes of TED Talks.

It is important to restate that according to the characteristics of the genre, TED Talks are considered a genre that belong to the science popularization field, which means that it comprehends a range of diverse communicative events or genres, which recontextualize scientific discourse by transforming specialized knowledge into ‘everyday’ or ‘lay’ knowledge (Calsamiglia & Van Dijck, 2004).

In order to identify the communicative purpose of the genre, firstly, the information displayed on the website was analyzed. That information consists of qualifying the international group TED as providing content in different disciplines and cultures to lay people or to individuals who are already familiar with the topics approached and are interested in deeping

their knowledge. TED collaborators state that the speakers may change individuals´ way of thinking regarding several world issues comprised in the talks broadcast. In this vein, the group claims that those speakers are relevant thinkers who contribute to their audience with powerful ideas that support perspective change by affording mechanisms to make the world a better place to live in.

Bhatia (2012), on the other hand, approaches a more critical vein by pointing out that TED academics also have other intentions, as improving their image as researchers, rather than merely attempting to make the perspective of the audience change as previously discussed.

The analysis of the corpus per se was taken into account to establish its communicative purpose. After analyzing the corpus it was noticed that regardless of the intention, TED experts provide opportunities to make their audience knowledgeable and/or informed in the talks presented. Viewers may explore and benefit from the several topics comprehended on the website. As the talks consist of a number of fields, TED´s communicative purpose aims at providing ideas to heterogeneous individuals all over the world.

Taken into account that Evans (2013) and Kim (2006) state that the most common spoken genres are seen in oral presentation in academic and professional settings, and that these genres did not yield, so far too much literature regarding established patterns of the communicative purpose (De Grez, Valcke, & Roozen, 2009; Evans, 2013; Hardwood, 2005), my evidences also informed the present research. The several years I have been watching TED talks, the number of talks I have watched so far, as well as informal discussions among some social groups I attend, were taken into consideration. As previously discussed, therefore, since the talks are presented by specialist researchers of the target field, the speakers invite the viewers to explore all the knowledge they convey on the talks broadcasted. Due to the diverse audience, TED´s motto: “Ideas worth spreading”, thus, seeks to sum up the investigation of the communicative purpose, which aims at celebrating new ideas, and research, designed mainly for a lay audience.

5.2 WHICH RHETORICAL STRUCTURE, IN TERMS OF MOVES AND STEPS, CHARACTERIZE TED TALKS THAT BELONG TO THE CATEGORY OF SCIENCE AS EXEMPLARS OF THE SAME GENRE?

This section aims at defining TED Talks´ organization – its rhetorical structure – often characterized by the moves and steps it

undertakes. Four studies were taken into consideration (Swales, 1990/2004, Thompson, 1994, Rowley-Jolivet & Carter-Thomas, 2005 and Chang & Huang, 2015) in order to identify the rhetorical organization of the TED Talks analyzes in this study. Swales (1990/2004) was the first study of the four considered, and it was used as a methodology to investigate the rhetorical structure of written genres. Thompson (1994), which was the second study presented, establishes a rhetorical organization of a spoken genre, the lecture introduction. Rowley-Jolivet and Carter-Thomas (2005), the third research I have addressed, also investigate a spoken genre, introductions to conference presentations. And finally, the most recent research, which was carried out specifically with TED Talks, by Chang and Huang (2015), was also taken into account.

From the four studies the research took into account, it could only be identified moves found in Chang and Huang´s (2015) research, what was somehow expected, due to the fact the study is specifically about TED Talks. Their description of the genre TED Talks comprises five obligatory moves: *topic introduction, topic development, closure, concluding messages, and acknowledgments/gratitude*, and two non-obligatory moves: *listener orientation, and speaker presentation.*

The move analysis of the present study, however, established five obligatory move types and their corresponding steps. All the five moves were also found in Chang and Huang´s (2015) analysis. Although the research identified the five moves in their study, non-obligatory moves were not found in the current study. And all the five moves were encountered in 100% of the corpus. The moves are also cyclical, that is, they appear more than once in the talks, but mainly following one specific order presented described in the results. Also, whereas we identified 5 obligatory moves, the authors found 5 obligatory moves and 2 non-obligatory moves. The obligatory move *closure* and the non-obligatory move *listener orientation* were not found in my study, and the move *speaker presentation* found in the present research, was non-obligatory in their study. As previously discussed, the reason the differences among both studies about TED Talks might be that the present study consist of talks specifically to the category of science, while Chang and Huang´s (2015) research approaches different fields.

Jolivet and Carter-Thomas (2003) point out the complexity of investigating the outset of a spoken genre by stating that move analyses were primarily used to analyze written discourse, and only more recently the investigation of oral monologues started. This complexity derives from the fact that speakers do not usually use metadiscourse markers to signal the transition from a section to another. Thus, identifying where an

introduction finishes, for instance, is less evident (Thompson 2003). So, spoken genres seem to be more complex to investigate due to the lack of a clear ending of a section and the beginning of a new one, for instance.

Taking into account the linear order of moves, the researcher has sent an e-mail to the organizers of TED to check whether they receive a specific training to follow that rhetorical organization. They promptly answered saying they work with the speakers to find the most effective and engaging format. Based on that response, the researcher assumes that this is the reason for having clearly linear moves, as well as the stability of the genre TED Talks itself.

Finally regarding the rhetorical organization, some moves and steps were interconnected, that is, due to the fact that they were cyclical, there were excerpts which seem to have more than one step embedded. Taken that into consideration, when two steps appeared to occur in the same passage, the focus of the analysis was mainly in the step that was the most salient one (Bunton, 2005; Yang & Allison, 2003).

5.3 HOW ARE TED TALKS THAT BELONG TO THE CATEGORY OF SCIENCE CONFIGURED AS EXEMPLARS OF THE SAME GENRE?

In this subsection, I focus on the examination of the macro-structure of the TED Talks analyzed with the purpose of verifying the rhetorical organization of this genre. As aforementioned, I started following Chang and Huang´s (2015) principles to genre study, due to the fact they were specifically related to TED Talks. In addition, I was also guided by other studies (Swales, 1990/2004, Thompson, 1994, Rowley-Jolivet & Carter-Thomas, 2005) previously reviewed in the current work, that have undertaken rhetorical investigation of other genres.

The overall picture that emerges from the findings of this study reveals no constant pattern for the rhetorical organization in terms of the order in which the moves appeared in the talks of the corpus of TED Talks here analyzed. Yet, the samples investigated permitted the elaboration of a proposal of a model for this component of genre that comprises five moves: Move 1: Topic introduction, Move 2: Speaker presentation, Move 3: Topic development, Move 4: Concluding messages, and Move 5: Acknowledgments/gratitude. Each of these moves, except move 5, are, in turn, made off of steps that realize their purpose (see table 1). At this point, it is important to remind the reader that the model proposed in table 1 does not describe a linear sequence in which the moves and/or steps come out in the talks investigated, however the analysis of the corpus also indicates

a cyclical structure of moves. The findings of this macro analysis of the rhetorical organization of talks also reveal the absence of non-obligatory moves.

According to the findings so far reported, the analysis appears to have confirmed previous studies on TED Talks to a large extent. As previously stated, from the four studies taken into account, the researcher could only identify moves established in Chang and Huang´s (2015) research, as expected, since it is specifically about TED talks. The other studies previously mentioned that the researcher took into account differ in terms of the rhetorical structure characterized by the moves and steps.

Summing up, the macro-level rhetorical structure of TED Talks here investigated present a somewhat easy to identify array of moves and steps, speakers following a similar structure while presenting their talks, thus suggesting that this is a component of the genre 'TED Talks' that still needs to be investigated in the context of ongoing and focused attention on the processes and practices of spoken genres.

5.4 PEDAGOGICAL IMPLICATIONS

During the last few decades, there has been an increasing interest in digital technology. Thus, people are able to explore all the facilities the internet provides such as videos, chats, blogs, forums, among others. Technology may be observed through a number of devices, as mobile phones, laptops, tablets, e-readers, to name a few. Technological tools are also used for educational purposes as aids in facilitating, as well as improving the process of learning (Martins & Moreira, 2012)

Taking that into consideration, TED Talks may function as a technological aid for educational purposes. As they have become popular over the years, a number of topics are incorporated and more viewers are able to explore new fields with the talks presented. Also, since the talks are watched online, they offer visual aids that may make the audience engage more deeply. Mayer (2001) states that individuals can better understand an explanation when it is presented in words and pictures than when it is presented in words alone.

As a genre, Ludewig (2017) demonstrates important features that TED talks display regarding educational and social aspects:

> It seems fair to say that TED talks by now are frequently perceived as a type of presentation that has become a known, sometimes mocked, but often reproduced genre. Categorizing TED talks as a genre helps us not only describe them, but also

> allows us to see them as embedded socio-semiotic events: thus, we can analyze the social surroundings and the audience they attract (and recreate), and how they perform the rhetorical action of informing, entertaining, and building group consciousness, and the wider sociocultural trends they tap, such as social activism and online education. As a pedagogical and rhetorical template, they have already reached academia. It's time to tackle them as a socio-discursive phenomenon in their own right.

Another important aspect that should be taken into account with respect to this genre is its potential to teach and learn how to delivery academic presentations. As it belongs to the science popularization sphere, TED Talks may serve as a tool to help leaners in one major issue, oral presentations. The rhetorical organization of this genre follows patterns which leaners can follow and other features analyzed along the study can contribute to their performance while making a presentation.

Schools should provide a better preparation for teachers concerning not only the awareness of genres, but also the importance they comprehend in schools and universities. As a researcher and educator, I could only be aware of the importance of genres in individuals´ lives, and in class, after carrying out this study. The investigation that this study considered, allowed me to gain a deeper view of genres, such as their communicative purposes, discourse communities, rhetorical organization, and social aspects.

Also, taking into consideration that there is a considerable number of oral genres and they consist of proper features and styles, which were discussed along this study, as well as their flexibility regarding the outsets of the moves and steps in their rhetorical organization, it is essential that students understand such issues in order to make use of them more appropriately in their lives. Although genres present similarities, it is important to bear in mind that TED Talks comprise unique characteristics that differ from a lecture, which differ from a job interview and a small talk, for instance.

Bearing that in mind, educators should procure knowledge and transfer to their learners the aforementioned aspects of the genre before they start making use of it. Learners will probably become more motivated, since they will better understand what they have been working with, the importance of genres in individuals´ lives, and therefore, the reasons why they must learn about genre studies.

5.5 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTHER RESEARCH

One limitation is the reduced number of talks analyzed in my corpus, we are aware of the fact that the analysis of 10 talks does not allow the generalization of the results, as well as belonging to a specific field, science popularization. Another limitation is that there are not many studies specifically about TED Talks, therefore this study lacks corresponding literature. And finally a last limitation was the scope of the investigation itself, which focused more on two of the facets of the genre, the communicative purpose and the rhetorical organization as the main analyzes. When I first started this study, I had in mind to investigate the discourse community of TED Talks; however, along the research, and in common agreement with my advisor, it was considered impossible to achieve all the audiences which comprise the discourse community of TED Talks.

However, I assume that there is a good chance that other genres of this category may benefit from this study. I suggest researches with a larger corpus, investigations on whether or not there are differences among talks from different fields and changes among them over time, including language analysis, as well as a more critical vein. Moreover, future research about this specific genre will hopefully be able to gain from it, as well.

This study can be a reference to further investigation regarding the notion of genre and its features in spoken production in presentations from Brazil and other countries. Also, future research could adopt different approaches by TED speakers, such as rhetorical questions, emotional appeals, autobiography and anecdote, oratorical repetition, and so on. Therefore, these findings may be pedagogically valuable in training learners to deliver presentations.

Bearing that in mind, I hope this study also triggers interest in educators regarding the importance of genre studies and technological aids in English as Second Language (ESL) classrooms, as well as their willingness to deepen established purposes with learners concerning those themes.

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APPENDIX

All moves and steps presented in the corpus:

According to Chang & Huang (2015), *The topic introduction* move aims to introduce the topic to the audience, and there are two steps: *set the scene*, which provides background information (e.g., what has been going on in the speaker´s lives, or with certain groups of people) and therefore establishes the rationale for the lesson. This step was observed in 9 talks, as they follow:

But what we're trying to do in my group at MIT is to figure out if we can do something similar to the brain. Can we make it bigger, big enough that you can peer inside and see all the tiny building blocks, the biomolecules, how they're organized in three dimensions, the structure, the ground truth structure of the brain, if you will? If we could get that, maybe we could have a better understanding of how the brain is organized to yield thoughts and emotions and actions and sensations. Maybe we could try to pinpoint the exact changes in the brain that result in diseases, diseases like Alzheimer's and epilepsy and Parkinson's, for which there are few treatments, much less cures, and for which, very often, we don't know the cause or the origins and what's really causing them to occur. Now, our group at MITis trying to take a different point of view from the way neuroscience has been done over the last hundred years. We're designers. We're inventors. We're trying to figure out how to build technologies that let us look at and repair the brain. And the reason is, the brain is incredibly, incredibly complicated. (TED 1)

I´m going to start by sharing with you a story about a good friend of mine. His name is Ehud, and a few years ago, Ehud was diagnosed with brain cancer. And not just any type of brain cancer: he was diagnosed with one of the most deadly form of brain cancer. In fact, it was so deadly that the doctors told him that they only have 12 months, and during those 12 months, they have to find a treatment. They have to find a cure, and if they cannot find a cure, he will die. (TED 2)

We have historical records that allow us to know how the ancient Greeks dressed, how they lived, how they fought…but how did they think? One natural idea is that the deepest aspects of human thought -- our ability to imagine, to be conscious, to dream -have always been the same. Another possibility is that the social transformations that have shaped our culture may have also changed the structural columns of human thought. (TED 3)

What keeps us healthy and happy as we go through life? If you were going to invest now in your future best self, where would you put your time and your energy? There was a recent survey of millennials asking them what their most important life goals were, and over 80 percent said that a major life goal for them was to get rich. And another 50 percent of those same young adults said that another major life goal was to become famous. (TED 4)

Ten years ago, I got a phone call that changed my life. At the time, I was cardiologist at UCLA, specializing in cardiac imaging techniques. The call came from a veterinarian at the Los Angeles Zoo. An elderly female chimpanzee had woken up with a facial droop and the veterinarians were worried that she'd had a stroke. They asked if I'd come to the zoo and image the animal's heart to look for a possible cardiac cause. (TED 5)

Think of a hard choice you'll face in the near future. It might be between two careers -artist and accountant - or places to live - the city or the country - or even between two people to marry - you could marry Betty or you could marry Lolita. Or it might be a choice about whether to have children, to have an ailing parent move in with you, to raise your child in a religion that your partner lives by but leaves you cold. Or whether to donate your life savings to charity. (TED 6)

I'd like to start by telling the story of my very first patient. It was my first day as a physician, with the long white coat ... I stumbled into the hospital and right away there's a gentleman, Harold, 68 years old, came to the emergency department. He had had headaches for about six weeks that got worse and worse and worse and worse. Evaluation revealed he had cancer that had spread to his brain. The attending physician directed me to go share with Harold and his family the diagnosis, the prognosis and options of care. (TED 7)

Let me start with the study that made me rethink my whole approach to stress. This study tracked 30,000 adults in the United States for eight years, and they started by asking people, "How much stress have you experienced in the last year?" They also asked, "Do you believe that stress is harmful for your health?" And then they used public death records to find out who died. (TED 8)

I'm going to start with a little story. So, I grew up in this neighborhood. When I was 15 years old, I went from being what I think was a strapping young athlete, over four months, slowly wasting away until I was basically a famine victim with an unquenchable thirst. I had basically digested away my body. And this all came to a head when I was on a backpacking trip, my first one ever actually, on Old Rag Mountain in

West Virginia, and was putting my face into puddles of water and drinking like a dog.

Announce the topic is a step that some speakers state the topic directly, while others try to paraphrase it (Chang & Huang , 2015). This step was observed in 8 talks, as they follow:

This is what the US Congress and the National Cancer Institute declared just a few years ago, in 2003. (TED 2)

Here I'd like to propose that in the same way we can reconstruct how the ancient Greek cities looked just based on a few bricks, that the writings of a culture are the archaeological records, the fossils, of human thought. (TED 3)

But what if we could watch entire lives as they unfold through time? What if we could study people from the time that they were teenagers all the way into old age to see what really keeps people happy and healthy? (TED 4)

Now, to be clear, North American zoos are staffed by highly qualified, board-certified veterinarians who take outstanding care of their animal patients. But occasionally, they do reach into the human medical community, particularly for some speciality consultation…(TED 5)

Chances are, the hard choice you thought of was something big, something momentous, something that matters to you. Hard choices seem to be occasions for agonizing, hand-wringing, the gnashing of teeth. (TED 6)

But I fear that something I've been teaching for the last 10 years is doing more harm than good, and it has to do with stress. For years I've been telling people, stress makes you sick. It increases the risk of everything from the common cold to cardiovascular disease. Basically, I've turned stress into the enemy. But I have changed my mind about stress, and today, I want to change yours. (TED 8)

We always hear that texting is a scourge. The idea is that texting spells the decline and fall of any kind of serious literacy, or at least writing ability, among young people in the United States and now the whole world today. The fact of the matter is that it just isn't true, and it's easy to think that it is true,but in order to see it in another way, in order to see that actually texting is a miraculous thing, not just energetic, but a miraculous thing, a kind of emergent complexity that we're seeing happening right now, we have to pull the camera back for a bit and look at what language really is, in which case, one thing that we see is that texting is not writing at all. What do I mean by that? (TED 9)

And something festered inside me after this happened. What I thought about was, what caused the diabetes? You see, diabetes is an

autoimmune disease where your body fights itself, and at the time people thought that somehow maybe exposure to a pathogen had triggered my immune system to fight the pathogen and then kill the cells that make insulin. And this is what I thought for a long period of time, and that's in fact what medicine and people have focused on quite a bit, the microbes that do bad things. And that's where I need my assistant here now. You may recognize her. So, I went yesterday, I apologize, I skipped a few of the talks, and I went over to the National Academy of Sciences building, and they sell toys, giant microbes. And here we go! So you have caught flesh-eating disease if you caught that one. I gotta get back out my baseball ability here. (TED 10)

According to Chang & Huang (2015), The *speaker presentation* move introduces the speaker's background and help the audience see the connection between the speaker and their topic. One of the steps in this move is *establish authority*, which functions to introduce the speaker's achievements and/or knowledge, and assert their credentials in delivering the talk (Chang & Huang, 2015). This step was observed in 7 talks, as they follow:

We're designers. We're inventors. We're trying to figure out how to build technologies that let us look at and repair the brain. And the reason is, the brain is incredibly, incredibly complicated. (TED 1)

And so we looked back. Remember those PET scans I told you about, the sugar and so on. We said, hey, how about instead of using sugar molecules, let's maybe take tiny, tiny little particles made of gold, and let's program them with some interesting chemistry around them. Let's program them to look for cancer cells. And then we will inject these gold particles into these patients by the billions again, and we'll have them go all over the body, and just like secret agents, if you will, go and walk by every single cell in our body and knock on the door of that cell, and ask, "Are you a cancer cell or are you a healthy cell? If you're a healthy cell, we're moving on. If you're a cancer cell, we're sticking in and shining out and telling us, "Hey, look at me, I'm here." And they'll do it through some interesting cameras that we developed in the lab. And once we see that, maybe we can guide brain cancer surgeons towards taking only the tumor and leaving the healthy brain alone. And so we've tested that, and boy, this works well. (TED 2)

And with this, we could analyze the history of introspection in the ancient Greek tradition, for which we have the best available written record. So what we did is we took all the books -- we just ordered them by time -- for each book we take the words and we project them to the space, and then we ask for each word how close it is to introspection, and

we just average that. And then we ask whether, as time goes on and on, these books get closer, and closer and closer to the concept of introspection. (TED 3)

We did that. The Harvard Study of Adult Development may be the longest study of adult life that's ever been done. For 75 years, we've tracked the lives of 724 men, year after year, asking about their work, their home lives, their health, and of course asking all along the way without knowing how their life stories were going to turn out. Studies like this are exceedingly rare. Almost all projects of this kind fall apart within a decade because too many people drop out of the study, or funding for the research dries up, or the researchers get distracted, or they die, and nobody moves the ball further down the field. But through a combination of luck and the persistence of several generations of researchers, this study has survived. About 60 of our original 724 men are still alive, still participating in the study, most of them in their 90s. And we are now beginning to study the more than 2,000 children of these men. And I'm the fourth director of the study. (TED 4)

Now most of the time, I was working at UCLA Medical Center with physicians, discussing symptoms and diagnoses and treatments for my human patients, but some of the time, I was working at the Los Angeles Zoo with veterinarians, discussing symptoms and diagnoses and treatments for their animal patients. And occasionally, on the very same day, I went on rounds at UCLA Medical Center and at the Los Angeles Zoo. And here's what started coming into very clear focus for me. Physicians and veterinarians were essentially taking care of the same disorders in their animal and human patients: congestive heart failure, brain tumors, leukemia, diabetes, arthritis, ALS, breast cancer, even psychiatric syndromes like depression, anxiety, compulsions, eating disorders and self-injury. (TED 5)

So now I'm a philosopher, and I study hard choices, and I can tell you, that fear of the unknown, while a common motivational default in dealing with hard choices, rests on a misconception of them. (TED 6)

And that's what I've been doing for 20 years, using DNA sequencing, collecting samples from various places, including the human body, reading the DNA sequence and then using that DNA sequencing to tell us about the microbes that are in a particular place. (TED 10)

Another step is *show stance/position*, and it is the moment when the speaker explains their attitude toward the topic under discussion (Chang & Huang, 2015). This step was observed in 9 talks, as they follow:

So what we've learned over the first century of neuroscience is that the brain is a very complicated network, made out of very specialized cells

called neurons with very complex geometries, and electrical currents will flow through these complexly shaped neurons. (TED 1)

Now, the good news, they said, is that there are tons of different treatments to choose from, but the bad news is that in order for them to tell if a treatment is even working or not, well, that takes them about three months or so. So they cannot try that many things. (TED 2)

So Jaynes's theory is that consciousness, at least in the way we perceive it today, where we feel that we are the pilots of our own existence -- is a quite recent cultural development. And this theory is quite spectacular, but it has an obvious problem which is that it's built on just a few and very specific examples. So the question is whether the theory that introspection built up in human history only about 3,000 years ago can be examined in a quantitative and objective manner. (TED 3)

Now, I've got a confession to make. Even though I studied comparative physiology and evolutionary biology as an undergrad - I had even written my senior thesis on Darwinian theory - learning about the significant overlap between the disorders of animals and humans, it came as a much needed wake-up call for me. So I started wondering, with all of these overlaps, how was it that I had never thought to ask a veterinarian, or consult the veterinary literature, for insights into one of my human patients? Why had I never, nor had any of my physician friends and colleagues whom I asked, ever attended a veterinary conference? For that matter, why was any of this a surprise? I mean, look, every single physician accepts some biological connection between animals and humans. Every medication that we prescribe or that we've taken ourselves or we've given to our families has first been tested on an animal. (TED 5)

It's a mistake to think that in hard choices, one alternative really is better than the other, but we're too stupid to know which, and since we don't know which, we might as well take the least risky option. Even taking two alternatives side by side with full information, a choice can still be hard. (TED 6)

As I've gone through my training in my career, I think back to Harold. And I think that this is a conversation that happens far too infrequently. And it's a conversation that had led us to crisis, to the biggest threat to the American way of life today, which is health care expenditures. (TED 7)

Okay. Some bad news first. People who experienced a lot of stress in the previous year had a 43 percent increased risk of dying. But that was only true for the people who also believed that stress is harmful for your health. (TED 8)

That´s beautiful, but let´s face it, nobody talks that way. Or at least, they shouldn´t if they´re interested in reproducing. That – (Laughter) is not the way any human being speaks causally. (TED 9)

And what's amazing, when you use this technology, for example, looking at humans, we're not just covered in a sea of microbes. There are thousands upon thousands of different kinds of microbes on us. We have millions of genes of microbes in our human microbiome covering us. And so this microbial diversity differs between people, and what people have been thinking about in the last 10,maybe 15 years is, maybe these microbes, this microbial cloud in and on us, and the variation between us, may be responsible for some of the health and illness differences between us. (TED 10)

According to Chang & Huang (2015), in the *topic development* move, speakers explain, describe, support, and expand the main theme of the lesson. The move is accomplished with three steps: *present an argument, describe a process,* and *offer an explanation*. The authors also state that when presenting arguments, an emotional appeal may be used by the narrator, or logical evidence to invite the audience for new ways of thinking, doing, and understanding things. This step was observed in 9 talks, as they follow:

At the other extreme, you have microscopes. Microscopes, of course, will use light to look at little tiny things. For centuries, they've been used to look at things like bacteria. For neuroscience microscopes are actually how neurons were discovered in the first place, about 130 years ago. But light is fundamentally limited. You can't see individual molecules with a regular old microscope. You can't look at these tiny connections. So if we want to make our ability to see the brain more powerful,to get down to the ground truth structure, we're going to need to have even better technologies. (TED 1)

Now, when someone really close to you is going through such a huge struggle, you get really swamped with emotions. A lot of things are going through your head. For me, it was mostly outrage. I was just outraged that, how come this is the best that we can offer? And I started looking more and more into this. As it turns out, this is not just the best that doctors could offer Ehud. It's not just the best doctors could offer patients with brain cancer generally. We're actually not doing that well all across the board with cancer. (TED 2)

And the problem of how to go about this is quite obvious. It's not like Plato woke up one day and then he wrote, "Hello, I'm Plato, and as of today, I have a fully introspective consciousness." And this tells us actually what is the essence of the problem. We need to find the emergence

of a concept that's never said. The word introspection does not appear a single time in the books we want to analyze. (TED 3)

Self-injury. Some human patients harm themselves. Some pluck out patches of hair, others actually cut themselves. Some animal patients also harm themselves. There are birds that pluck out feathers. There are stallions that repetitively bite their flanks until they bleed. But veterinarians have very specific and very effective ways of treating and even preventing self-injury in their self-injuring animals. Shouldn't this veterinary knowledge be put into the hands of psychotherapists and parents and patients struggling with self-injury? (TED 5)

We shouldn't think that all hard choices are big. Let's say you're deciding what to have for breakfast. You could have high fiber bran cereal or a chocolate donut. Suppose what matters in the choice is tastiness and healthfulness. The cereal is better for you, the donut tastes way better, but neither is better than the other overall, a hard choice. Realizing that small choices can also be hard, may make big hard choices seem less intractable. After all, we manage to figure out what to have for breakfast, so maybe we can figure out whether to stay in the city or uproot for the new job in the country. (TED 6)

Something I experience every day in my practice, and I'm sure, something many of you on your own journeys have experienced: more is not more. Those individuals who had more tests, more bells, more whistles, more chemotherapy, more surgery, more whatever -- the more that we do to someone, it decreases the quality of their life. And it shortens it, most often. (TED 7)

And the cool thing is that all of these physical benefits of oxytocin are enhanced by social contact and social support. So when you reach out to others under stress, either to seek support or to help someone else, you release more of this hormone, your stress response becomes healthier, and you actually recover faster from stress. I find this amazing, that your stress response has a built-in mechanism for stress resilience, and that mechanism is human connection. (TED 8)

Well, if you can speak like writing, then logically it follows that you might want to also sometimes write like you speak. The problem was just that in the material, mechanical sense, that was harder back in the day for the simple reason that materials don't lend themselves to it. It's almost impossible to do that with your hand except in shorthand, and then communication is limited. On a manual typewriter it was very difficult, and even when we had electric typewriters, or then computer keyboards, the fact is that even if you can type easily enough to keep

up with the pace of speech, more or less, you have to have somebody who can receive your message quickly. (TED 9)

We are literally a teeming ecosystem of microorganisms. And unfortunately, if you want to learn about the microorganisms, just looking at them in a microscope is not sufficient. And so we just heard about the DNA sequencing. It turns out that one of the best ways to look at microbes and to understand them is to look at their DNA. (TED 10)

Offer an explanation was a step observed very often along the talks, and it explains a new idea, object, trend, or new concept under discussion, as well as examples, statistical details, and analogies may be employed (Chang & Huang, 2015). This step was observed in all the 10 talks, as they follow:

Now, we don't know how the neurons in the brain are organized to form networks, and we don't know how the biomolecules are organized within neurons to form these complex, organized machines. If we really want to understand this, we're going to need new technologies. But if we could get such maps, if we could look at the organization of molecules and neurons and neurons and networks, maybe we could really understand how the brain conducts information from sensory regions, mixes it with emotion and feeling, and generates our decisions and actions. Maybe we could pinpoint the exact set of molecular changes that occur in a brain disorder. And once we know how those molecules have changed, whether they've increased in number or changed in pattern, we could use those as targets for new drugs, for new ways of delivering energy into the brain in order to repair the brain computations that are afflicted in patients who suffer from brain disorders. (TED 1)

I picked up one of those statistics, and I'm sure some of you have seen those statistics before. This is going to show you here how many patients actually died of cancer, in this case females in the United States, ever since the 1930s. You'll notice that there aren't that many things that have changed. It's still a huge issue. You'll see a few changes, though. You'll see lung cancer, for example, on the rise.Thank you, cigarettes. And you'll also see that, for example, stomach cancer once used to be one of the biggest killers of all cancers, is essentially eliminated. Now, why is that? Anyone knows, by the way? Why is it that humanity is no longer struck by stomach cancer? What was the huge, huge medical technology breakthrough that came to our world that saved humanity from stomach cancer?Was it maybe a new drug, or a better diagnostic? You guys are right, yeah. It's the invention of the refrigerator, and the fact that we're no longer eating spoiled meats. So the

best thing that happened to us so far in the medical arena in cancer research is the fact that the refrigerator was invented. (TED 2)

And there are different ways that we can construct the space of words. One is just asking the experts, a bit like we do with dictionaries. Another possibility is following the simple assumption that when two words are related, they tend to appear in the same sentences, in the same paragraphs, in the same documents, more often than would be expected just by pure chance. And this simple hypothesis, this simple method, with some computational tricks that have to do with the fact that this is a very complex and high-dimensional space, turns out to be quite effective. (TED 3)

Once we had followed our men all the way into their 80s, we wanted to look back at them at midlife and to see if we could predict who was going to grow into a happy, healthy octogenarian and who wasn't. And when we gathered together everything we knew about them at age 50, it wasn't their middle age cholesterol levels that predicted how they were going to grow old. It was how satisfied they were in their relationships. The people who were the most satisfied in their relationships at age 50 were the healthiest at age 80. And good, close relationships seem to buffer us from some of the slings and arrows of getting old. Our most happily partnered men and women reported, in their 80s, that on the days when they had more physical pain, their mood stayed just as happy. But the people who were in unhappy relationships, on the days when they reported more physical pain, it was magnified by more emotional pain. (TED 4)

But there's something very different about giving an animal a medication or a human disease and the animal developing congestive heart failure or diabetes or breast cancer on their own. Now, maybe some of the surprise comes from the increasing separation in our world between the urban and the nonurban. You know, we hear about these city kids who think that wool grows on trees or that cheese comes from a plant. Well, today's human hospitals, increasingly, are turning into these gleaming cathedrals of technology. And this creates a psychological distance between the human patients who are being treated there and animal patients who are living in oceans and farms and jungles. (TED 5)

Suppose you have a choice between two jobs: you could be an investment banker or a graphic artist. There are a variety of things that matter in such a choice, like the excitement of the work, achieving financial security, having time to raise a family, and so on. Maybe the artist's career puts you on the cutting edge of new forms of pictorial

expression. Maybe the banking career puts you on the cutting edge of new forms of financial manipulation. (TED 6)

So what do we know? We know that this population, the most ill, takes up 15 percent of the gross domestic product -- nearly 2.3 trillion dollars. So the sickest 15 percent take up 15 percent of the GDP. If we extrapolate this out over the next two decades with the growth of baby boomers, at this rate it is 60 percent of the GDP. Sixty percent of the gross domestic product of the United States of America -- it has very little to do with health care at that point. It has to do with a gallon of milk, with college tuition. It has to do with everything that we value and everything that we know presently. It has at stake the free-market economy and capitalism of the United States of America. (TED 7)

People who experienced a lot of stress but did not view stress as harmful were no more likely to die. In fact, they had the lowest risk of dying of anyone in the study, including people who had relatively little stress. Now the researchers estimated that over the eight years they were tracking deaths, 182,000 Americans died prematurely, not from stress, but from the belief that stress is bad for you. (TED 8)

As history has gone by, it's been natural for there to be a certain amount of bleed between speech and writing. So, for example, in a distant era now, it was common when one gave a speech to basically talk like writing. So I mean the kind of speech that you see someone giving in an old movie where they clear their throat, and they go, "Ahem, ladies and gentlemen," and then they speak in a certain way which has nothing to do with casual speech. It's formal. It uses long sentences like this Gibbon one. It's basically talking like you write, and so, for example, we're thinking so much these days about Lincoln because of the movie. The Gettysburg Address was not the main meal of that event. For two hours before that, Edward Everett spoke on a topic that, frankly, cannot engage us today and barely did then. The point of it was to listen to him speaking like writing. Ordinary people stood and listened to that for two hours. It was perfectly natural. That's what people did then, speaking like writing. (TED 9)

And when people have done a variety of studies, they have learned things such as, when a baby isborn, during vaginal delivery you get colonized by the microbes from your mother. There are risk factors associated with cesarean sections, some of those risk factors may be due to mis-colonization when you carve a baby out of its mother rather than being delivered through the birth canal. And a variety of other studies have shown that the microbial community that lives in and on us helps in development of the immune system, helps in fighting off pathogens, helps

in our metabolism, and determining our metabolic rate, probably determines our odor, and may even shape our behavior in a variety of ways. (TED 10)

According to Chang & Huang (2015) , when speakers explain how something is or was made/done or has happened through a series of steps, a possible step is named d*escribe a process/series of events,* as could be observed in the following 9 talks:

We'd have to do, first of all, is attach every biomolecule, shown in brown here, to a little anchor, a little handle. We need to pull the molecules of the brain apart from each other, and to do that, we need to have a little handle that allows those polymers to bind to them and to exert their force. (TED 1)

Well, unfortunately, three months later, we got the news, it didn't work. And so Ehud goes into his second treatment. And again, the same story. "It feels so bad, something's gotta be working there."And then three months later, again we get bad news. Ehud is going into his third treatment, and then his fourth treatment. And then, as predicted, Ehud dies. (TED 2)

And so what we did is, we measured speech at day one, and then we asked whether the properties of the speech could predict, within a window of almost three years, the future development of psychosis. But despite our hopes, we got failure after failure. There was just not enough information in semantics to predict the future organization of the mind. It was good enough to distinguish between a group of schizophrenics and a control group, a bit like we had done for the ancient texts, but not to predict the future onset of psychosis. (TED 3)

Since 1938, we've tracked the lives of two groups of men. The first group started in the study when they were sophomores at Harvard College. They all finished college during World War II, and then most went off to serve in the war. And the second group that we've followed was a group of boys from Boston's poorest neighborhoods, boys who were chosen for the study specifically because they were from some of the most troubled and disadvantaged families in the Boston of the 1930s. Most lived in tenements, many without hot and cold running water. (TED 4)

Postpartum depression and postpartum psychosis. Sometimes, soon after giving birth, some women become depressed, and sometimes they become seriously depressed and even psychotic. They may neglect their newborn, and in some extreme cases, even harm the child. Equine veterinarians also know that occasionally, a mare, soon after giving birth, will neglect the foal, refusing to nurse, and in some instances, kick the foal, even to death. But veterinarians have devised an intervention to

deal with this foal rejection syndrome that involves increasing oxytocin in the mare. Oxytocin is the bonding hormone, and this leads to renewed interest, on the part of the mare, in her foal. (TED 5)

The triple aim of healthcare: one, improve patient experience. Two, improve the population health. Three, decrease per capita expenditure across a continuum. Our group, palliative care, in 2012, working with the sickest of the sick - cancer, heart disease, lung disease, renal disease, dementia - how did we improve patient experience? (TED 7)

Now to explain how this works, I want you all to pretend that you are participants in a study designed to stress you out. It's called the social stress test. You come into the laboratory, and you're told you have to give a five-minute impromptu speech on your personal weaknesses to a panel of expert evaluators sitting right in front of you, and to make sure you feel the pressure, there are bright lights and a camera in your face, kind of like this. And the evaluators have been trained to give you discouraging, non-verbal feedback, like this.Now that you're sufficiently demoralized, time for part two: a math test. And unbeknownst to you, the experimenter has been trained to harass you during it. Now we're going to all do this together. It's going to be fun. For me. Okay. I want you all to count backwards from 996 in increments of seven. You're going to do this out loud, as fast as you can, starting with 996. Go! (TED 8)

This is an actual text that was done by a non-male person of about 20 years old not too long ago. "I love the font you're using, btw." Julie: "lol thanks gmail is being slow right now". Now if you think about it, that's not funny. No one's laughing. (Laughter) And yet, there it is, so you assume there's been some kind of hiccup. Then Susan says "lol, I know," again more guffawing than we're used to when you're talking about these inconveniences. So Julie says, "I just sent you an email." Susan: "lol, I see it." Very funny people, if that's what LOL means. This Julie says, "So what's up?" Susan: "lol, I have to write a 10 page paper." (TED 9)

Well, one thing that animals seem to do is, they eat poo - coprophagia. And it turns out that many veterinarians, old school veterinarians in particular, have been doing something called "poo tea," not booty, but poo tea, to treat colic and other ailments in horses and cows and things like that, where you make tea from the poo from a healthy individual animal and you feed it to a sick animal. Although, unless you have a fistulated cow with a big hole in its side, and you can put your hand into its rumen,it's hard to imagine that the delivery of microbes directly into the mouth and through the entire top of the

digestive tract is the best delivery system, so you may have heard in people they are now doingfecal transplants, where rather than delivering a couple of probiotic microbes through the mouth, they are delivering a community of probiotics, a community of microbes from a healthy donor, through the other end. (TED 10)

Chang & Huang (2015) state that, in the *concluding messages* move, the purpose of the talk is comprehended, often trying to answer the "so what" question, and it has two possible steps: *call for action* or *make a generalization/offer speculation*. As shown in all the 10 talks, speakers may tell their audience how they are expected to think and act after the talk by making a *call for action*:

So now we can take actual brain circuitry -- here's a piece of the brain involved with, for example, memory - and we can zoom in. We can start to actually look at how circuits are configured. Maybe someday we could read out a memory. Maybe we could actually look at how circuits are configured to process emotions, how the actual wiring of our brain is organized in order to make us who we are. And of course, we can pinpoint, hopefully, the actual problems in the brain at a molecular level. What if we could actually look into cells in the brain and figure out, wow, here are the 17 molecules that have altered in this brain tissue that has been undergoing epilepsy or changing in Parkinson's diseaseor otherwise being altered? If we get that systematic list of things that are going wrong, those become our therapeutic targets. We can build drugs that bind those. We can maybe aim energy at different parts of the brain in order to help people with Parkinson's or epilepsy or other conditions that affect over a billion people around the world. (TED 1)

Now, here's why it's extremely important to take those tiny little leftover tumors. Those leftover tumors, even if it's just a handful of cells, they will grow to recur the tumor, for the tumor to come back. In fact, the reason why 80 to 90 percent of those brain cancer surgeries ultimately fail is because of those small little extra margins that were left positive, those small little leftover tumors that were left there. (TED 2)

And I remember vividly, while I was working on this, I was sitting at my computer and I saw a bunch of tweets by Polo -- Polo had been my first student back in Buenos Aires, and at the time he was living in New York. And there was something in this tweets -- I could not tell exactly what because nothing was said explicitly -- but I got this strong hunch, this strong intuition, that something was going wrong. So I picked up the phone, and I called Polo, and in fact he was not feeling well. And this simple fact, that reading in between the lines, I could sense, through words, his feelings, was a simple, but very effective way to help. (TED 3)

So this message, that good, close relationships are good for our health and well-being, this is wisdom that's as old as the hills. Why is this so hard to get and so easy to ignore? Well, we're human. What we'd really like is a quick fix, something we can get that'll make our lives good and keep them that way. Relationships are messy and they're complicated and the hard work of tending to family and friends, it's not sexy or glamorous. It's also lifelong. It never ends. The people in our 75-year study who were the happiest in retirement were the people who had actively worked to replace workmates with new playmates. Just like the millennials in that recent survey, many of our men when they were starting out as young adults really believed that fame and wealth and high achievement were what they needed to go after to have a good life. But over and over, over these 75 years, our study has shown that the people who fared the best were the people who leaned in to relationships, with family, with friends, with community. (TED 4)

After all, we humans are animals, too, and it's time for us physicians to embrace our patients' and our own animal natures and join veterinarians in a species-spanning approach to health. Because it turns out, some of the best and most humanistic medicine is being practiced by doctors whose patients aren't human. And one of the best ways we can take care of the human patient is by paying close attention to how all the other patients on the planet live, grow, get sick and heal. (TED 5)

Far from being sources of agony and dread, hard choices are precious opportunities for us to celebrate what is special about the human condition, that the reasons that govern our choices as correct or incorrect sometimes run out, and it is here, in the space of hard choices, that we have the power to create reasons for ourselves to become the distinctive people that we are. And that's why hard choices are not a curse but a godsend. (TED 6)

This is a space that we will all come to at some point. But this conversation today is not about dying,it is about living. Living based on our values, what we find sacred and how we want to write the chapters of our lives, whether it's the last or the last five. What we know, what we have proven, is that this conversation needs to happen today -- not next week, not next year. What is at stake is our lives today and the lives of us as we get older and the lives of our children and our grandchildren. Not just in that hospital room or on the couch at home, but everywhere we go and everything we see.Palliative medicine is the answer to engage with human beings, to change the journey that we will all face, and change it for the better. (TED 7)

I want to finish by telling you about one more study. And listen up, because this study could also save a life. This study tracked about 1,000 adults in the United States, and they ranged in age from 34 to 93, and they started the study by asking, "How much stress have you experienced in the last year?" They also asked, "How much time have you spent helping out friends, neighbors, people in your community?" And then they used public records for the next five years to find out who died. (TED 8)

And so, the way I'm thinking of texting these days is that what we're seeing is a whole new way of writing that young people are developing, which they're using alongside their ordinary writing skills, and that means that they're able to do two things. Increasing evidence is that being bilingual is cognitively beneficial. That's also true of being bidialectal. That's certainly true of being bidialectal in terms of your writing. And so texting actually is evidence of a balancing act that young people are using today, not consciously, of course, but it's an expansion of their linguistic repertoire. It's very simple. If somebody from 1973 looked at what was on a dormitory message board in 1993, the slang would have changed a little bit since the era of "Love Story," but they would understand what was on that message board. Take that person from 1993 -- not that long ago, this is "Bill and Ted's Excellent Adventure" -- those people. Take those people and they read a very typical text written by a 20-year-old today. Often they would have no idea what half of it meant because a whole new language has developed among our young people doing something as mundane as what it looks like to us when they're batting around on their little devices. (TED 9)

So, in wrapping up, what I want to tell you about is, I didn't tell you a part of the story of coming down with diabetes. It turns out that my father was an M.D., actually studied hormones. I told him many times that I was tired, thirsty, not feeling very good. And he shrugged it off, I think he either thought I was just complaining a lot, or it was the typical M.D. "nothing can be wrong with my children." We even went to the International Society of Endocrinology meeting as family in Quebec. And I was getting up every five minutes to pee, and drinking everybody's water at the table, and I think they all thought I was a druggie. But the reason I'm telling you this is that the medical community, my father as an example, sometimes doesn't see what's right in front of their eyes. The microbial cloud, it is right in front of us. We can't see it most of the time. It's invisible. They're microbes. They're tiny. But we can see them through their DNA, we can see them through the effects that they have on people. (TED 10)

In the second step *make a generalization/offer speculation*, Chang & Huang (2015) state that speakers try to bring new possibilities, and comment on their implications by making a forecast based on the topic and/or talking about new possibilities, and they may comment on their presentation's broader implications (e.g., to the world, a larger community, or a discipline), or ask questions to encourage make listeners think more about the ideas presented. It was observed in 9 talks, as they follow:

You know, a lot of medicine is very high risk. Sometimes, it's even guesswork. My hope is we can actually turn what might be a high-risk moon shot into something that's more reliable. If you think about the original moon shot, where they actually landed on the moon, it was based on solid science. We understood gravity; we understood aerodynamics. We knew how to build rockets. The science risk was under control. It was still a great, great feat of engineering. But in medicine, we don't necessarily have all the laws. Do we have all the laws that are analogous to gravity, that are analogous to aerodynamics? I would argue that with technologies like the kinds I'm talking about today, maybe we can actually derive those. We can map the patterns that occur in living systems,and figure out how to overcome the diseases that plague us. (TED 1)

An ability to see each and every one of the cells might also allow us to ask insightful questions. So in the lab, we are now getting to a point where we can actually start asking these cancer cells real questions, like, for example, are you responding to the treatment we are giving you or not? So if you're not responding, we'll know to stop the treatment right away, days into the treatment, not three months. And so also for patients like Ehud that are going through these nasty, nasty chemotherapy drugs, for them not to suffer through those horrendous side effects of the drugs when the drugs are in fact not even helping them. (TED 2)

What I tell you today is that we're getting close to understanding how we can convert this intuition that we all have, that we all share, into an algorithm. And in doing so, we may be seeing in the future a very different form of mental health, based on objective, quantitative and automated analysis of the words we write, of the words we say. (TED 3)

Well, the possibilities are practically endless. It might be something as simple as replacing screen time with people time or livening up a stale relationship by doing something new together, long walks or date nights, or reaching out to that family member who you haven't spoken

to in years, because those all-too-common family feuds take a terrible toll on the people who hold the grudges. (TED 4)

Now, people who don't exercise their normative powers in hard choices are drifters. We all know people like that. I drifted into being a lawyer. I didn't put my agency behind lawyering. I wasn't for lawyering. Drifters allow the world to write the story of their lives. They let mechanisms of reward and punishment -- pats on the head, fear, the easiness of an option -- to determine what they do. So the lesson of hard choices: reflect on what you can put your agency behind, on what you can be for, and through hard choices, become that person. (TED 6)

To my colleagues, to my patients, to my government, to all human beings, I ask that we stand and we shout and we demand the best care possible, so that we can live better today and ensure a better life tomorrow. We need to shift today so that we can live tomorrow. (TED 7)

And so we see once again that the harmful effects of stress on your health are not inevitable. How you think and how you act can transform your experience of stress. When you choose to view your stress response as helpful, you create the biology of courage. And when you choose to connect with others under stress, you can create resilience. Now I wouldn't necessarily ask for more stressful experiences in my life, but this science has given me a whole new appreciation for stress. Stress gives us access to our hearts. The compassionate heart that finds joy and meaning in connecting with others, and yes, your pounding physical heart, working so hard to give you strength and energy. And when you choose to view stress in this way, you're not just getting better at stress, you're actually making a pretty profound statement. You're saying that you can trust yourself to handle life's challenges. And you're remembering that you don't have to face them alone. (TED 8)

So in closing, if I could go into the future, if I could go into 2033, the first thing I would ask is whether David Simon had done a sequel to "The Wire." I would want to know. And — I really would ask that —and then I'd want to know actually what was going on on "Downton Abbey." That'd be the second thing. And then the third thing would be, please show me a sheaf of texts written by 16-year-old girls,because I would want to know where this language had developed since our times, and ideally I would then send them back to you and me now so we could examine this linguistic miracle happening right under our noses. (TED 9)

And what we need now is to start thinking about this microbial community in the context of everything in human medicine. It doesn't mean that it affects every part of us, but it might. What we need is a full

field guide to the microbes that live in and on people, so that we can understand what they're doing to our lives. We are them. They are us. (TED 10)

The final step identified in this last move in the current research is *acknowledge/appreciate*, which according to Chang & Huang (2015), speakers acknowledge or pay compliments to their audience, or show appreciation for the opportunity to be invited to speak at TED.

Thank you very much. (TED 1)
Thank you. (TED 2)
Gracias. (TED 3)
Thank you. (TED 4)
Thank you. (TED 5)
Thank you. (TED 6)
Thank you very much. (TED 7)
Thank you. (TED 8)
Thank you. (TED 9)
Thank you. (TED 10)