

Social sciences on stage: a theatrical scientific dissemination project

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Abstract

One of the biggest challenges of contemporary science is to develop innovative approach to excite society about science and scientific topics. One of the attempts to find new ways to communicate with the public has been to use artistic language to explore scientific topics. Based on these premises, a project, titled *Social sciences on stage*, is presented that create a creative link between social science and theater. The aim is to encourage the participation of scientists in the creation and expression of theater and to reflect on the social context of science. It will generate a reflection on the social context of science. According with this paper the theatre is not an end in itself, but a useful resource for educational practice. With my project, theater is considered a real educational tool for human development. It favors the increase of individual sensitivity, channeling the various emotions of the spectators which often remain unexpressed.

Keywords: Social sciences on stage; Theatrical anthropology; Theatre; Public engagement with science.[†]

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1. Introduction

Modern society is deeply influenced by science and technology in many aspects such as political stability, economic growth, national prosperity, health, social welfare, education and citizenship (Bubela et al., 2009). There is a significant gap between society and science (Rédey, 2006). This lack of communication does not allow for a valuable and complete understanding between these two worlds and undermines the building of relationships of trust and appreciation (European Commission, 2007).

Science communication is pivotal to addressing these problems by bringing science closer to the public. The main objective of science communication initiatives is to enable researchers and the public to learn from each other through a process of interaction and collaboration (Davies, 2008). Using artistic language to explore scientific topics is a creative way to communicate and engage the public (Riesch, 2014).

Theater is an art and is a way of dealing with a specific theme, namely science and technology and its political, social, and ethical issues (Shepherd-Barr, 2006). One of the hallmarks of the growing importance of science in society is an indicator of the growing importance of science in society is its presence in artistic productions.

In the last 30 years, it has been one of the themes of increasing interest in theater (Zehelein, 2009). Science theater has covered a wide range of disciplines and scientific ideas, including biology, genetics, neuroscience, mathematics, physics, and astronomy.

At this regard “The appropriation of science by playwrights may take many forms. Some plays analyze the social and ethical impacts of scientific progress—some examples are ‘The Burning Glass’ that focuses on the invention and use of the atomic bomb and Wendy Lill’s ‘Chimera’ that focuses on genetic engineering. Other address questions about the history of science, the daily life of scientists or the scientific process. There are numerous examples, particularly in the last decades, such as ‘Copenhagen’ which focuses on a secret meeting between two renowned physicists during the second World War, or Timberlake Wertenbaker’s ‘After Darwin’ which explores Charles Darwin’s voyage on the Beagle, or (...) Anna Ziegler’s ‘Photograph 51’ about Rosalind Franklin and the discovery of the structure of the DNA. There are many other examples that use science as a subject and scientists as protagonists. The history of science in theatre is long, multidisciplinary and proves that many scientific themes succeed in theatre” (Amaral et al., 2017, p.2).

Based on these premises, a project, titled *Social sciences on stage* is presented that create a creative link between science and theater. The aim is to encourage the participation of scientists in the creation and expression of theater and to reflect on the

social context of science. It will generate a reflection on the social context of science. In doing so, the initiative has the potential to reduce two gaps between science and society.

These are demystifying the image of scientists and science itself between science and society (Haynes, 2014) and addressing the relationship between social science and 'laypeople', i.e. those who do not have sufficient knowledge in the field.

2. The scientific bases of Social Sciences on stage

Social sciences on stage is a project that has scientific bases deriving from theatrical anthropology and the sociological dramaturgical approach, and the main characteristics of which will be presented.

Theatrical anthropology or anthropology of theatre

The anthropology of theater studies the expressive behavior of artists, shaping different genres and traditions. In organizational performance, the artist's physical and mental being is modeled differently from everyday life, forming the basis of technology. Techniques can be conscious or unconscious, yet implicit in landscape practices. The principle of repetition creates physical tension, generating new energy and captivating the viewer. This "before" stage constitutes the basic level of organization, inseparable from the audience and performance. Analyzing this level allows for knowledge expansion in practical, professional, and historical areas with immediate results (Barba, 2005). The anthropology of theater combines three levels:

- 1) the artist's personality, sensitivity, artistic intelligence, social personality: the characteristics that make an artist unique;
- 2) the historical and cultural context in which the characteristics of the natural tradition and the unique personality of the artist emerged;
- 3) the use of the body mind according to the extra daily technique, in which the principle of ultra-cultural repetition can be found.

These levels are defined by theatrical anthropology as the field of preliminary representation (Barba, 2005). In particular, "The first two aspects determine the transition from pre-expressivity to performing. The third is the idem, that which does not vary; it underlies the various personal, stylistic and cultural differences. It is the level of the scenic bios, the 'biological' level of performance, upon which the various techniques and the particular uses of the performer's scenic presence and dynamism are founded. The only affinity connecting Theatre Anthropology to the methods and fields of study of cultural anthropology is the awareness that what belongs to our tradition and appears obvious to us can instead reveal itself to be a knot of unexplored problems. This implies a displacement, a journey, a *détour* strategy which makes it possible for us to single out that which is 'ours' through confrontation with what we experience as 'other'. Displacement educates our way of seeing and renders it both participatory and detached. Thus a new

light is thrown on our own professional ‘country’”(https://ista-online.org/about-ista/theatre-anthropology/).

Specifically, theater anthropology is a useful science when experts can understand creativity and increase the power of those involved in creativity (Barba, 2005). As a sub-discipline it falls more broadly within the discipline known as anthropology of art. It has focused on material objects. Less attention has been given to physical performance (music, dance, theatre) despite pioneering work by anthropologists such as Victor Turner (1979) in recent decades.

There are different anthropological approaches to work from work and workplace studies. Anthropologists examine the relationship between society and the resulting theatrical and artistic performances. Human approaches to work reflect a range of human concerns: social structure, function, meaning, identity, and experience. Performing arts research is akin to ritualistic practice, a well-documented field in which functional elements do not always receive the recognition they deserve. The study of anthropology helps teach students about cultural diversity and the role of different theoretical perspectives in learning. Anthropology is a relatively new field of study, so there is no easy introduction or general reading (Islam et al., 2024).

Sociology and theater

Another trend that has a strong connection with the world of theater and social sciences is certainly dramaturgy.

Dramaturgy is a perspective of sociology that analyzes micro-sociological descriptions of everyday social interactions through analogies of performativity and theatrical dramaturgy, dividing such interactions between "actors", "audiences", and various "frontstages" and "backstages". The term was first adopted into sociology from theater by Erving Goffman (1959), who developed most of the related terminology and ideas in his book *The Presentation of Self in Everyday Life*.

Dramaturgy sociology asserts that elements of human interaction are time, place and audience dependent. In other words, for Goffman, the self is a sense of who one is and the dramatic effect that results from the presented immediate scene. Goffman forms a theatrical metaphor by defining the way one person presents themselves to another based on cultural values, norms, and beliefs (Macionis and Gerber, 2010). Although the performances can have glitches (the actors are aware of this), most are successful. The goal of this self-presentation is to be accepted by the audience through a carefully executed performance. If the actor is successful, the audience will see the actor as he wants to be seen.

The theatrical metaphor can be seen in the origin of the word person, which comes from the Latin persona, meaning mask worn by an actor. A person acts differently because plays different roles, in front of different people, i.e. the audience. A person chooses her clothes (costume) to match the image she wants to convey. With the help of friends, caterers, and decorators (fellow actors and stage crew), a person successfully "stages" a dinner with parents, a friend's birthday party, etc. If they need to adjust the outfit or say

something unpleasant about one of the guests, they do so discreetly (behind the scenes) where others cannot see (Brissett Edgley, 1990). The way we present ourselves to others is called dramaturgy. The dramaturgical perspective is one of several sociological paradigms that differ from other sociological theories and theoretical frameworks because it does not investigate the causes of human behavior, but rather analyzes context. However, this is controversial within sociology (Edgley, 2013).

For Goffman "What is important is the sense he (a person or actor) provides them (the others or audience) through his dealing with them of what sort of person he is behind the role he is in"(1974, p.298). Because it relies on this agreement to define the social situation, this perspective argues that there is no concrete meaning to interactions that cannot be redefined. Dramaturgy emphasizes expressiveness as a key element of interaction i.e. a fully two-sided view of human interaction (Goffman, 1959).

Dramaturgy theory assumes that a person's identity is not a stable, independent psychological entity, but is constantly reshaped as the person interacts with others. The dramaturgy model analyzes social interactions through the way people live their lives, like actors on a stage. This analysis gives insight into the concept of status, which is similar to theatrical roles, and roles that act as scripts and provide dialogue and action for the characters. Just as on stage, in everyday life, people manage their environment, clothing, words, non-verbal behavior, etc. to convey a certain impression to others. Goffman(1959) described each individual's "performance" as a representation of the self. A person's effort to leave a certain impression on the minds of others. This process is sometimes called impression management. Goffman(1959) distinguishes between onstage behavior, that is, behavior that is part of the performance visible to the audience, and backstage behavior, that is, behavior that people do when there is no audience. For example, a professor will probably behave a certain way in front of students in class, but will be much more informal in his home. He may also do things in class that would be considered inappropriate in front of students or colleagues.

Before people interact with others, they prepare the roles or impressions they want to give to the other person. These roles are subject to what is known in theater as breaking character (Brissett, Edgley, 1990). Inconvenient interruptions can occur if they are interrupted by people who are not supposed to be watching the performance backstage (Goffman, 1959). In addition, there are examples that show how the audience plays a role in determining the direction of an individual's performance, for example, how people ignorantly ignore many performance mistakes, such as someone tripping or spitting while speaking(Goffman, 1959). In dramaturgy analysis, a team is a group of people who work together to share a party line. Since mistakes affect everyone, team members need to share information. Team members also have inside information and are not fooled by each other's achievements (Goffman, 1959).

The scientific functions of theater

Regarding the role of theater in general, Vieites (2014) identified three functions of theater:1) education, where theatrical practice is aligned with the purpose of the process;

2) theater as a comprehensive means for developing social skills and competencies; 3) education through theater, linking it with content and skills from other disciplines.

Therefore, theater provides an opportunity for public participation and performances in which the audience is invited to think, participate and decide, as a place for personal and social change. Without going into the history of theater and analyzing its various genres, a first mention is Augusto Boal's Theater of the Oppressed (Sajnani et al., 2021) inspired by the ideas of Paulo Freire (Coudray, 2016), this method allows not only to talk, but also to analyze, to give answers, to act, to interact: the story that is presented is not which came from outside the author, but from the actors from the audience, so he can think about his social situation, identify vulnerable situations, and understand problems to contribute to the creation of solutions, to integrate various representations of reality and to explore the possibilities of change in creative and social situations. By providing methods and tools for reflection and analysis, Theatre of the Oppressed aims to foster an informed and active citizenry (Gigli, Tolomelli, & Zanchettin, 2008; Santos, 2018; Aglieri & Aprigliano, 2019).

One of the main techniques is interactive theater, where people can hold objects and move from one side of the stage to another, becoming characters in the show, guided by group vote, and give suggestions for the continuation of the conversation. Developments such as the Augusto Boal Theater (Sajnani et al., 2021) Interactive theater is not only for entertainment, like TEDs (Corazza and Macaudo, 2022), but is often used for debates on social or political issues in real life: the audience can participate in what is being said in it. at the center of the debate. The activities related to these scientific topics can achieve the goal of creating the desired relationship between science and society and increase the need for a new "scientific thinking" (Murtonen, Balloo, 2019).

The theatre is not an end in itself, but a useful resource for educational practice. Theater is considered a real educational tool for human development. It favors the increase of individual sensitivity, channeling the various emotions of the spectators which often remain unexpressed. The theater also allows you to express emotions while watching a show. What is observed in practical terms has a significant impact on those who take part in a performance (Gómez, 2006). Furthermore, according to Llamas (2013) the theater and its educational function allow a real application of Gardner's theory (Gardner, Hatch, 1989) on multiple intelligences, and its impact on skills and holistic education.

The ease of attrition in public performance spaces is effective for theater spaces. Compared to static art experiences in art galleries or other art experiences such as watching movies, the coexistence of actors and audience is a unique feature of this live performance art (Sun et al., 2023). The actors breathe in the same space as the audience and communicate with them verbally and non-verbally (Karmakar, 2013). Theater is a place where three types of dyadic interaction exist: actor-performer, actor-audience and audience-audience (Sun et al., 2023). It is important to highlight that these three combinations influence each other, which is why theater audiences are as interested as

scientists in the types of interactions that take place in the theater space (Karmakar, 2013). Also important are the physical and mental experiences of the actors and the audience.

Social interaction in the theater is choreographed and repeatable. Theater performances are probably the closest thing to real-world social interaction, but they can be controlled and manipulated experimentally. During a performance, actors do not necessarily feel the same way every time, but the plot of the play is usually the same throughout the performance. Theater allows for adaptations that are both reproducible and considered valid (Sun et al., 2023).

Therefore, theater favors the development of intelligence in all its manifestations, in particular favoring the overall development of the individual through self-awareness and personal self-construction. In this way, theater comes to favor two processes: 1) mediate creativity and innovation; 2) favor contents and notions in a more engaging and dynamic way. In this way, through the theatre, spectators develop a more critical, questioning and transformative vision. Therefore, theater is a powerful pedagogical resource (Serrani et al., 2023).

3. The project “Social sciences on stage” in detail

It is on the basis of all these scientific assumptions that the Social sciences on stage project was structured.

The project has several objectives. First, to communicate the elements that characterize the social sciences (especially anthropology, criminology and sociology) through theatre, which is understood to be one of the best tools for acquiring knowledge;

also to address contemporary social problems; and above all, to link the experience of scientific research with the world of performing arts.

The research carried out by the author of this contribution is presented and therefore attributable to topics such as: gender issues, healthcare, criminology, cannibalism, chronic diseases and much more.

The meaning of the logo

It is known that the identity of any entity firstly requires symbols to assert itself. Precisely for these reasons, a logo was created that was able to incorporate the many "dualities" that underlie this project (Figure 1).



Figure 1. The logo

First of all, the colours: black and white, as a reference both to the light and shadow areas of human action, but also related to the contrast between the backstage and the foreground, but more generally they refer to the various forms of ambivalence that accompany the man. The symbols: on the left there are the classic masks that represent the theatre, but they also have another meaning, namely the one proposed by Jung (1967) who borrows the term from the Latin *persōna persōnam*, or the mask that actors used to wear during stage performances. The person was only a reflection of the image of the character played by the actor, it took up his features, characterized him, inserted him into a role. On the right, however, we find a network, and therefore a symbolism that recalls the human ability to enter into relationships with others.

The structure of social sciences on stage

The project has a special structure. First, it opens with a video with background music. This stage has a twofold role. To create an intense atmosphere to attract attention and at the same time to be a real visual stage set.

Then the theatrical phase begins, where not only a passage from my research is interpreted, but all the characters are analyzed. This is an important moment as it serves to put the audience 'inside' the topic under discussion. The aim is to show how interviews are conducted from a social science perspective, i.e. to make the audience understand how complex it is to remain untied about a topic. At the same time, it helps to start the final stage - the analysis of everything brought to the stage - with simple, understandable

language that conveys a form of knowledge that is useful not only for the purpose of the event, but also for everyday life.

Other peculiarities of the project

Social sciences on stage, intersects social sciences not only with acting, but also with art. In fact, a central element of this project is both the creation of photographs together with the presence of artistic installations on stage in line with the theme covered.

The project is totally autonomous and self-financed, because only in autonomy can a research product be provided free from any form of political, economic or other influence.

The ultimate goal would be to launch the figure of the *theatrical popularizer*: that is, a social scientist capable of transmitting his knowledge, his experience in the field, his scientific products in the theatrical context.

4. Conclusions

The project presented, based on a series of scientific references, constitutes a form of intersection between science and art, fitting into the context of scientific dissemination in a theatrical key. The intersection between these different activities such as creativity, aesthetics, it could allow communities to be brought closer to the contents and research typical of the social sciences. It is also important to highlight the advantages regarding the potential of the project to involve scientists in scientific communication activities, leading to staff development and professional skills, as already described in other studies on science communication (Clark et al., 2016). Many researches show how the difficulty of science the communicative task is usually associated with a perceived negative image and therefore with its removal scientists from these types of initiatives (Jensen et al., 2008; Davies, 2008; Dowell and Weitkamp, 2011; Borrow and Russo, 2015). This perspective had already been described in other similar science communication projects, including the cabaret initiatives the British “Brightclub” (Bultitude, 2011), “Cientistas de Pé”, the Portuguese projects by Pinto et al.(2013) and by Amaral et al. (2017).

In order to evaluate the impact that the project has on people, after each event an anonymous questionnaire is sent via email containing both personal data questions and a series of open-ended questions such as: "what do you think of the event?"; "what struck you the most?"; etc.

At this regards common adjectives in the responses were: exciting, exciting, inspiring, pleasant. Here are some of the answers: It helps you think about what you are doing; You feel like you are inside; Yes, because people want people you have to work with; Talk directly to others face to face and observe what each person is doing; But it works in a context where people come to all events and I'll stop here; I don't know if things like this can easily attract people's attention; Dedicated only to acting; It is more

confusing to express yourself verbally and draw your hand to show a card to enter because something, but far from the crowd; etc.

Theater, then, is also a source of expression of stories and truths, which serves as a basis for the progress and connection of social studies. The results of this approach are not only entertaining, but also informative, educational, or educationally stimulating for social change. In this way, the theater can take various steps to analyze the socio-cultural reality presented through the performances (Veselková, 2024).

Among the most relevant aspects is the recognition of a dual need: to save people engage by closing the distance between the "scientist" and the audience responding to the topic by working on a verbal level.

The project's ability to show singularities is noteworthy of the scientific world and the daily life of researchers, approaching science and society and demystifying it the complex image of scientists.

By lifting the veil of the scientific world, theater has the ability to show concepts and discoveries useful to everyone, and not just to the scientific community.

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