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12 The lecture and the presentation – rhetorics and technology

Abstract: For a long time, the lecture dominated performatively presented scientific communication. Given academic traditions, it is possible to make a connection between the lecture and classical rhetoric, a highly differentiated instrument of analysis. The tradition of the lecture has been perpetuated in the presentation of research results, first in the use of transparencies and subsequently through computer-based projections. Yet the use of media technology has also allowed new practices to emerge, including mediation practices hitherto neglected in the theory of rhetoric.

Keywords: lecture – presentation – rhetoric – scientific communication – media technology – form of communication

1 From the lecture to the presentation

Until recently, the predominant form for communicating scientific findings has been the lecture. Its origins lie in the medieval university practice of instructors reading texts out loud to students. This practice of literally citing the works of an acknowledged authority in a given field was gradually augmented by notes and commentaries an instructor added as glosses to the text. By around 1800, the word “lecture” (*Vortrag*) referred to the manner in which a text and its accompanying commentary were presented, or in other words to what was called *actio* in classical rhetoric and which is now called performance (Peters 2005a: 200). Changes which began in this era to the process of how scientific insights were gained also affected the understanding of how these new insights were to be imparted. A lecturer was not simply supposed to present results but also discuss how he or she arrived at them, which is to say to “always let the whole of the research process arise in the eyes of the apprentice” (Schelling, cited in Peters 2005a: 202).

Peters (2005a; 2005b; 2011) promotes the interesting thesis that the rise of the scientific lecture format after this time is related to the “scientific figuration of evidence”, meaning the recognition of methods-based justifications for scientific insights; this seamlessly made a transition “into other, non-scientific techniques of evidence”. These latter techniques used in the natural sciences included a lecturer showing or demonstrating, as well as using persuasive rhetorical techniques that could blossom independent of a particular discipline.

The scientific lecture can thus be understood as a form of communication which is performatively influenced, shaped not only by its disciplinary content but also by basic aspects of rhetoric. At the same time, the transitory nature of this form of com-

munication creates a problem in how it can be set out in writing and hence made archivable. In the 19th century, this was largely accomplished by having listeners transcribe the spoken text as accurately as possible. With the rise of academic publishing in the 20th century, the responsibility for setting out the text has shifted to the lecturer himself or herself (cf. Peters 2005b: 323). If a lecture is regularly associated with the publication of a related essay, then this will affect the lecture itself (see Chapter 13, this volume).

An efficient way of doing so is to have essay and lecture be closely related, such that the fully formulated lecture can be used, with only minor changes, as a (lecture) manuscript. This practice prevailed internationally, in the 20th century, in nearly every discipline, and is still practiced in fields such as philosophy or law. Before the emergence of the scientific presentation, the communication form of the lecture, which is in fact performative and as such has a function independent of script-based forms used for communicating scientific insights, has become a shell for written publication processes. As such, the lecture has become more of a ritual rather than serving actual communicative functions. However, the systematic driving out of these performative elements from the classical lecture has made room for presentations which contain new and original performative means for dissemination.

Presentations using transparencies are technologically inseparable from the rise in the availability of overhead projectors. These were first used in the 1940s in the U.S. for military and police briefings. The technology spread during the next decades to schools and universities, partly supported by government programs, and to businesses (Schnettler, Knoblauch, and Pötzsch 2007: 11–14 provide details about the history of transparency presentations and the early stages of software for presentations which developed out of it).

The main characteristic of overhead projectors is the use of transparent (usually acetate) foil onto which one can write or draw; this foil is available as individual sheets or as a roll of continuous foil. By shining light through it and using lenses and mirrors in the projector, it is possible without much loss of brightness to project text or images on the transparent foil onto a wall or a screen, making them visible to a larger audience.

Visualization of this kind then becomes the focus of attention during the presentation, and in the context of this communication situation, helps constitute meaning. An important advantage of overhead projectors, as compared with other forms of visualization, is that it makes the medium openly accessible. That is, the presenter, using a suitable pen, can write or draw directly onto the transparency and thus can manipulate what is being shown. It is possible for the presenter, while looking at the foil or writing, to remain facing the audience. He or she can thus maintain eye contact, allowing for a more pronounced social interaction between himself, as presenter, and audience than would be possible when using a blackboard.

To some extent when using a transparency, a presenter therefore can already monitor his projection, which is also the case in presentations using a beamer and a

laptop computer. In both cases, the projected materials, which also lie in the presenter's field of view, serve as a framework for the lecture. This feature of presentation situations remains relevant in fields such as mathematics, even when implemented using digital techniques.

A final feature (if not advantage) of transparencies employed in presentations is that the materials used can be archived or distributed. Unlike a diagram drawn on a blackboard, transparencies are portable, are of small size, and can be duplicated on a copier. Collaborative work using an overhead projector can also be integrated into a more comprehensive, medium-supported workflow – a feature crucial, in the early days of this technology, for the police and the military.

If one looks at the relationship between scientific presentations and these two precursors, then it is clear that in both cases there are pronounced forms of performativity. Thus, the scientific lecture stands in the tradition of classical rhetoric and employs its basic features. The presentation using transparencies, by contrast, is shaped by the element of demonstration; the ability to manipulate the item(s) being demonstrated becomes part of the interaction between presenter and audience. Against this background, scientific presentations are thus a mix of these two precursors. With respect to the scientific lecture, there is a stronger situationally embedded aspect of performativity and interactivity due to the common visual reference shared by presenter and audience. With respect to the transparency presentation, more pronounced planning and language implementation takes place in terms of structuring the lecture. As both precursors “bring along” their own conditions for archiving – the lecture in the form of the written essay or direct transcription of what was orally presented, the transparency presentation in the form of copies of what was projected onto the screen – a particular archiving problem arises here.

Rhetoric itself influences the structure of scientific presentations in two ways. For some time now, practical rhetoric, in the guise of guides, has intensively addressed the conditions favoring effective lectures. These mostly address graphic design as well as the personal demeanor of the speaker. Those seeking advice are provided a multitude of phrases and tricks aimed directly at optimizing the lecture's effect. Practical rhetoric largely reflects the wisdom experienced speakers have gained rather than the results of specific scientific insights. While not directly relevant to research on presentations, such guides are nevertheless interesting sources of information that can inform and justify the study of lecture rhetoric.

The popularity of practical guides to rhetoric can be understood as a reaction to the development of classical rhetoric. In recent eras, this has developed into an interpretive field of study, one whose orientation is influenced by literary theory. Nevertheless, rhetoric in antiquity was quite practically oriented. The grand rhetorical systems of Cicero and Quintilian, in addition to content-related aspects and rhetorical means, also describe the stages in producing a speech. Such systems made universal claims, including a speaker's education and his virtuous way of life, both of which were regarded as indispensable prerequisites for delivering a good oration.

The shift to a more theoretically-oriented understanding of rhetoric took place during the Renaissance, when commentaries on examples of classical orations began to appear. These were phrased in terms of an inventory of rhetorical categories – if at a time when such orations were no longer primarily being used in a productive sense. Additionally, classical rhetoric refers to the design and delivery of the speech itself, and only marginally notes the integration of other media. Hence, Liebert regards presentation rhetoric “as communicative, medial, but in particular as linguistic processes which serve to deliver the information to be transmitted in a presentation in an effective manner” (2005: 33). By the same token, the comprehensive classifications and taxonomies crafted in classical rhetoric can be usefully employed when developing a rhetoric of, and for, scientific presentations.

2 Presentation and classical rhetoric

The central question classical rhetoric wishes to answer can be put succinctly: “What conditions for achievement is a communicator who is committed to effectiveness and success subjected to?” (Knappe 2007: 53). Classical rhetoric distinguished between three different speech genres in answer to this question, each of which was connected to different communication situations. The production of a speech was additionally divided into defined phases, reflecting a methodical instrument. Finally, the structure of a speech was also taken into account.

2.1 Speech genres, structure, and production stages

Classical rhetoric distinguishes between three speech genres: deliberative (*genus deliberativum*), judicial or forensic (*genus iudicale*), and ceremonial or epideictic (*genus demonstrativum*). A fourth speech genre was established during the adoption of classical rhetoric in emerging Christendom. The sermon (*ars praedicandi*) deals with the mediating of Christian beliefs, predominantly in the form of the immutable truth of the Bible, using the tools of rhetoric. In so doing, a speech took on an entirely different function: “its basic problem is not determining truth but relaying it” (Götttert 1991: 129).

A core area in classical rhetoric concerns the systematization of the five stages in producing a speech. The method for the discovery of arguments (*inventio*) is “the term for finding the thoughts and material possibilities which can be developed out of a topic or from a question” (Ueding and Steinbrink 1994: 209). *Inventio* does not refer to an arbitrary invention of a topic but instead to the analysis of an existing topic in terms of the requirements of a speech. From the outset, this phase thus refers to the purpose of a speech, and as such constitutes an evaluative activity.

In the organization of arguments (*dispositio*) phase, the speaker must structure his topic with respect to the intention to speak, and needs in particular, to distribute his persuasive means, both rational and emotional, throughout his entire speech. The third, central phase devoted to style (as well as its level, correctness, clarity, appropriateness, and ornaments – the *elocutio*), is devoted to formulating the terms noted in the *dispositio*. Clearly, the effect and success of the speech as a whole depends to a large extent on the outcome of this phase.

According to Quintilian, the apt expression derives from the subject of the speech, so the linguistic form cannot be separated from its content. The appropriateness of the speech (*aptum*) serves as the “superordinate regulator” (Ueding and Steinbrink 1994: 216). Appropriateness can refer to the relationship of parts of the speech to one another (interior *aptum*) or to the time and place it occurs and to those who listen to it (exterior *aptum*), or in more modern terms, to external communication factors.

Classical rhetoric was based on the principle that an oration should be held freely, though it should correspond exactly to its previously drafted version, including with respect to quotes and particular phrasing to be employed rhetorically. As a result, the key fourth phase (*memoria*) involves (re)calling previously formulated argument or discourse. It is thus a type of memorization.

The fifth and final phase in producing a speech is its actual delivery. Delivery using spoken language (*pronuntiatio*) is differentiated from all non-linguistic elements (*actio*) involved in its enactment. Along with gestures and facial expressions, these could include the staging (or even the “set design”) as well as the objects employed. In the case of court proceedings, these are used as evidence in support of an argument.

In classical rhetoric, an oration is linearly divided into four parts. The task of the introduction (*exordium*) is to generate interest and quickly make listeners receptive to the speaker’s argument. Its function was primarily affective, and was used to evoke understanding, sympathy, and attention for speaker and topic. The second part (*narratio*) states the case, narrating the facts or subject of the oration from a subjective point of view. By definition, this part was meant to win over listeners, and it could therefore omit or exaggerate aspects of the subject.

The proof (*argumentatio*) given is the most important part of the speech, and as such had to be taken into account in the planning phase. Here the central question which arose from the facts at the core was explicated, though the formulation of this question itself would reflect the biases of the speaker. The conclusion of the oration (*peroratio*) has the task of summarizing all the previous parts in a memorable way. It also tried to summarize the train of thought using pointed aphorisms, as well as using emotional means to persuade listeners of the orator’s point of view.

2.2 Are presentations “mediatized” speeches?

So what can classical rhetoric tell us about scientific presentations? If we regard the scientific lecture or presentation as a communicative technique for disseminating research results previously arrived at (and hence regarded as valid or validated from the lecturer’s point of view), then this communicative situation seems closest in form to that of the sermon. Both the sermon and the scholarly lecture, at least in terms of medieval theories of rhetoric, are about “secured content”, the stock of beliefs which is to be passed on in the appropriate form.

This analogy is less curious than it may first appear. European universities, when first founded in the Middle Ages, emerged from Christian cultural traditions; for centuries, the study of theology was regarded as the culmination of an academic education (Rüegg 1993: 359–363). For many years, university instruction was based on the reading and exegesis of the writings of ancient authors, interpreted as part of the Christian tradition and imparted in a manner similar to how the Bible or Christian authors were taught. The academic lecture, from which the scientific presentation later emerged, is structurally inspired – at least in part – by the same rhetorical tradition as the sermon.

If one looks at lectures given in the humanities and social sciences, on the other hand, then dialectic and hermeneutic types of argument are relevant. Here the lecture should not be understood as a mediating instrument for insights or knowledge previously generated but itself instead as a method of gaining knowledge (Peters 2005a, 2005b). This form is also closely connected to the other, older form of communication in academic contexts, namely the debate (*disputatio*). In medieval scholasticism, statement and objection were set against one another until a victorious side could be determined. The communicative success in such a disputation was equated with the process of gaining insight, as the disputation was seen as a heuristic instrument.

An intention to present one side as the “correct” interpretation (for example, so as to influence an imminent decision) of course does not correspond either to the *modus operandi* of modern scientific communication or to hermeneutic reasoning processes concerned with the process of argument itself and synthesis. The scientific lecture, in sum, does not (at least ostensibly) mean to influence a decision but rather (at least in principle) wants to convey an insight or reflect on the process of knowledge generation.

In classical rhetoric, the relationship between listeners and the subject of a speech also functioned as a classificatory characteristic, and there are certain parallels here to modern presentation practice. Many modern presentations begin with a statement about what brought the speaker to the topic or subject. This is meant to evoke interest and make connections to other, perhaps better-known questions (see *genus humile*, plain or humble style). Presenters often want to gain the goodwill of listeners by starting with a humorous introduction, or they want to exhibit competency (see *genus dubium*, ambivalent or conflicting style). However, it is not possible

in scientific presentations to make, as classical rhetoric postulates, a clean separation of genres at this level.

The level of theoretical reflection possible with regard to the effect of scientific presentations must be regarded as rather low when compared to classical rhetoric theory. There is no doubt, as is generally the case when presenting academic research, that intellectual operating principles stand in the foreground. These can be well characterized by the didactic techniques of instruction (*docere*) and argumentative proof (*probare*).

Emotional and affective modes are ordinarily not openly used, though a scientific presentation undoubtedly is effective at these levels as well. This applies above all to the “moderate” affective mode. A presenter can, as was already true in antiquity, win over (*conciliare*) his listeners through his demeanor – even though this ability is rarely displayed in scientific environments nowadays. The exception is the humorous talk, a mode accepted to some degree in scientific presentations.

The visual modality also gives a presenter considerable latitude to achieve additional effects at the affective level, among which one can note particularly attractive graphic design evident on transparencies and slides, or the use of the logos of well-known institutions. Elements of this kind have a non-intellectual effect which can reinforce the scientific information being conveyed, and presentations of this kind are more open to such effects than other types of formalized scientific communication such as the essay or a specialized text.

The five stages in the production of a speech noted in classical rhetoric show clear parallels to the usual procedures employed in preparing a scientific presentation or lecture (on this, see Liebert 2005: 34–37). Obviously, the classic *inventio* should not be equated with original research activity today. Instead, scientific presentations are based on a selection of results already obtained that are presented in a form structured in a customary manner (*dispositio*).

However, in humanities disciplines, where the process of writing coincides with the research process, it is conceivable that the structure itself emerges as part of the process of drafting a text for delivery – a variant of the factual unity of *inventio* and *dispositio* as it conceived in classical rhetoric texts. Modern-day lectures follow the classical structure of an oration, in which one or more main parts are framed by an introduction and a conclusion.

Ostensibly, all emotionalized means of persuasion are deliberately suppressed; unlike the classical oration, scientific lectures and presentations are supposed to use dissemination procedures that are exclusively fact-oriented. That this is even possible is, of course, an illusion. The sequence and formulation of argument alone opens up an emotional, if more subtle, dimension (Dyngowska, Lobin, and Ermakova 2012). Knape (2007: 57–58) has raised the question to what extent using formulaic representations of content in bullet point lists, for example, influences *inventio* in the sense of creating a novel *topos*. *Topoi*, as Aristotle already noted, are basic patterns of argument. While bullet point lists put their stamp on the representation of content, they cannot be seen

as actually specifying content. However, the “PowerPoint is evil” debate (Tufte 2003) begins at exactly this point, its advocates claiming that the medium itself has an effect on the contents.

At the same time, the attention to style found in the classical *elocutio* phase, is largely dispensed with in the modern presentation. This is in part because text written on a slide contains elaborated formulations, even if shown as keywords, which the presenter points to, paraphrases, and supplements.

This partial renunciation of fully formulating the text of a lecture has its advantages and disadvantages. It can be regarded as advantageous if – in the ideal case – thinking and speaking coalesce and the listener is witness to the emergence of scientific insight as the lecture is being given (Peters 2007, 2011). The other end of the spectrum are lectures in which a speaker struggles with formulations inadequate to the task, and where it is evident that an *elocutio* phase could have helped. Most presentations, though, lie somewhere between these poles: a speaker, though somewhat fluent, takes his or her cues from the text on the transparency or slide, but is not able to come up with particularly trenchant or pointed formulations, as these would have required more intensive preparation.

The virtues which underpin *elocutio* (other than *ornatus*, the literary flourishes) also have their counterparts in modern presentations. Inner and outer appropriateness and fitting oneself into existing communication structures is essential in a scientific community which negotiates over subjects, topics, positions, and research money. The virtue of linguistic correctness appears thereby in the form of the correct use of the terminology commonly used in a given discipline. This also functions as a signal or mark of identification among colleagues. Clarity (*puritas*), in the sense of comprehensibility, also is expected of every scientific text. However, it is precisely in scientific presentations that clarity interacts with obfuscation – about further results, about methods, about remaining uncertainties, and about counter-arguments. To what extent lucidity or perspicuity (*perspicuitas*) should be regarded as a virtue remains open to discussion. The presentation of complex subjects is often dominated by the topic itself, not the intent behind the dissemination. Avoiding lucidity may even be intended, particularly when it is a matter of demonstrating virtuosity in handling methods and formalisms in front of an audience drawn from divergent fields.

There are also considerable differences between modern presentation practices and the principle of *memoria* in classical rhetoric. In the latter, a speech had to be memorized so as to be able to be given “freely” – a meaning of the adjective rather different than its current meaning as a “spontaneously formulated” lecture. What is nowadays called a “free lecture” also did not have such spontaneity in mind. It instead meant addressing a topic in a manner that contrasted it with a recognized textbook, hence this sense of “free” means “free of an older academic tradition”.

By contrast, scientific presentations or lectures today are almost always held in linguistically relatively unprepared forms. “Free” thus does not mean “free of a manuscript” (e. g. by heart) or “free of thematic restrictions” (yet preformulated) but rather

“free of pre-produced text”. This naturally has an enormous effect on the linguistic and rhetorical structure of the lecture.

In classical rhetoric, an oration was optimized for effect through a targeted selection of words and phrases. Spontaneous speech, in the context of modern presentations, instead primarily conveys the authenticity of the contents – inasmuch as the presenter has internalized the contents to such an extent that talking about them comes across as spontaneous. In so doing, he or she both documents the scientific impetus which lay behind his presentation of the topic and demonstrates his mastery of the subject.

Recitation from memory, or even the reading out of a text, would therefore not fit this romantic image of the research scientist. However, because the demands made on a presenter often enough exceed his abilities, text-oriented transparencies or slides are a welcome aid; they are notes which can be seen and consulted by speaker and audience alike. This helps explain why so many presentations nowadays are so focused on the slide or transparency text and include only minor, periodic digressions. *Memoria* makes manifest the essential difference between the classical oration and the modern presentation: in the first, one pursued the ideal of the optimal effect in a given situation, while in the second, one pursues the image of scientific authenticity.

On the other hand, the presentation performance itself bears similarities to its ancient prototype. As just noted, an impression of authenticity is conveyed which certainly corresponds to the ideal in classical rhetoric: a speaker is not to behave like an actor but instead show his own personality. Finally, visual elements of a presentation fall into the realm of *actio*, though in a system of rhetoric which branches widely, as such attract little attention.

Classical rhetoric proposes a sequence of parts to an oration, and this finds its analogy in modern scientific presentations. These of course include an introduction and a conclusion, with the introduction often understood as a statement of the “motivation” which led to an examination of the topic, which thereby situates it in terms of its relevance. Here, too, this is about a connection to known facts. But it also performs an affective function through which the interest of listeners is meant to be heightened by ascribing relevance to the particular topic. The rhetorical technique of winning the goodwill of the audience (*captatio benevolentiae*) known in political and juridical contexts, or the use of rhetoric to nevertheless win over a skeptical or disinterested audience (*insinuatio*) at the outset of a speech, are not found in scientific lectures.

As a rule, the conclusion of a presentation is usually a recapitulation, a verdict, or a list of questions which remain open, and in doing so, it reflects the principle of peroration in classical rhetoric. Direct techniques for increasing affective excitement are usually avoided, though mentioning possible applications, insights, or successes achieved in the concluding section of a scientific lecture can increase the positive effect it has.

In the theory of classical rhetoric, narration and proof are the core parts of an oration, and there is clear parallel here to presenting a research problem, in the

context of the current state of research, and the inductive or deductive argument subsequently presented. Often, one does not find a *narratio* openly crafted with an eye to persuade, but one does frequently hear mention of inadequacies or gaps in the research, and these serve a presenter's own line of argument. Scientific lines of argument in a presentation need to be based on the methodology and standards used in a field, and at least in formal terms, the usual demands of objectivity in science need to be adhered to. Here as well, rhetorical devices such as adding features to a statement (*amplificatio*) are used, as when the advantages of one's own results are contrasted, in tabular comparison, to the deficiencies found in other results and the differences thereby highlighted.

Generally speaking, one can conclude that classical rhetoric provides a differentiated inventory of categories which can in large part also be applied to modern presentations. Even if, as Knape (2007) argues, one regards presentations only as an extension of the speech using new media or methods, and that it can terminologically be wholly subsumed under the terms used in classical rhetoric – and one certainly can discern clear parallels in some areas – a number of systematic differences remain in others.

These are found above all in the different function that a scientific presentation performs when compared with classical forms of speech or oration. This is also one reason the use of persuasive means remains relatively small or indirect. Another area which classical rhetoric does not take sufficiently into account is the existence in modern times of a virtual stage created by the projection of a series of transparencies or PowerPoint slides. This stage makes available an independent and dynamic inventory of signs, one with considerable overall influence on the presentation. In conjunction with the linguistic modality, this visual modality leads to an expansion in the performative modality available for and in a presentation.

3 Presentations as a form of communication in science

The presentation of research results differs from other types of presentations particularly in terms of characteristics external to their texts. They should be no means be understood as the basic form: "PowerPoint presentations are *not* specifically *scientific or research-oriented forms* of knowledge production and distribution" (Schnettler and Knoblauch 2007: 277). Yet how should scientific presentations be regarded as a communicative genre? The following aspects provide hint about possible answers:

The tendency to use imagery has also not stopped at scientific communication (Peters 2008). Imaging techniques and visualizations of what is difficult to represent purely verbally have a long tradition in the natural sciences, and are increasingly employed in the humanities and social sciences as well. Furthermore, the use of evi-

dence-based techniques taken from the natural sciences has led to a shift away from hermeneutic discourse and towards *demonstratum*, which as such possesses persuasiveness and needs only limited support from forms of argument based on discursive logic.

Labelling presentations generally as the “simplified basic idiom of globalized knowledge societies” (Knoblauch and Schnettler 2007: 279) also applies to scientific presentations. In the scientific community as well, forms of organization involving a division of labor – both within a research institution and between them – are steadily increasing, creating increased communicative needs. Concurrently, owing to ever-increasing specialization, the stock of commonly-held knowledge among specialists is declining, which is answered through communication formats lying below the level of research-oriented specialist publications in terms of information density. Presentations allow this need to be satisfied in science in an adequate manner.

A point one should not underestimate in this context is the use of English as a lingua franca. The simultaneous dissemination of content at both spoken and written levels or channels helps ensure its success in conveying insight, particularly to a heterogeneous audience with differing language needs. Presentations, in this respect, can thus count as a simplified and simplifying basic idiom, especially for globalized communities of scientists (Knoblauch 2013).

Due to their intermediary position between medial and conceptual orality and textuality, presentations ideally fit into an information workflow which transcends specific media – a situation which today influences scientific research activity to an extraordinary degree. Presentations, as the result of a single process of compilation or creation, can on the one hand be bound and transmitted in a performative and situative manner, while on the other hand they can also be sent in the form of a file (of transparencies or slides), and be reviewed independently and archived. Newer Internet-based forms, where presentations are preserved as performative video sequences which can also be archived and searched, use this indifference to the medium in still more subtle ways. Differentiated use of media goes hand-in-hand with a more efficient use of resources, as parts of presentations can be repeatedly changed, adapted, or reconfigured (Liebert 2007).

Due to their reduced formality and usually quite limited publicity, presentations make it possible to publicize or publish scientific results under less rigid conditions than apply to more established forms of sustainable scientific communication (articles in disciplinary journals, edited volumes, books). They thus form an intermediary level in scientific publishing, with attendant connections to wholly informal forms such as the discussion and to highly formalized and recognized publication forms. In this fashion, scientific presentations above all contribute to an acceleration of and in scientific communication, as official paths to publication remain slow and the dissemination of results delayed, hindering quick responses to ongoing developments.

Historically speaking, scientific presentations fill a performative gap which opened up once the traditional scientific lecture was perverted and became only mar-

ginally performative and physical, largely supplanted by draft versions of essays in which written text predominated. Having long practiced a purely text-based rhetorical style, one which survived with a very low degree of steered performativity, the presentation pendulum has now swung in the other direction and allows performativity, while conveying content, to be the center of attention and renouncing the use of controlled rhetoric. The shift to performativity puts the person presenting back in the center of attention, using his or her body as well as interacting with the audience; this thereby increases the space for adopting strategies of persuasion. These unfold beyond the logic-based discursive structures of argument, and through the communicative genre of the presentation, allow for greater influence on the process of gaining scientific insights.

4 Concluding remarks

Although presentations represent a unique form of scientific communication, one should not ignore that currently observable presentation practices should also be critically evaluated. One point of critique lies in the low degree of interactivity that is open to a presenter, both relative to the projected contents as well as vis-à-vis the listeners (Lobin 2009; 2012). A presenter finds it difficult to respond to questions or comments as long as these have not already been taken into account in preparing the presentation. This distinguishes them from text written on a blackboard or from an overhead projection using transparencies, as these are designed to be occasions for working together on commonly viewed materials. By contrast, presentation programs are to this day fundamentally designed to be advanced sequentially (using individual keyboard clicks), reproducing prefabricated units of the projection which are difficult to change.

A second serious point of criticism is the tendency to prioritize visualization at the expense of (and reduction in) textual complexity. If text is written on transparencies or slides, then it employs a simplified structure relative to other manifestations in science. Contents conveyed by bullet point list seldom use connectors which reflect the semantic-pragmatic relationships between the assertions, and are usually considerably simplified in terms of topic structure.

Finally, one needs to ask whether presentations themselves bring about changes in the process of reaching scientific insights. Every form of communication shapes the contents which are coded within it. So when we consider what the main features of presentations are as a form of communication, one has the suspicion that the contents which are shaped by the presentation are, from the start, adapted to this particular form of dissemination. It will therefore be interesting to observe whether the ubiquity of scientific presentations will have the effect that those topics and analyses which can be better visualized, as well as be more convincingly embellished performatively, will (demonstratively) prevail over topics less easy to present.

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