Chapter 14
Rhetoric About Sustainability in Education: The Presence of the Words Not Spoken

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14.1 Introduction

Sometimes words can change the world. Universities have a social and statutory responsibility to provide higher education and conduct research at a high international level, and to disseminate and promote scientific knowledge in the public sphere (Norwegian "Act relating to universities and university colleges" 2005). When problems arise that will affect mankind in a fundamental way, like that of sustainability, universities are expected to be engaged in both research, teaching and public debate. In engineering, lectures and research on sustainability is particularly important, because today's engineering students will create tomorrow's technology, and technological development has a great impact on the environment as well as on our social and economic development. If work of rhetoric on sustainability is successfully performed with engineering students as audience, they can make changes in the world. In this chapter I will use rhetorical theory, and especially theory about "the rhetorical situation", to analyse the position of sustainability issues in education, exemplified by communication about sustainability in engineering education on bachelor level. The chapter aims to investigate challenges in introducing sustainability in teaching, and to argue that focus on sustainability in teaching is part of the construction of a university's ethos.

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14.2   Description

14.2.1   The Rhetorical Situation

According to the American rhetorician, Lloyd F. Bitzer, rhetorical discourse "comes into existence as a response to a situation, in the same sense that an answer comes into existence in response to a question." (Bitzer 1968, s. 5) The speech is seen as a communicative act performed by words in a situation. In more recent theories of rhetoric, for instance Jens Kjeldsen (2009), other sign systems, like pictures and sound, are also considered to be "text" or "rhetoric". "The act of rhetoric is pragmatic, it comes into existence for the sake of something beyond itself." (Bitzer 1968) The success of the speech is not within the speech itself; the situation demands speech as a reply to a situation. When Barack Obama said "Yes, we can", or John F Kennedy said "Ich bin ein Berliner", the words were not brilliant in themselves. The situation and the rhetorical moment made them brilliant.

At the UN climate summit in Warsaw 13th November 2013, there was a rhetorical moment as Philippines lead negotiator Yeb Sano was to address the opening session. A few days earlier, on the 8th of November, the Philippines had been struck by the largest typhoon yet to be registered. In Warsaw there were clear expectations on the speech to be held. While struggling to hold back his tears, and with a voice that was firm, but at the same time on the edge to break, Sano said

> . . . I speak for my delegation. But more than that, I speak for the countless people who will no longer be able to speak for themselves after perishing from the storm. I also speak for those who have been orphaned by this tragedy. I also speak for the people now racing against time to save survivors and alleviate the suffering of the people affected by the disaster. We can take drastic action now to ensure that we prevent a future where super typhoons are a way of life. . .(..). . . We can fix this. We can stop this madness. Right now. (Sano, cited at http://www.rtcc.org)

Sano also said that he would "refrain from eating food during this COP until a meaningful outcome is in sight." Because of the previous disaster, the expectations to his speech had changed. Everyone expected the typhoon to be the center of the speech. He was personally and emotionally engaged. Due to the circumstances, this engagement was expected, and his speech moved an international audience.

Some rhetorical moments, like the one described above, are grand, and at the focus of everyone's attention. Other moments are trivial, and concern just you and me. Most people "know" that if it is someone's birthday, we must congratulate them, and if we are given a present, one should say "thank you". In any circumstances, grand or trivial, the speaker can choose to fulfill the expectations, or to let the opportunity pass her by, but if the norms are not respected, people will notice that something is missing. For this we could use the Greek term "Kairos", which means to "seize the moment" (Kjeldsen 2009).

Where do the expectations come from? In a dialogue comprehension of language and communication, all utterings are created as a reply to former utterings (Bakhtin 1998). In communicating with others, norms of acceptable communication are

created. A political speech, for instance, demands a different style than a conversation between friends, when we communicate, the norms of speech are confirmed and challenged at the same time. Similar situations demand similar kinds of reply.

> 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 (Bitzer 1968, p. 13).

This is how genres are created. Genres are "categories of utterances" which have resemblances in central characteristics.

Socrates, cited by Kjeldsen (2009, p. 70), considers the sense for the moment to be central for good rhetoric. However, there can be many different reasons why people do not speak whey they are expected to do so, or why their words "miss the target". Planning speech may demand too much time and effort; the speaker may be shy or inexperienced. She could be worried that her words would not come out well even if she made an effort, and she could be right. In engineering education at the University of Agder in Southern Norway, comments are often made by teachers that they are too busy with other tasks, and that they do not have time to learn and teach about sustainability.

Rhetorical moments can be more or less clear. Some situations are so clear that one can "predict with almost certainty" what will be said. Bitzer uses the situation generated by the assassination of President Kennedy as an example where a certain content and performance of speech is almost "required". Likewise, when the principal of our university gives a speech to the new students at the beginning of a new study year, we expect the speech to include visions and goals on Sustainability. These expectations are so clear that the speaker finds herself obliged to respond appropriately. Similar expectations arise when the sitting Norwegian Prime Minister, along with the tradition, delivers her "New Year's speech". On the 31st of December 2013 critics praised her speech, but at the same time it was noticed for how she avoided treating challenges on climate and environment. With quotes like "…miss more focus on climate and environment" (Senel 2014), "A hole in the New Year's speech" (Båtstrand 2014), the speech was noticed for what was not being said.

14.2.2 Exigence, Audience, Constraints

Sometimes words can be perfectly well spoken, yet nobody seems to listen. The 5th assessment report of the Intergovernmental Panel on Climate Change (IPCC), which provides an "up to date view of the current state of scientific knowledge relevant to climate change" (ipcc.ch), concludes with 95 % certainty that global warming is human-caused. There is nothing unclear about the words spoken.

> An exigence is rhetorical when it is capable of positive modification and when positive modification requires discourse or can be assisted by discourse…(..)…The pollution of our air is also a rhetorical exigence because its positive modification: reduction of pollution,

strongly invites the assistance of discourse producing public awareness, indignation, and action of the right kind (Bitzer 1968, p. 7)

Bitzer uses the term exigence, not exigency. A work of rhetoric is pragmatic, and functions to produce action or change in the world. Since it is goal oriented, it always addresses an audience. "…a rhetorical audience consists only of those persons who are capable of being influenced by discourse and of being mediators for change." (ibid.).

Finally, in a rhetorical situation there are constraints, and when warnings and information about climate changes do not work, we must investigate the constraints. What could be possible constraints for engineering students at bachelor level to gain good knowledge and engagement on sustainable development through their studies? The constraints can be within the message itself, the way the message is presented, the speakers ability to convince the audience, the audience's attitude and interest or the circumstances in which the words are spoken. The message, the style, the speaker, the receiver or the concrete circumstances; these are the five "constants" of the rhetorical pentagram that Cicero mentions in what is considered to be the first known model of communication (Kjeldsen 2009, p. 73). The model is illustrated in Fig. 14.1. Since rhetorical speech is seen as a communicative act performed in a situation, they must all be suitable for the message to work. For this he uses the term "aptum"; which means "proper" or "suitable".

Some speeches are so good that they are noticed for their brilliance. But quite often it is enough to fulfill the audience' expectations. As described in the example above with the Prime Minister's New Year's speech, aptum is most easily noticed when we experience a lack or an absence of suitable speech. Further I will use the rhetorical pentagram to analyse the challenges of introducing teaching on
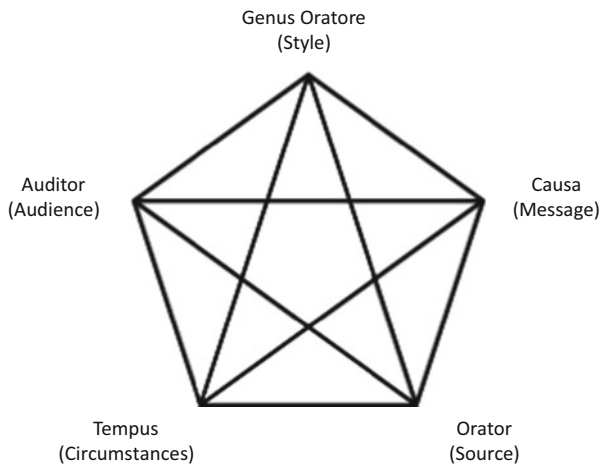

Fig. 14.1 The rhetorical pentagram [*Source* Rhetorical pentagram (Kjeldsen 2009)]

sustainability in lower grade engineering studies, focusing on what could be possible constraints for successful rhetorical communication.

The English translations are mine, adapted from different sources: I use Bitzer's terms "audience" and "circumstances". The terms "style", "message" and "source" are taken from James C. McCroskey (2006). For "source" Kjeldsen uses a term (avsender) that could be translated as "sender", and appears to be more active than source. The reason that the word source is used here, is because it seems to be a more common English translation. It also covers the idea that a source does not have to be a person. When the source is a person, however, in this text I have also used Bitzer's term "speaker" because it is more intuitive to readers than the term "source".

14.3   Description and Discussion

Sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1987). The concept incorporates economic, social and ecological dimensions. However, technical solutions which can create social and economic growth often have negative consequences on the environment. Therefor the aspect of sustainability in engineering is complex, and the discourse addressed to the students could face ethical and rhetorical dilemmas.

14.3.1   The Message

Rhetorical communication, as opposed to accidental or expressive communication, is goal directed. (McMcroskey 2006). It is a basic idea in communication that in order to achieve one's communicative goals, one must know what the goal is. Goals on sustainability are commonly stated in universities' strategy plans. However, if the strategy is not implemented in all levels of an organization, the message becomes unclear.

The "Norwegian National Committee for Research Ethics in Science and Technology" (NENT) has stressed the complexity of assessing "the extent to which a given research and technology investment is sustainable..." (...) "...since a thorough assessment must incorporate a diversity of economic, social and environmental aspects which can point in contradictory directions" (NENT 2014, p. 6). Even though the word in itself is comprehensible, it could be difficult to judge whether a technology contributes to a sustainable development. Øyvind Ihlen, who has done rhetorical analysis of oil companies communication about sustainability, claims that the vagueness of the term has been used strategically by the oil industry. (Ihlen 2007) Ihlen claims that the oil companies face a rhetorical dilemma since they must defend large CO_2 emissions, and at the same time present environmental engagement.

14.3.2 The Circumstances

In order to create rhetorical messages on sustainability in engineering education, the students must see the urgent need created by the circumstances. In Norway many engineering students prepare for jobs in the petroleum industry, and oil and gas are some of the world's largest sources of CO_2-emissions. Most Norwegian universities, and engineering departments in particular, are engaged in the petroleum industry for cooperation and funding of education and research. In June 2014 the NENT presented a report which concluded that *"it is indefensible from a research ethics perspective if the framework conditions for petroleum research and research activities hinder transition processes and thus prevent the achievement of UN climate goals which Norway has pledged to uphold* (NENT 2014).

Southern Norway has a globally leading position in certain fields of the gas and oil industry, and many engineering students are motivated by well-paid, interesting jobs in a high competence technological environment. At the University of Agder we are proud of our recent achievements in natural science. The institution received its university status only recently, in 2007. Since then the engineering studies and research have expanded greatly. Our studies in mechatronics have been developed to answer the needs of the local industry, is to a large extent financed by the oil industry, and is experiencing great growth in students and research on all levels.

This may seem like a privileged position, and in many ways it is, but the circumstances do not bring out the urgency of the situation.

14.3.3 The Style

After the last revision of the curriculum in 2009, all engineering studies in Norway must have a certain number of study points on sustainability. So far the way sustainability is taught on lower grade engineering studies seems to depend on individual initiative, and differs from one university to another (ref. to Chap. 7 by Nilsen). Many teachers probably have a focus on sustainability, but rather than being explicitly integrated in the engineering subjects, at most Norwegian universities it has appeared on the side. A common reaction from those who teach engineering is "we do not have time for this".

In order to be persuaded to make changes in the world, the engineering students must have the needed knowledge. Speaking with Aristotle's concepts "modes or persuasion" (around 330 BC), the students must be exposed to logos-oriented speech. But they also need to be convinced that it is important, and to feel an urge to act. The audience's feelings must be touched (pathos), and the speaker must gain the audience' trust (ethos). All speech has an aspect of ethos, logos and pathos, but one mode of persuasion can be dominant. Teaching, for instance, is mainly logos oriented. When the principal welcomes the new students, and tells them about the visions of the university, the speech has an aspect of information, but the main

intention is probably to create some kind of goodwill by the students, and to communicate an identity of the university that the students can relate to. Although the speech may appear to be logos-oriented, it is mainly ethos- and pathos oriented.

According to Per Espen Stoknes (2014), psychologist and associate professor at the "Norwegian Business School" (BI), one problem with the conventional rational climate information approaches is that they have mostly targeted the cognitive component of attitude." With notions of rhetoric, we would say that the information has been too logos oriented. Stoknes points to the view in social psychology that "attitudes consist of three components: affect, behaviour and cognition." If there is a conflict between the three, it is difficult to maintain a positive engagement. In order to change attitude, an understanding of the problem is not enough. One also needs to feel an urge to change, and to have the opportunity to make good choices.

To engage in the world around them, the students need to learn about sustainability on problems that may seem distant and abstract, but if Stoknes is right, they also need to learn how they can make a difference. When sustainability is taught on a general level, it may easily become distant, abstract and logos oriented. Teachers in technical classes can show the students how to use their professional knowledge to create sustainable solutions. If giving solutions for possible action is necessary to create a change of attitude, it would be advantageous to include sustainability aspects in all subjects. It would not make teaching less logos-oriented, but lessons could be less abstract and more closely tied to the students' concrete experiences. Teachers in technical classes also represent a professional identity that the students can relate to. They have a possibility to use their ethos to teach the students about sustainability.

"The majority has the power—unfortunately—but not the right. The right belongs to me and the other few, the individuals. The minority is always right" (Ibsen 2004). These are the words from Dr Stockman in the play "An Enemy of the People". "It must be right because most people think it is right" has since Aristotle been described as an argumentation fallacy. Yet it is a powerful tool for convincing the audience by appealing to their feelings. People tend to believe what other people believe, and do what other people do. According to Stoknes, we tend to be influenced by the attitudes of "significant others". "if there is social dissonance between significant other's attitudes and mine, then the other's attitude impacts mine!" (Stoknes 2014) The teachers in technical subjects are probably in most cases "significant others" to the students because they are experts on the field in which the students prepare to work. If they do not communicate the importance of environmental engagement, it could be interpreted by the students as being not very central in their education. Likewise, the subject could be interpreted by the employees as marginal for the university as an institution if it is absent in the communication between different levels of the organisation.

14.3.4   The Audience

The universities are institutions communicating on several levels and with different intentions and target groups. The academic staff is alternately speaker and audience for messages about sustainability. When they give lectures they have an institutional role as representatives of the university, and take the role of the speaker. In other situations they act as receivers of information, national and local guide lines and instructions from the management.

When I have discussed the need for sustainability issues to be given more attention within the engineering education, I have been met by the argument "The students are not interested. They come to our university because they are interested in technology, and if we give them lectures about sustainability, they do not get what they came here for."

According to Bitzer, the awareness of the exigency within the audience as well as the speaker depends on the level of interest in solving the problem. George Campbell (1988; cited in Kjeldsen 2009) says that the degree of interest is influenced by the likelihood of the problem existing or coming into existence, and of how directly and sensibly it can be perceived. Of the possibility to confront and change the problem, of the risk we take in confronting the problem, of duties and expectations, of knowledge and familiarity with the problem, of the situation's demand of immediate action. Occasionally I meet students who say they want to become engineers out of social engagement. Some of the most socially engaged engineering students I have met are immigrants from third world countries, or students who have experiences from travelling or living abroad. However, some engineering students may not consider themselves to be the audience of rhetoric about sustainability because it appears to be too far away in space and time, and it may seem to be out of their reach to do something about it.

At the same time student organisations in Oslo and Bergen have initiated critical debate on environmental issues. In Bergen the student newspaper has written critical articles on oil funded research on several occasions, and in Oslo the student parliament has passed an agreement stating that it would work to prevent the university from "performing research which increases or prologues the petroleum recovery" (Gjengedal 2013). This could be an indication that the students may be more interested than we presume. Since the problem is growing, so is probably the interest.

14.3.5   The Source

Universities are institutions of knowledge, and of open and independent discussions. Just as the audience differs from one situation to another, so does the speaker. Yet the university as an institution has ethos. James C. McMcroskey defines ethos as the "attitude toward a source of communication held at a given time by a

receiver" (McMcroskey 2006, p. 82). According to McMcroskey, the source does not have to be a person, it may well be "a group, an organisation, a government agency, or even a country" (ibid, p. 83). McCorskey even thinks that when a person represents an organisation, the person's individual ethos is "pretty much irrelevant", what matters is the ethos of the organisation represented. Many university employees would probably oppose being part of a common, institutional ethos. However, even if we have individual ethos, all communication exercised by university employees on all levels, in teaching, research, public debate, information to students and potential students on our web sites, media contact etc, participate in building the institution's ethos.

According to McMcroskey, ethos is currently considered to be the total image of the source, but traditionally ethos has been focused on source credibility. To gain trust one must be intelligent, have character and good will for the people to be addressed (ibid). Critics of rhetorical practice since Plato have claimed that rhetoric is sometimes being used to win discussions without considering the moral aspect of a case, but in Quintilian's view, speech cannot be suitable without being morally good (Kjeldsen 2009, p. 78). Usually there is a match between the advantageous and the morally appropriate. If a person is known to be good and competent, people are more likely to be convinced. But in situations where the morally appropriate does not seem to be advantageous on the short run, it must still be preferred to the advantageous.

From whom the words come is not without importance. What would happen if Barack Obama, for his inauguration speech, said "I am so tired now, I need to rest, so someone else needs to make the speech in my place". In the former article (Pinheiro, Faghihimani, Trondal) we saw that integration of the "Green University of Oslo" was put in the heart of the central administration, and that no one from academia became an integral part of the project. If speech about sustainability is absent in areas where one would expect it to be present, the audience could get the impression that the source does not consider it to be important.

Rhetorical speech can be concept-centred or ethos-centred. One can use her ethos to convince someone on a subject, or use cases to build ethos. For instance, when someone is running an election campaign, the rhetoric will be mainly ethos-centred (McMcroskey 2006).

Most companies profile themselves with visions and standards when it comes to environmental engagement, and so do most universities. When speaking of their moral standards concerning environment, they make promises and commit themselves to contribute to the good of our common resources. Therefore they build ethos by speaking about the environment. For politicians it is more complicated. Working politically with environmental issues means prioritising time, money and brains to save the planet. In these speeches we are all asked to participate; give up our private cars for public transport, recycle, turn down the heat in our living rooms, or pay taxes to finance railroad and better buildings. The speech will be more appealing, less committing. Therefor it can be difficult for people with power and influence to build ethos in environmental issues. In addressing the students, encouraging engagement in sustainable development could mean asking the students to

give focus to the concern of their co-citizens and future generations rather than to satisfy their own short-term needs. Therefore teaching sustainability is mostly case-centred.

Sometimes one may get the impression that ethos-centred speech about sustainability is something going on between the university management and the outside world. At the University of Agder, renewable energy was the first research priority area. According to the UiA web site, "The Agder region has a major focus on renewable energy and the University of Agder co-operates closely with regional industry and other research institutes in this field. This has made the region an important renewable energy actor, both nationally and internationally." This information could contribute to building the university's ethos as an institution that prioritises sustainability. If a subject is being taught by someone who has ethos on a subject, the audience will learn more because they give more attention and interest to the speaker (McMcroskey 2006) However, when implementing sustainability issues in engineering education, the ethos effect of communicating the efforts that the university is making is generally not an issue.

The universities can build ethos as socially responsible institutions by letting their voices be heard in the public sphere. However, the words need to be followed by action. The universities could also use their ethos to perform case-oriented speech outside the universities, and when members of the management or the academic staff talks about sustainability outside the university, the speech can be ethos-oriented. However, if the discourse of sustainability in teaching is not present, there would be a mismatch between what the university as an institution expresses, and an important part of the practice, and in the long run this could harm their ethos.

14.4   Conclusion

Universities worldwide work on implementing sustainability in teaching. However, if the universities do not see lower grade engineering students as a significant audience of rhetoric on sustainability, we do not manage to create rhetorical speech and to move the audience.

Bitzer's view could be criticised for being too goal oriented, influenced by a kind of strategic marked thinking. One could argue that the model would conflict with basic ideas of what a university should be. The universities have a role in society as open, independent institutions. They should be arenas for informed, open, critical debates, characterised by diversity in voices and opinions. Bitzer's view has also been criticised for being too deterministic, and thus freeing the speaker of ethical responsibility since the situation is considered to be so determining for the choice of rhetorical response. However, the model can be used to create awareness of some mechanisms in the communication process. Rather than to be freed from responsibility, it could help us to make more reflected communicative choices.

The world cannot be changed by words alone. Engineering students cannot change the world entirely, they cannot change it overnight and they cannot do it

alone. Yet we have the opportunity to create situations where the world can be changed a bit; rhetorical moments. But according to Bitzer, rhetorical situations have a life cycle; they come into existence, mature and decay (Bitzer 1968). If we do not seize the opportunity to speak, it will pass us by. Ignoring problems related to sustainability certainly will not make them disappear; they will continue to exist as a constant challenge. It is the universities' opportunity to hasten a change and to play an important role in that change that will pass, and we could be left on the side, remembered for the words we did not speak.