

Fourfold Responsibility in an Engineering Course on Ethics

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"Our social grammar should be divided into one futuristic and one past. This hits the moralists hard. For their usual epithets of "good" and "evil", as applied to history and politics, spring from a timeless static mind which ignores the differences between past and future"

Rosenstock-Huessy in "Out of Revolution" p. 720

In recent years the Delft University of technology has developed a Masters of Science program for students from abroad, mainly from Asia, some from Africa and Latin America some from Eastern Europe. These students complete their masters program at different faculties, but come together in a general course called "Technology and Society" part of which is dedicated to ethics. (Other subjects: Safety science, economics, organization and management). Confronted with the experience of these students - most participants in the course already have had a job - the usual ethical teaching appears to be typically "western" in character, in that it heavily relies on individual opportunities for change on the one side and on a strong institutional background on the other. In this contribution some cases will be put forward in order to provide some illustration of the problem mentioned. After that a model of fourfold responsibility will be introduced as an alternative for the dominant ethical approach and thirdly and lastly a connection will be made between this model of fourfold responsibility and the heritage of different cultures related to industrial organization and technological development.

A Chinese example: The Three Gorges Dam

After a big flood in 1991 China's National People's Congress decided to start building a big dam in the Yangtze River. This dam will protect 300 million people from the flood; it will be the biggest dam in the world; it will produce more than 18.600 megawatts of hydroelectric power; it will inundate 632 square kilometer; it will give an economic boost to the inland area by the fact that navigation of ships of more than 10.000 ton will become possible. At the same time this victory over nature means a huge risk for society. The water flow will slow

down and sedimentation will increase. It is estimated by critics, that already within ten years it will become impossible to use the dam for the production of hydroelectric power. The resettlement of 1.9 million people, who will be moved from their homes, is not implemented with adequate compensation and due to increasing corruption many farmers do not receive any compensation at all. In addition the dam will damage the cultural heritage of China (more than 300 archaeological sites will be inundated) and probably lead to the extinction of the Baiji River Dolphins. Petitions of concerned engineers and scientists and petitions of displaced farmers do not make a big impression in centrally governed China. Independent control mechanisms such as for instance an independent legislation system are not available. The collective mentality of the Chinese people - the group goes before the individual - makes a change in the near future highly improbable.

A Peruvian example: Increasing use of LPG

In Peru the use of LPG for cooking in households is increasing rapidly. For that reason the packing plants, distribution points and locals for sale of LPG are also rapidly increasing in number. The government institution, that gives permits to buy, sell and distribute energy has a hard job in coping with this development. In the use of LPG many safety regulations need to be considered. In order to acquire a permit the owner involved needs to go through a complex certification process. The specialist on LPG within this institution needs to attend to the applications with the help of only one assistant. Within two years the number of files however has increased from 700 to 4000 each year. For that reason the manager of hydrocarbons, the superior of the specialist, has given the order to speed up the process of qualification of files. This can only be achieved by not considering any longer a lot of safety issues such as adequate ventilation, availability of a fire extinguisher, a water connection and an impermeable floor. In a country like Peru there are a lot of other priorities; the government institution involved is characterized by a strong hierarchy and bureaucracy, and there is a culture of neglect regarding safety issues. Blowing the whistle in such a situation might not make a big impression as long as accidents have not occurred, and will most probably backfire on the one who has the courage.

A Bulgarian case: The Kozloduy Nuclear Power Plant

The Kozloduy Nuclear Power Plant was started in 1974 as for that time a very modern reactor. It would make Bulgaria one of the biggest producers of electricity on the Balkans. By

now it contains four reactors of the Chernobyl type and two reactors of a more modern type. It produces 46 percent of the energy in the country and has made Bulgaria an export nation of electricity, among others to Turkey. The people of Bulgaria have always considered this plant as an accomplishment bringing relief from underdevelopment and providing an entrance to modern times. Since the fall of the wall and more especially since a dramatic television broadcast warning for the risks of nuclear hazards, the people of Bulgaria are alarmed. What they until now considered as progress, turned into disaster lurking around the corner. In the political turmoil, the government of Moldavia refused to accept the transport of nuclear waste via it's harbors as was originally agreed upon; representatives of the European Union in 1999 urged, that four of the six reactors should be closed. Closing of the nuclear power plant however would have a severe impact on the economy of Bulgaria, since this would imply a fundamental turnover of the entire economy, which cannot be realized overnight. A student comments: "We can put pressure on the government to shut down Kozloduy, but then again we will protest that this very same government cannot cope with inflation and poverty". In addition such a delicate topic for society as nuclear waste is used as a trump card to manipulate public opinion in the hands of politicians wanting to increase their influence. Even if Moldavia for instance refuses to cooperate in solving the nuclear waste problem, it still is not safe from the Kozloduy nuclear power plant, only 500 kilometers from its borders. People are scared and feel cheated and threatened, politicians are split by rows and fights, and the problem remains unsolved.

An example of the Western approach

In the journal "Chemical Engineering Progress"¹ the following case is discussed: "Tom accepted a promotion as a superintendent in a steady but roughly run plant. The plant manager, Dick, was very stubborn about making improvements towards reducing the plant's accident rate. Tom noticed potential for runaway reactions in his area. Limit switches were unreliable, and he suspected that operators were lifting the pens when temperature peaks would approach. He proposed an expenditure for better instrumentation to Dick and Harriet (the business manager), and was turned down. Another accident happened, but with no injuries. And operator on duty was likely to get fired or demoted. Tom saw this as an unfair and ineffective solution.

¹ October 1991, page 78

Toms options included :

Do nothing.

Tell the safety inspector the true story.

Try to persuade Dick with more technical data.

Go over Dick 's head and talk to Henry (the vice president).

Look for another job.

Do something else."

An unfair and ineffective solution - the first word refers to deontological ethics, the second to utilitarianism. The first is related to the individual, who wants to be treated fairly, the second to the total amount of social utility. As far as the individual is concerned, it is clear, that here is a person who can choose, who has a certain degree of freedom. There are options. The abstract principle of "fairness" or "rationality" should apparently preside over these options. And it is clear, that this individual can cling to social institutions in trying to make his point. The surrounding society has a certain degree of agreement about what effectiveness and utility mean in relation to chemical industry.

Of course, this is not always the case even in Western societies. Many times "group think" represses individual responsibility, many times existing institutions do not favor moral behavior. In that sense the other cases mentioned are pressing a point, which to a certain degree also counts for Western societies. In such situations there is no abstract principle any more that can direct judgment. Here the individual - even the group - is caught up within a web of contradictory constraints. (S)he has to listen to competing priorities, which often all of them are highly important. She or he cannot act as presiding over a list of options with an established degree of freedom to choose. Then the question is not so much how to use one's freedom, but first how to create freedom, how to make oneself free to do what is necessary. It takes a price to be free, not necessarily the price of losing one's job, but certainly the price of participating in the priority struggle of different and contradictory constraints, different responsibilities competing with one another. In the course on ethics these different responsibilities are summarized in a model of fourfold responsibility, and students are required to analyze specific cases regarding the kind of responsibilities, that play a role in certain practical situations.

The idea of responsibility

Responsibility is a concept much misused and seemingly worn out. One should be responsible! But what does that mean? Don't we often mean 'well-mannered' when we use the word responsible? Please act responsibly! Act like a responsible person would do. If responsibility is understood in these terms, responsibility is in fact taken away from the acting subject. Shouldn't on the contrary responsibility entail the uniqueness of the person? Certainly, the meaning of responding to a situation in one's exclusive and unique way is often excluded when the word responsibility is used. But on the other hand responsibility does not always mean to act according to one's own conscience. Sometimes it is necessary, sometimes it isn't. We expect bus drivers to drive responsibly, but we do not mean they should drive their own way, but rather according to the traffic rules. To clarify the different meanings of the word responsibility, I suggest a distinction between four *types* or *levels* of responsibility.

1. Functional responsibility

'Functional responsibility' is primarily related to labor. It means that individuals act in accordance with the requirements of the job or position they hold in an organization. Functional responsibility thus entails carrying out orders and regulations and adhering to a job description and other rules belonging to one's function. Functional responsibility makes people replaceable rather than unique. In today's huge economic system of industry and technology with its large scale division of labor the work is organized more effectively when people are treated as replaceable units. Without this functional division of labor, present-day standardized and large-scale production would be impossible. We need people (and need from time to time to be people) who just do what they are told. On the shop floor, workers are hired to follow orders, not for a lot of gab.

At its most extreme however, this kind of attitude brings us to what the psychologist Millgram called the 'agentic state'. Millgram performed a famous experiment, which goes as follows: A psychologist poses questions to someone who is seated in another room. That person cannot see the psychologist but only hear him. The test subject is seated with the psychologist. Every time the respondent, who in fact is playing a role in the experiment, answers a question wrongly, the psychologist orders the test subject to give the respondent an electric shock. Each time the person gives a wrong answer, the voltage of the electric shock is increased. The person in the next room starts screaming and shouting, but again and again the psychologist asks the test subject to increase the voltage and give the person in the other room the punishment deserved. Some 40 percent of the test subjects was prepared to go as far

as 300 volt – enough to cause the death of the unseen respondent. They allowed themselves to be put in what Millgram called the agentic state. In the agentic state, the agent is separated both from the intention-conscious sources of the action chain and from the ultimate effects of action by a chain of mediators.² Any form of functional responsibility as we described above is more or less in the style of this agentic state.

This problem alerts us of the fact that functional responsibility cannot be the only form of responsibility. There must be more.

2. Collective responsibility

Maybe the most natural way for people to respond to a problem is not to act according to function requirements, but according to the codes of behavior of the group to which they belong. This we can call ‘collective responsibility’. Every group has its silent and mostly unwritten codes of behavior, norms, communication patterns, oughts and ought nots. In this form of responsibility the collective, the group, dominates one’s personal answer to this or that situation.³ This group can be the family one belongs to. It can be one's national identity. It can also be the company one works in. Collective responsibility means that individual members do not give their own answer but a group answer, the answer of the collective to which they belong. This can also lead to a sense of professional responsibility, as when members of a professional group adopt the code of ethics of that group as their own.⁴ Professional organizations of engineers often adopt a code of ethics in order to gird the collective moral behavior of their members.

² Bauman, ‘Postmodern Ethics’, pp. 125,126. Tom L. Beauchamp ‘Philosophical Ethics’, McGraw-Hill, New York, 1982, pp. 169–171.

³ In ‘Multiformity of Man’, Rosenstock-Huessy treats the collective as one of the forms of human communication, as his ‘secondary ecodynamic law’. “A collective is a superlative! The elative or superlative character of a collective use of the words ‘manhood’, ‘virility’, ‘beauty’, ‘truth’ cannot be overlooked lest we misunderstand our ways of life and order. All the Greek gods sprang from this elative quality of collectives or abstractions. Any word can become a fascination on account of the quality for which it stands. Instead of being interested in the many black clouds, instead of wearing black myself, I may be suddenly caught by a kind of awe and admiration for blackness – and when that happens I am bowing to an independent force in life with respect” (Multiformity of Man, Argo Books, Norwich, 1973, p. 39).

⁴ This is the development of engineering ethics that is desired by Michael Davis in ‘Thinking Like an Engineer’: “A profession differs from both businesses and occupational organizations in being designed primarily to serve a certain moral ideal in a certain way. Physicians organized to serve health; lawyers, justice within the law; and so on. ...Moral ideals have a claim on us that nonmoral ideals do not. Professions are, by definition, praiseworthy (in the way voluntarily undertaking any laudable responsibility is) because each profession, by definition, undertakes to serve a moral ideal” (p. 165).

Common symbols offer a common identity and give individuals an opportunity to be proud of the company they work at. But to act according to the ethical codes of a company, though it constitutes one form of responsibility, does not make one responsible as an individual. At its best it is a form of responsibility by which a whole group or collective attempts to offer a positive contribution to society. At its worst it is just another way to withhold responsibility from the acting subjects and make them, once again, agents of the company's will. Collective responsibility, in the end, could turn the person into an agent of group behavior.⁵ Sometimes a company is so proud of itself, that it becomes deaf to external criticism and takes a huge risk. Even employees who would like to correct the policy of the company might remain silent because they do not want to be expelled from the group. The engineer, Roger Boisjoly, who gave defaming testimony to the state commission investigating the Challenger disaster in 1986 was dropped by his employer and colleagues because of his violation of their group identity and pride. He should have remained silent, or at least as silent as possible. He broke with the collective pride of the group and the codes that were part of it. He humiliated his colleagues by giving full information.

Functional responsibility and collective responsibility are right in their place, but not enough. They both can function positively and negatively. The real question is not so much which form of responsibility is right or wrong, but how long one can act according to a particular form of responsibility. When to stop and change? We all occasionally need to shift from one type of responsibility to another. To change is perhaps the most human quality of humans.

3. Individual and professional responsibility

Not everybody is in a position to behave like an individual person. Only able and independent persons can behave like individuals. A precondition for independence is the faculty to choose, owing to ability, expertise, awareness, ownership and freedom. Then responsible action can take the form of a conscious act of commitment and choice. The responsibility that requires an independent and free commitment is different from the responsibility that results from group behavior or functional behavior. If persons have made a

⁵ Bauman criticizes these forms of collective behavior because they can lead to dangerous 'eruptions of sociality' conjuring up 'vestigal crowds' and 'rudimentary tribes', 'Postmodern Ethics', pp. 141, 142. He also warns of the dangers of 'socialization' and 'sociality', because the group behavior they cultivate can also lead to "disarming and invalidating moral capacities".

promise and made it voluntarily, then they are obliged to fulfill it. They are bound by their own free commitment.

In giving a name to this form of responsibility, there is reason to hesitate between 'individual' and 'professional' responsibility. The features we mentioned, such as 'conscious', 'independent' and 'free', point to the free individual as agent of this form of responsibility. But we also added 'able'. For that reason we could also label this level of responsibility 'professional'. In order to be free, we need more than independence and power, we must also possess knowledge and expertise and such professional qualities as are acquired by training and education. When we think of engineers, it is to a large extent this professional knowledge that makes them to a certain degree independent and free with respect to the authorities above them.

Many problems between engineers and managers emerge because managers would like engineers to behave according to the criteria of functional responsibility, whereas the engineers as professionals refuse to fit within these narrow limits. Authority does not only depend on power but also on knowledge and ability. Civil engineers know the necessary thickness of concrete and the amount of steel construction needed. They will not allow managers to juggle with the norms.

The same independence is a characteristic of anyone who can enter into a contractual agreement. Contract law supposes and assumes that a contract is made up between free and independent parties. That means only those who are independent enough to really commit themselves may enter a contract. Many labor contracts do not satisfy this requirement because the worker who is engaged does not really have a choice. Collective contracts provide a solution to this problem. To have a choice means to be in a position to refuse. When engineers are not in a position to refuse a contract, they are reduced to the status of workers and their professional responsibility may easily be violated. That is the reason why professional codes of engineers do not have as much influence as for instance a professional code of attorneys or doctors.

Managers may regard the relative independence of engineers as inconvenient, but they also need it. It is impossible to control everything and ways to avoid control are manifold. Every company and business needs men and women who are committed to its cause. These are individuals who can act on their own for the sake of the company. They are independent

enough to be loyal as well.⁶ This is a paradox. Two seemingly contradictory qualities are combined: freedom and commitment. But it is a paradox indeed, not a real contradiction, because a long lasting and enduring commitment can only be accepted freely. A person can only fully say “yes” when he or she has with equal security the possibility to say “no”.⁷

It is this individual responsibility – of choice and commitment – that is much celebrated and also in many ways disfigured and manipulated in western culture. By giving people a sense of freedom, you can make them do whatever you like. Many of the so-called ‘western-type individuals’ do not really stand on their own. Rather, they cling to all sorts of models, idols and fashions.⁸ Every advertisement says to consumers, “If you are really free and if you really do what you want, then you will choose our product.” Note the paradox in that message.

Yet another feature of professional responsibility consists in the necessity of communication. Professional knowledge and expertise is always partial knowledge. This partial and therefore also biased view of reality needs to enter upon a process of communication, in which the participants by opposition and dialogue “assemble” a common view of reality. In this process of opposition and dialogue a common course of action is designed, a common interpretation of reality is established, a common “present”. In ideal circumstances such a process of dialogue is not hindered by hierarchical relationships.

Professional responsibility also has both positive and negative sides. People are easily ‘trapped’ in the criteria of their own professionalism. They may become deaf and dumb

⁶ Rosenstock-Huessy in ‘Multiformity of Man’ calls the capacity to be independent and at the same time loyal the capacity for dual relationships, i.e., relationships of partnership. “In all relations of friendship, of personal liking and antagonism, of jealousy and love, of hate and desire, a third relation prevails, that of dialectic polarity. Friend and foe, you and me, and the little word ‘both’ betray the existence of dualism. The climax of this dualism is represented by the forms of reproducing the kind” (pp. 45, 46). In partnership, unlike a contract, tasks and duties are not defined in advance: “In distinction to the growth of the educated and in distinction to the finite behavior of the employee, he who is married or has embraced a cause is trying to regenerate it by his devotion” (p. 55).

⁷ That means also, that employees are easier to rally when the company’s cause really is a good one.

⁸ This mechanism is beautifully revealed by René Girard, “All try in the same way to be different, and when after a while they want to counter the fact that in effect they have become identical, the renunciation of fashion also becomes a fashion in itself. That is why everybody is against fashion; everybody always rejects the existing fashion in order to imitate the inimitable, just like everybody else” [*Tous cherchent à différer de la même façon, et comme, un peu plus tard, ils vont tout repérer l’effet d’identité en même temps, le renoncement à la mode, est lui aussi affaire de mode. C’est pourquoi tout le monde est contre la mode; tout le monde abandonne toujours la mode régnante pour imiter l’inimitable, comme tout le monde*] (*Des Choses Cachées depuis la Fondation du Monde*, Grasset, Paris, 1978, p. 424).

towards the demands and requirements of non-professionals. In addition, people can become too independent. There are numerous examples of professionals building up their own little 'kingdom' within a company. In such cases, independence becomes independence without loyalty. Freedom becomes a freedom without commitment, without dialogue.

4. Vacant responsibility

The fourth level of responsibility is one to which one cannot say "yes" or "no". I call it 'vacant responsibility'. It is a responsibility for that for which responsibility is attributed to nobody. It is probably the kind of responsibility that makes us most human. Vacant responsibility is involved when, for example, there is a traffic accident and everyone who happens to be on the scene feels the immediate urge to help. They may not know the persons involved in the accident. It is none of their business. But bystanders can't help but make it their business. There is an immediate response of compassion. That is because in some way or other, we feel that the suffering of totally unknown people does matter. The Jewish-French philosopher Levinas calls this experience 'proximity'.⁹ What happens to people far away, even those whom you might never actually see, does nevertheless matter to you. These people, despite their distance, live morally spoken in your neighborhood.

Something like an ethics of hospitality lies at the bottom and in the heart of every culture and religion. In Africa in many areas traditional practice requires that some food is always left for the gods. But if a traveler passes by and is hungry, he or she will be offered the food and the people will say that still the gods received it. According to this habit, showing hospitality to foreigners comes down to the same thing as reverence to the gods.

New situations, challenging situations, emergency situations single us out as unique persons. The uniqueness of my answer – which nobody can give except me – makes me the unique person I am; it makes me a person as such. The more one gives a unique, new answer as a responsible person, the more human one becomes.

Everybody meets with situations where they ask themselves, "Should this be my concern?" Should I care? It may be that an opportunity is opening to do things differently and more effectively in an unconventional and unexpected way. Then the question arises as to whether one should take responsibility for the change even if it might bring disrespect and

⁹ Levinas, 'Autrement qu'être où au delà de L'essence', Nijhoff, The Hague, 1974, p. 77 vv.

trouble. Somewhere a challenge might lie in wait for a subject to take responsibility for it.¹⁰ Edison tried some thousand sorts of wires for his light-bulb. He did not hesitate to stand alone and endure skepticism, because he believed in an extraordinary possibility and made it his responsibility. Or, a person might see unanticipated danger instead of opportunity. Will that person dare to speak out and make it his or her business? Every ‘creative advance into novelty’¹¹ in a way is a new answer to the unheard of. Unknown possibilities are as much feared and avoided as are unknown human beings. The future comes to us ‘clothed’ like a stranger asking for hospitality. Every act of creative responsibility has to break with traditional methods and procedures. Most such acts are rejected and punished in their own time. It takes time before they can be recognized and appreciated for what they are. The martyrs of one epoch are the heroes of the next. That makes their job a lonely one.

Vacant responsibility is sometimes exercised by so-called ‘whistleblowers’. These are people who feel that the problems and risks their company takes are so huge, that they have to go to the media or the authorities and speak out. They can justify their actions by pointing to all kinds of professional codes of ethics. But the law currently offers little protection for whistleblowers. Only gradually society is feeling the urge to grant more legal protection to whistleblowers, who take responsibility for reporting untoward practices.

We may conclude that this kind of responsibility too is right in its place and time. But it is equally clear that one cannot always be a martyr or a hero. Occasions are rare when we stand alone, no longer covered by tradition, custom or rule, and take a lonely responsibility for that which is nobody’s responsibility. Sometimes it is necessary. But the price is high. And it is not always legitimate, because the damage of wild actions may be bigger than the risks one wants to prevent.

	Functional Responsibility	Collective Responsibility	Professional Responsibility	Vacant Responsibility
Features	- According to job description - According to	- Codes of the group - Communal	- Ability and expertise - Freedom	- Nobody’s responsibility - No rules

¹⁰ Rosenstock describes the imperative as an order in search of the subject who should carry it out. This corresponds to the grammatical form of the verb in the imperative ‘walk’, ‘take’, etc.: the subject is not mentioned.

¹¹ The terminology is from Alfred N. Whitehead, ‘Process and Reality’. He comments, “The world is thus faced by the paradox that (...), it craves for novelty and yet is haunted by terror at the loss of the past, with its familiarities and its loved ones. It seeks to escape from time in its character of ‘perpetually perishing’”, Macmilan, New York, 1929, p. 516.

	<ul style="list-style-type: none"> - labor division - Standardization - Replaceable 	<ul style="list-style-type: none"> - identity - Internal cohesion - Collective symbols 	<ul style="list-style-type: none"> - Independence - Contractual - Dialogue 	<ul style="list-style-type: none"> - New and unexpected situations
Positive	<ul style="list-style-type: none"> - Effectivity - Clarity 	<ul style="list-style-type: none"> - Common motivation and identity - Code of ethics in support of moral behavior 	<ul style="list-style-type: none"> - Strong commitment - Ability to represent the company without external controls 	<ul style="list-style-type: none"> - Uniqueness of the person - Creativity - Compassion
Negative	<ul style="list-style-type: none"> - 'Agentic state' - Capacity to act responsibly untrained 	<ul style="list-style-type: none"> - 'Group think' - Everybody outside is wrong 	<ul style="list-style-type: none"> - 'Little kingdoms' - Individualism - Manipulated freedom 	<ul style="list-style-type: none"> - 'High price' - Danger of wild actions - Danger of more harm than benefit

Responsibility and culture

If we look back from these four types of responsibility to the cases mentioned in the beginning of this article, we can try to answer the question whether certain types of responsibility do flourish in particular cultural contexts. In the case of the Kozloduy Nuclear Power Plant it looks like Bulgarian society has run into a serious deadlock. Collective identity (national pride) and a strong hierarchy (the heritage of communism) together have barred the way to an open future. In this situation abstract ethical principles are not of any help. Instead what is necessary and may prove helpful is the courage to enter upon new and unheard of ways (in our scheme: vacant responsibility) and the ability to communicate these necessities to the general public (professional responsibility; the ability to put partial truths together in a common course of action). The example of the Three Gorges Dam also underlines the necessity of pluralism. On one side a pluralism of partial contributions and of democratic discussion (like Bulgaria), but on the other hand the pluralism of controlling institutions as well, in which this democratic pluralism is institutionalized. Collectivist society and hierarchical politics together seemingly make further development impossible. The Peruvian example shows, that a combination of cultural habits and economic need makes it very difficult for the individual to take a stand. The western case of the chemical plant on the contrary shows high confidence in individual opportunity and in institutional guarantees for doing the right thing, but it too may be phrased too optimistic. Always the capacity for pluralism and creativity as the power to enter upon a new future and do things differently, are

under pressure. In hierarchical and collectivist cultures these abilities and human qualities are still quite new western import products. In western society these abilities often are degenerated; i.e. the ability for pluralism is reduced to individual live-style consumerism and the ability to enter upon a new future is reduced to superficial appetite for the new.

These human qualities - pluralism and the courage to stand alone - are the best achievements of western culture, however superficial they may be applied by present-day western individuals. Students for instance from the People's Republic of China are puzzled by a feature of professional responsibility, i.e. the capacity to enter a dialogue, and to put one's partial and biased view of reality and one's partial professional expertise together in an open discussion with a superior. "If an engineer on the base of his professional knowledge does not agree with his superior, then who will decide?" a student asks. My answer: "Is it possible, that it is not either the manager or the engineer who decides, but that they develop a common view on reality in an on-going and open discussion?". I see the astonishment on his face. This is something, he cannot understand. An Indonesian student who participated in the protest movement against Suharto, gives a critical view of the Indonesian policy of building high voltage electrical cables above crowded areas in particular sections of the city, sections of poor people. It is the policy of the enemy; it is wrong. And of course it is against all established standards of safety within western societies. My question: "But you, if you were in power, and if it was your job to supply electricity only with a small budget, what would you do?" He is puzzled by this question, because the collectivist "we - they" mentality of Indonesia makes it virtually impossible to consider, that the power elite one is opposing, may not be wrong in all respects. He cannot imagine, that he will be caught up in the same dilemmas. Here the Indonesian mentality of conforming to authority as long as possible but making "Amok" and clinging to total rebellion if authorities are going too far, makes itself felt.¹² More and more in Indonesia the need for dialogue is discussed, and thereby the consideration, that the other is not all wrong and my own party is not all right. But then again an Indonesian student tells about an assignment she got in Indonesia. Her boss was concerned about a particular safety issue in an airplane company. He knew that his superiors

¹² Franz Magnis-Suseno 'Javanese Ethics and World-View', Penerbit PT Gramedia Pustaka utama, Jakarta, 1997, p. 42: "A condition of a *rukun* is one in which all parties find themselves at peace with each other. *Rukun* is marked by cooperation, mutual acceptance, calm and unity. *Rukun* is the ideal situation that Javanese wish to see prevail in all relationships, in the family, the neighborhood, the village. The entire society should be determined by the spirit of *rukun*. At the same time the word *rukun* conveys a mode of behavior. To act according to *rukun* means to endeavor at all times to repress signs of social or personal tension and to preserve the impression of harmonized social relationships as much as possible."

would not be prepared to spend more money on safety. He gave this student the assignment to research in how far more expenditures on safety might be compensated by the fact that these safety measures at the same time would allow to take shorter flight routes over the sea instead of flying along the coastline from island to island. The student interpreted this action of her manager as an implementation of "vacant responsibility". She finalized her research successfully and offered material to her manager, whereby he could convince his superiors to implement the safety measures required. This time it is his turn to be astonished by the smart policy of this Indonesian manager, who found a creative solution without offending the group to which he belonged and without breaking the rules of politeness and hierarchy. Would it be possible after all, that the heritage and achievements of different cultures may influence and renew one another in an unpredictable way, so that for instance the cool and smooth functioning within Indonesian hierarchy will not consist of mere repetition, but integrate in itself a longing for an unknown future? Such a process would prepare a society of planetary dimensions fostering human qualities as yet unheard of.