Critical thinking about political problems

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Summary

In this paper, we suggest a framework to foster the development of critical thinking skills in young citizens in a democratic society. We show possible ways to help them see how scientific theories and research findings could and should play a role in political judgment and public policymaking. The core message is that there are three conditions to achieve these goals: a clear and articulate conception of the nature of political problems, explicit attention to the role of the sciences in problem structuring, and a critical look at the role of the social science teacher. We show how the ‘iceberg model’ of political problems, combined with a typology of policy problems, offers teachers a framework in which thinking about political issues can be meaningful, challenging and useful. We distinguish between four different types of policy problems; and demonstrate how each type requires different approaches; and how the required steps of thinking, arguing, information collection, researching alternatives and problem solving, take their own distinct shapes. We use the example of climate change as a basis for detailed illustrations of these differences. We take a critical look at the existing practice of social studies research assignments in Dutch high schools. In the final section, we offer specific recommendations for designing practical assignments for students around each of the four problem types.

Introduction

In social studies, high school students acquire the skills of future citizens: thinking, arguing and judging on social and political problems. Skilful and prudent citizenship benefits society as a whole. Students will become more skilful citizens, if we help them see how scientific theories and research findings could and should play a role in political judgment and public policymaking. This core message of this article is that there are three conditions to achieve these goals successfully.

The first condition is to teach students a clear and articulate conception of the nature of ‘political problems’. We do not look at political problems as natural phenomena ‘out there’. Rather, they are frequently inchoate and intricately interwoven clusters of social symptoms in need of a frame or an interpretation, in order to render them meaningful in terms of a ‘solution’, understood here as some form of collective political action.

The second condition is to pay explicit attention to the role of the sciences in problem structuring and problem solving. The contemporary sciences can no longer be considered the sole undisputable source of certified knowledge; instead, they are inspiring advisors in the systematic quest for tenable answers to burning problems in an insufficiently researched and still incompletely known world. In today’s complex
societies, information is abundantly available, and yet political risks and crises determine the day-to-day political landscape.

Thus, the first two conditions – acknowledgment of the specific character of political problems, and a realistic expectation of the role of the sciences – logically lead to a third condition: clarity about the social studies teacher’s role. Teachers do not need to assume the role of messengers or arbiters of truth. Instead, departing from their own doubts and uncertainties, they could take students along in the quest for sensible and meaningful ways of dealing with political problems.

In this quest, teachers are in need of methodological support. We will show how the ‘iceberg model’ of political problems, combined with a typology of policy problems, offers teachers a framework in which thinking about political issues can be meaningful, challenging and useful.

We distinguish between four different types of political problems; and demonstrate how each problem type requires different approaches and how the required steps of thinking, arguing, information collection, researching alternatives and problem solving, take their own distinct shapes. We use the example of climate change as political problem as a basis for detailed illustrations of these differences. In the final section, we offer specific recommendations for designing practical assignments for students around each of the four problem types.

**Success conditions for acquiring critical thinking skills**

**A focus on problem structuring**

The concept of ‘critical thinking’ has multiple connotations. (see for an overview Pithers 2000, Ten Dam et al., 2004) It is not the purpose of this article to expound on all different approaches and traditions. The generally shared understanding is that at school children need to learn how to think well. There are those who distinguish ‘critical thinking’ from ‘ordinary’ everyday thinking (Paul et. al, 2011) They define critical thinking as intellectually ‘more disciplined’. The most important property of ‘critical thinking’ is the necessity to learn how to use well-defined, universally applicable thinking skills. We adhere to the idea that thinking is always critical, and always embedded in context. In other words, we consider the learning of thinking skills irrespective of the subject, directed at making good thinkers’ in general, not really fruitful. People always think here-and-now, about a specific issue, triggered by a question, bewilderment, or frustration. In social studies, the focus is on social problems that are in one way or another related to politics. This means that in social studies ‘thinking’ is always political thinking. (Parker, 2003) Political thinking is not an isolated individual activity; it means participating in a social process of deliberation, debate and negotiation (Dewey, 1916, ed. 2010; Meyerson, 1994) Consequently, the rules of formal logic, indispensable for solving mathematical and technical problems, are insufficient for political thinking (Beiner, 1983: 16; Fischer, 1980). Thinking about intertwined interests, perspectives, changes, and risks occur in the process of interaction, a collective search for solutions, which includes diverse modes of generating, finding and using information, to finally arrive at political judgment (Arendt, 1968: 241; Beiner, 1983: 83ff).

Traditionally, schools teach problem solving,(see e.g. Carpey et al, 2006, Olgers et a. 2010, 175 ff.) This presupposes pre-structured problems with known solutions, as
well as a prescribed path which students are expected to follow to arrive at the correct solution. Problem-solving skills are highly valued by the labor market. However, for future citizens it is much more important to acquire problem-finding skills, to discover and name issues, to get them into the political agenda, in order to enable searching for solutions in the first place. In school education this skill is frequently ignored.

**Thinking about political and social problems as an ‘iceberg’**

First and foremost, to think critically about social and political problems means to accept that they are not self-evident or given. A number of intermediary steps are needed to arrive at some kind of solution. To use an analogy: a problem is like an iceberg (see Figure 1). Only 10% of an iceberg, as we know, is above the sea level; the remaining 90% is under water and thus invisible. The same applies to political problems. What is visible ‘above the surface’ is the outcome of a long and complicated process which involves many people, groups, organizations and institutions. Before possible solutions can be formulated, there has been a process of problem signalling and problem maturation, of searching for and finding a suitable label for what a sufficient amount of people come to recognize as a collective problem – problem finding. It is tempting to focus only on the visible problem parts. This is because these parts are ordered, seemingly manageable, and easily interpretable – and hence highly suitable for textbooks.

Figure 1 HERE

Say ‘problems’ and people easily think up solutions. Let us take for example the problem of ‘climate change’ or ‘global warming.’ People quickly came up with two sorts of solutions:

1. an attempt to prevent or soften the problem (as much as possible) – mitigation;
2. maybe the occurrence of the problem is inevitable already, in which case we have to redesign our societies so as to be as robust as possible against climate change – adaptation.

The newspapers abundantly write about these two alternatives; hence, they are easily visible for ‘ordinary people’ and thus ‘researchable’ for students. In addition, the media focus on reports about how these alternative solutions are being selected by national governments or international bodies for multilateral agreements such as the United Nations Framework Convention for Climate Change, UNFCCC. Looking back at these reports, it becomes clear that we have underestimated the speed of climate change. That made it possible to opt for ‘mitigation’ and leave ‘adaptation’ as emergency solution just in case…(Pielke, 2010: 276)

However, genuine critical thinking about the problem of climate change requires, so to speak, to dive underneath the water surface to investigate what is happening there. Only then could we become convinced that the problem will indeed have certain (adverse) impacts on our lives. After all, climate change deniers and ‘climate skeptics’ do exist – people (scientists, journalists, politicians) who still don’t believe that climate changes, let alone that such changes could be ‘dangerous’.

In other words, obviously, before the occurrence of a problem is generally accepted, there is a prior stage of problem recognition and acknowledgement. Just like there may be times you are not sure whether or not you are going to be ill, but you don’t feel well, so there is a phase in society where people start to feel uneasy, intuiting that
things are not right, but are still uncertain and bewildered about what is really problematic in the social condition. And even if in the cluster of symptoms, tensions, ruptures and evils you have become convinced something is seriously amiss, you still don’t know exactly what – how to put your finger on it, how to label or name it. For only if we can represent or precisely model an acknowledged problematic situation, we can start thinking about solutions.

In the case of climate change, signaling the problem started with scientists (Gupta, 2010). By studying long time series of temperature measurements all over the globe, some scientists were struck by the fact that, despite the enormous differences of whether patterns on different spots of the planet, overall global temperature was increasing. For some scientists this was no more than a scientific observation; one that easily fitted normal climate change patterns on earth – of former ice ages and warming-up periods of several hundreds of thousands of years ago. The one degree Celsius temperature rise was just part of the ‘normal’ range of change of temperature volatilities of this planet Earth. However, other scientists started looking for possible connections of this temperature increase and several causes. They demonstrated that an increase or decrease in particular gases, especially carbon dioxide, methane, and chlorofluor-carbon connections (CFC’s) tied sun heat to the earth’s surface or let it escape. To cut a long story short, the production of these gases explained average global temperature volatilities.

Even this research finding was just a matter of science to most climate scientists: what are the possible explanations for global temperature volatility? Global temperature increase became a problem, or a ‘fever’ only when yet other scientists showed a connection between temperature increases in the last one and a half century and man-made production of the causal-driver gases – energy production by humans for the sake of industrialization and mobility. Especially some American scientists, all members of the World Meteorological Organization (WMO), started to bring this connection to the attention of politicians and the press (Kelly, 2009; Beck, 2009). They conveyed another message: should this one degree Celsius temperature rise continue to two degrees or more, several dangerous consequences were to occur: sea level would rise, icecaps and glaciers would melt, long-time droughts would cause desertification, and more damage will occur through severe weather conditions like tsunamis, hurricanes, and extremely long spells of rainy and winter whether. When this warning was not convincing to American politicians and to ordinary citizens, masses, scientists turned to high-level diplomats and politicians of the United Nations Environmental Program (UNEP) and some chief executive officers of big multinational companies to successfully put the climate change problem on the United Nations’ political agenda. When these UN heeded the warning message, the political problem of global climate change was finally born! (Beck, 2009; Kelly, 2009)

We immediately observe two conditions that jointly transform a problem into a political problem:

- people are never solely concerned about an observation or acknowledgement of certain phenomena or facts; they are also and even more so concerned about an interpretation, the meaning or framing of those facts – in this case, that global temperature rise is man-made (‘anthropogenic’), and that the consequences may be jeopardizing the planet’s ecological balance and may become dangerous to its human inhabitants;
we are talking about problem finding, that is, the statement or claim that a problem exists, has to be underwritten by other people than those who originally acknowledged, found, or discovered the problem (Krieger, 1981: 39-43).

These two conditions are said to exist when we claim that ‘problems are social and political constructions. Of course, problems are real conditions ‘out there’; but for human beings they acquire meaning only by imposing a certain interpretation or frame on them: “Yes, the climate is really changing; and this may be(come) dangerous!”

That a problem always means an appeal for agreement by one group of people to another group, is due to the tendency to attribute the causes or drivers of problems to human choice or action. The ascription of a cause to the conduct or decisions of others immediately triggers a political struggle for accountability and responsibility for problem solving. In the case of climate change: Is it actually true that human action – polluting industrialization, limitless desire for mobility, wasteful consumption – can be made responsible for catastrophic climate change? And if so, who is to blame – the industry, car owners, or ordinary consumers? Isn’t it so that one industrial sector or one particular country emits larger amounts of carbon dioxide than other industrial branches or countries? Should this not have consequences for who should mitigate more and at what speed? May rich industrial countries impose climate change controls on the economic growth of emerging economies like Brazil and China? Is this not a new form of Western imperialism, as many politicians in emerging economies argue? Is the emission of methane caused by the melting of so-called permafrost in large parts of Siberia ‘natural’ climate change, whereas methane emission by the Finnish and their large herds of reindeer, and the many cows in our own meadows, are examples of ‘anthropogenic’ climate change?

Thus, acknowledging a problem immediately brings problem representation and problem interpretation in its wake. Only when, after sometimes very considerable lapses of time, from the multiple competing problem interpretations one or a few emerge as (politically) more important, tenable or acceptable, a dominant problem is born for which solutions can be systematically sought. This quest for one, superior or just more tenable, important or acceptable problem definition, may be termed problem finding or problem structuring.

Departing from the analogy of an ‘iceberg’ as a condition for critically dealing with political problems, we are in a position to propose a clear terminology (Hoppe, 2010: 30-31):

A problem is a unacceptable gap between an existing situation in the present and some future (more) desirable situation.

We speak of problem finding when one particular group of people states that some present or future conditions of the world are unacceptable and hence problematic, and others come to share this judgment. It is the statement or claim that one particular set of conditions in the world ought to be viewed as a ‘problem’, i.e. that others too ought to agree that these conditions are undesirable indeed, compared to one or another (not necessarily an identical!) idea of a desirable future state of the world.

Problem representation or problem interpretation refers to the multiple, frequently competing or clashing conceptions of citizens, stakeholders, office holders or politicians on what precisely ought to be considered ‘problematic’. Problem
interpretations generate consistent general attitudes to problematic situations. Interpretations or *frames* are tightly interwoven sets of ideas, emotions, experiences and images that jointly shape these general attitudes to problematic situations. They bring some perceptions of the problematic situations to the foreground. Other dimensions or aspects are brought to the background or rendered irrelevant.

We call *problem structuring* the process in which competing problem perceptions or problem interpretations are found, discussed, judged and politically fought out. Problem structuring is an inevitable intermediary step towards a *problem definition*: i.e. the authoritative choice in a political process in favour of one particular, politically dominant problem interpretation. In problem structuring, people ideally look for some kind of integration, reconciliation or compromise between diverging problem interpretations, with a view to future acceptable and feasible problem solutions.

An authoritative *problem definition* is a (mostly temporary but politically fixed) outcome of processes of problem finding, interpretation and structuring. Usually this process is an alternating mix of analysis (or ‘thinking out policy’) and power play (or ‘fighting out policy’).

At the end, this leads to the selection of a *problem solution*, i.e. everything people can do to bridge the well-defined gap between an existing undesirable and a future more desirable situation. This just means finding, elaborating and choosing possible ways of conduct to achieve the goal.

In summary, to think critically about political problems entails:

- to have the entire ‘iceberg’ in view; both what is easily visible above surface level, and what needs to be made visible, sometimes with considerable difficulty, under surface level;

- to be aware that ‘having a problem’ always means an appeal to others to agree with a view to collective action; it is about processes of negotiation and deliberation, simply because a problem is not a natural object to be found and observed, but always the intersubjective interpretation of some (groups of) persons;

- to be ready to discuss and possibly revise your own opinions and judgments; to refuse this as a matter of principle means the end of the political process; in politics it is lethal if others say: “That is just your problem, not mine!”

To think politically always means to think about the direction of behaviour change and how to influence it, which is time- and place-bound. Thus, political thinking changes with available knowledge and changing circumstances. For example, the 1953 flooding at the time, was constructed as an unhappy coincidence of adverse weather circumstances. The event fundamentally reshaped awareness of the forces of nature of the Dutch. *Anno 2012* we accept climate change as a problem and assume it
is an existing phenomenon. However, in many countries, the very idea of a *global climate* and global warming is completely unknown. In the past, we also thought about ‘the weather’ as a local or regional phenomenon. What used to be unproblematic becomes a problem, and *vice versa*. One more example: Since the 1960s, smoking marihuana was not a problem in the Netherlands. But this has been changing the last couple of years, partly as the result of moral and political pressure from adjacent countries like Belgium, Germany and France. When we can show that what is trail-blazingly new in one country is a fully normal and self-evident practice in another one, we are dealing with another aspect of critical thinking about political problems: breaking down taboos and questioning self-evident routines.

Summarizing: problems, and foremost political problems, cannot be just ‘found’ and observed as natural objects ‘in the wild’. Problems are always socially constructed or created in a particular way, in a complex, intricate interplay of different groups of people with diverging, usually incompatible interests. *In this process of problem structuring, two big institutions play key roles – politics (however defined) and the sciences.*

**Attitude toward the sciences**

When we look only at the tip of the iceberg of any political problem, we consider science exclusively as a source for solutions. But in what happens ‘under water’, we should broaden our attitude to science. The communicative exchanges between politics, society and science are not in one direction only – from science to society or politics. In the hidden part of the iceberg, science is not the sole source of authoritative expertise and the certifier of facts and scientific laws. Rather, it is a systematic and disciplined *quest* for tenable propositions or statements about an insufficiently known world. In laboratories and other experimental situations possibilities are explored which frequently do not lead to certified facts and explanations suitable for publishing in scientific journals or handbooks. Therefore, we just cannot realistically demand from science to always come up with certain and guaranteed solutions to our problems. More often than not we have to make do with the informed but temporary consent among scientists that, until further notice, certain conceptions are more tenable than others; that we may pursue and prefer certain solution directions, but cannot exclude the possibility that later research leads us into alternative pathways. Since politics grapples with urgent problems and desires quick and certain answers, this situation is disappointing, and sometimes unbearable. That is why politicians and ordinary citizens as well frequently despise scientists who emphasize the uncertainties and contingencies of their knowledge.

The moment you acknowledge that science expresses one voice in the range of social expressions of realities and preferences, science comes to occupy a more modest position - between and among other interests and considerations. Science can not always play the role of *legislator of the truth*; rather, science becomes an *inspiring*
adviser, which may paint multiple (scientifically probable) realities or solution directions, from which citizens and politics may choose.

What are the implications for the high-school curriculum of social studies, based as it is in several social science disciplines? Should children no longer be taught the most important scientific concepts and approaches? Of course they should; however, such concepts and approaches are meaningful only in a certain context. A political problem, as accepted and represented, offers a contextual framework in which concepts and theories may be usable for further analysis, for posing specific questions, and for ordering and organizing possible (always tentative) answers.

In this sense science is a treasury for multiple interpretive models or ways of looking at problems (theories, frames, paradigms, methods). A scientific theory acquires its true value only as a dialogue, an exchange of questions and answers. Theory is never fully universal, never completely escapes the original question posed for scientists at a particular time and place – this is exactly what we mean by ‘context’. Once we have mapped this context in sufficient detail, scientific concepts are meaningful and usable in the process of facilitating and steering analysis, explanation and problem solving.

**Honesty and authenticity**

We live in a risk society, as Ulrich Beck (19920 and Anthony Giddens (1991) have written. The inevitable necessity to cope with risks (and risk perceptions) has become the paramount political reality of modern societies. As long as social studies textbooks ignore this, they will be perceived as not very credible by young students. Not because they are badly written, not because they are ‘politically correct’ or ‘leftist’, and certainly not because they are not sufficiently appealing to teenagers’ and young adults’ views – which school curriculum meets this requirement, anyway?

We simply ought to take students seriously by encouraging them to think hard about today’s burning and urgent political issues. This is what truly occupies their daily thoughts and talk. They may be not interested in the technicalities of political decision making processes. But they are interested in decisions about animal welfare, climate change and alcohol (ab)use. The ‘welfare state’ may bore them (Olgers et al. 2010, 353, 390), because the contemporary system of care is a solution to their grandparents’ problems. Today’s students face other problems around social care; problems which require some knowledge about the present system, but only as a point of departure for their future problems.

But how to motivate students to think about the big issues of the risk society when they are not interested in politics? We might have written a treatise on the gap between politics and citizens, or about the diminishing trust in politics and politicians or more specifically, about ways to make politics more attractive to young people (Aalbers REF). However, we prefer a different angle: the fundamental shift in the relation between science and politics ought to be expressed also in a shifting relationship between teachers and their students. If science in its relation to politics
can no longer (always) be the ultimate source of truth (‘speaking truth to power’),
then the teacher, as a representative of a scientific discipline for the students, should
also redefine his/her role – to a facilitator of ‘making sense together’, as someone
who, jointly with the students, endeavors to seek the meaning and sense of urgent
political issues and their possible answers. This emphatically does not mean that a
teacher just follows the preferences of the students! An active role for the teacher as
stable beacon in the information jungle is more important than ever.

Students will not learn how to think simply because some exam questions require
them to demonstrate thinking skills. They will think when they are challenged by
problems which they see as meaningful; when finding meaningful answers or
solutions requires them to have at their disposal a minimum of concepts and thinking
skills; and, even more important, when they feel that their search for an answer is
taken seriously. This means that we as adults (and especially as teachers) should stop
pretending we have ready-made answers and can ‘catch’ students it they fail to
reproduce those answers correctly. Adults do not like to be seen as weak, uncertain
and ignorant by children. However, by pretending to be certain on political actions,
we in fact leave children with no option but to choose between two extremes:
cynicism (because they will undoubtedly see through our weakness) or despair
(because we deny them the chance to learn together with us).

We need to find the resources and the humility to be honest with our students and to
admit that we, do not know everything! After all, we are in a political crisis – we have
no idea how to combat poverty and widely spread diseases, and we certainly don’t
know how to respond to the challenges of climate change and global warming. Our
task is to invite students to join us in the quest for better answers to future problems,
to encourage them to participate and to find their own answers. We need find ways
to equip them with the necessary tools to make sense of the world and, hopefully to
change it in desirable directions.

**Thinking tools within safe and clear frameworks**

Only in a (relatively) constrained knowledge space a student can begin to discover
connections between phenomena, to apply concepts, to see causes and consequences,
and to look for missing information without drowning in the sea of all too easily
available information in this digital world. Fortunately, students are able to think for
themselves already; but they could use some support in learning how to use an
available ‘toolkit’ for thinking and research. On the one hand, they simply need to be
acquainted with suitable instruments to discipline their thoughts and to make sense of
the world. On the other hand, they ought to be offered an opportunity to select the
instruments that fit the task or assignment. For example, the current Dutch practice
(Ruijs et al, 2005, Kuhlemeyer, 2002) is to teach students structured question-answer
surveys and interview methods suitable for statistical data analysis. Very often, this
exhausts the research skills content of social studies. However, these research
methods are only meaningful if applied to a particular type of issues. Other types of
issues pose different questions which require different research methods. Therefore, it
is important to teach students to judge the suitability of research instruments by a
Sources of frustration in practical assignments for social studies

When these conditions are not taken into account, the practical research assignments which usually are used to teach research methods turn into a source of frustration among students and teachers alike. Practical assignments commonly address some kind of ‘societal problem.’ The way they are formulated, however, all too often leads to superficial cut-and-paste student products. Usually, this is due to the lack of clarity in the assignments themselves, and a combination of two extremes: very strict formal requirements (title page, table of contents, chapter headings, references, conclusions) on one hand, and on the other far too vaguely formulated substantive and analytical questions.

Unfortunately, students regularly get assignments such as the following: “Select, with two or three classmates, a regional social/economic/political problem or conflict in society. That is, it ought to be a societal problem or conflict playing out in your own environment.” Does a problem happen to be the same thing as a conflict? Do conflicts perhaps arise because there are problems, or the other way around? What is “your own environment”? My village, region, province, country, Europe, or the apparently shrinking ‘global village’?

More often than not teachers use confusing terminology. It is far from clear why an issue, a topic, or a phenomenon is labelled as a problem – usually all these terms are used as interchangeable. For example, students consider something a problem because the media paid attention to it: “We watched Nova of 4 January, especially the example of Culemborg. Here too ‘youth nuisance’ was the problem. Therefore, it appeared to us to be an important problem, because otherwise they would not choose to discuss it once more.” Clearly, students take over the media’s problem definition and priorities without asking for whom ‘youth nuisance’ actually represents a problem. Is it also an important problem for younger people? Using the iceberg model, students could at least ask the question: for whom is ‘youth nuisance’ actually problematic? Only then they could start researching why it is a problem at all. Only after these preliminary steps, an analysis could follow and eventually the search for and weighing of possible alternative solutions.

A frequently occurring error is to implicitly and without any reflection accept an official or authoritative problem definition, and subsequently search for solutions only. The popular topic of organ donation offers a good example. Influenced by protagonists’ information campaigns for increased organ donation, and by freely distributed educational materials oriented towards increasing the number of donors, students accept the problem definition: more people than necessary die because of a lack of donors. In reality, one should argue, people die because they are seriously ill, and sometimes an organ transplantation is a way of treating the disease. Health policymakers could also decide to reduce the necessity of organ transplants by investing in preventive medicine and medical care. In that case, one should discuss different modes or organization and different priorities in health care; or different types of medical research, for example aimed at artificial organs development and stem cell research. These are political choices that lend themselves well to discussion.
in social studies classes. Bypassing the controversial, messy part of problem structuring deprives students from a rich learning context, forces them to think in ready-made, pre-structured solutions and eventually instills in them a sense of powerlessness in the face of ‘greater’ political forces.

Coming back to the examples of practical assignments. By far the most common next step is to ask students to analyze the problem they have chosen. The analysis is frequently structured by predefined questions which could be answered directly. There is nothing wrong with these questions actually. It is certainly useful to ask students to identify stakeholders, interests, parties involved et cetera. However, the internal logic, the structure which links the answers into a coherent argument and transforms them into a conclusion, is frequently missing or only implicitly given in a way invisible to students.

Almost all assignments include the following question: how did the problem originate? But without some overarching analytical scheme, students have to hunt for implicit cues for the problem’s genesis. As mentioned above, such explanations always involve groups of people with their own typical normative preferences and/or interests, and the resources to advocate them. When this link to groups of people is not made clear to students, they inevitably get stuck, and confuse truly causal connections, core assumptions, theoretical levels and frameworks. For example, the popular topic of youth criminality is interpreted through ‘beer-mat’ psychology at individual or group level: “The problem starts with boredom by younger people who, for example, try to kick a fence, or, having no money, try to steal chips from the supermarket. The problem may also start because younger kids want to obey older ones. For example, an 11 year old boy is in the company of a 15 year old boy. The 15 year old has firecrackers and tells the 11 year old to light it in the post box of somebody living in the neighbourhood. In this situation the 11 year old will obey the older one, because he wants to keep him as a friend.”

Is there a way to get other results? In current textbooks, several alternative theories are presented which offer an explanation of the origins of criminal behaviour. Apparently, most students do not link the textbook theory to their ‘research assignment.’ If we teach them to think with the iceberg model, they may link these different explanations to different groups of people who advocate the explanations (and different problem definitions). This would make their analysis much more grounded and logical. Of course, in present analyses, different stakeholders are also mentioned. Sometimes they are linked to (abstract) norms and values, but these are seen as an ‘attribute’ only – not as part and parcel of a system of attitudes and conceptions that steer these stakeholders towards a particular preferred problem definition and its concomitant solution(s).

Looking at the big picture would help students grasp the coherence and interdependence of the specific parts of problem analysis. Then, and only then, it becomes meaningful at all to invite students to express their “personal opinion”. (This has become proverbial in a sense that expressing a personal opinion sometimes exhausts attempts to think independently about an issue). This opinion can be linked to a clear stakeholder point of view, instead of being expressed as some stand-alone and near-random individual preference. When students see how their own opinion fits a larger conceptual scheme, they have the opportunity to revise it in a debate with classmates or in (simulated) discussions with the other stakeholders.
The lack of a clear analytical framework is also a source of confusion around the use of information and data. We believe that there is a direct connection between the teacher’s attitude to knowledge, information and research, and the way students learn to do research and use information. If teachers implicitly use a kind of ‘bookshelf’-model – scientific information is neatly ordered, ready to be found – they cannot have high expectations of students’ empirical research. This is because ‘a research exercise’ such as a student survey or a number of student interviews may never achieve the high standards of the official ‘bookshelf’ – and therefore will be by definition disparaged. This, of course, does not motivate students. No need to mention that quite easy resort to clever internet cut-and-paste work, supplemented by some data from a survey or an interview. The latter are commonly mechanically executed and offered as stand-alone parts with hardly an attempt to relate them to the rest of the ‘information’ drawn from the ‘bookshelf’.

This is a suitable place to quote John Dewey, who wrote in his Democracy and Education (Dewey, 2010, 98)

“We sometimes talk as if “original research” were a peculiar prerogative of scientists or at least of advanced students. But all thinking is research, and all research is native, original, with him who carries it on, even if everybody else in the world already is sure of what he is still looking for. It also follows that all thinking involves a risk. Certainty cannot be guaranteed in advance.”

Teachers spend much time and effort in teaching students to distinguish between reliable and unreliable sources of information. But sources of information are hardly reliable in general. There is no single or simple rule that can be applied to determine the reliability of a source. Criteria for reliability are always connected to the type of problem and the place a source occupies in the constellation of relevant actors’ perspectives. Hence, the student argument: “My sources are reliable because they are all government sources” is insufficiently convincing. It is crucial to teach students about the process of information generation and the ways in which it may be employed to serve different interests. Wikipedia is not necessarily less reliable than a government source. The Government Information Service is an excellent site for reporting the minister-president’s speech; but you better look elsewhere for an unbiased report on the risks of Q-fever and its treatment. Later in this paper we offer specific ways of linking certain information sources and types of research to different types of problems, in an attempt to make students’ first encounter with social science research meaningful, feasible and fun. But first we need to discuss the typology of political problems.

**Four different types of political problems**

As discussed above, the most simple definition of ‘problem’ proposes that it involves an unacceptable gap between an existing situation and a desirable, future state of the world. In other words, a problem signals a difference between what *is*/*ist* in the here-and-now, and what *ought to be*/*sollen* in the near or a far-away future. However, not all problems are alike.

Over some problems, there is quite a lot of certainty, that is, experts and lay people may take decisions or select choices on the basis of an existing store of knowledge. For other problems, such a store of knowledge is non-existent; either because it does not exist yet; or because it is rather incomplete, or because the available knowledge is uncertain and contested, pointing decisions in diverging directions. In short, there can
be more or less certainty of knowledge about a problem. What we want, the future desired situation, course is a matter of norms, values, principles, ideals or interests at stake. On such normative issues more often than not there is ambiguity and divided opinions. In other words, there may exist more or less congruence or agreement. Now, if we cross the degree of certainty and the degree of agreement on norms and values, we get a simple typology of four kinds of problem structuring.

FIGURE 2 HERE

These problem types provide politicians, administrators and other policymakers with a relatively quick overview of what they should do, essentially, in order to prudently cope with a certain problem. Without such an overview, they might easily be overwhelmed by the sheer number and complexity of problems they have to attend to. For young people who take their first steps in getting acquainted with the complex world of political decision making, the typology also offers a mental ‘anchor’, at the same time avoiding oversimplification. The typology creates a productive space between the paralyzing uncertainty in an ever more complex world, and the cynicism nurtured by seemingly certain simple schemes and solutions.

The core of the typology is the contrast between structured (or ‘tame’) problems and unstructured (or ‘wicked’) problems. Problems are structured when politicians, administrators or policymakers have far-reaching agreement on norms and values, and are pretty certain about the validity and applicability of knowledge. In other words, both goals and means, and the plan for a solution, are completely accepted. A structured problem is like a solved puzzle: however many pieces constitute the puzzle, and however complex their patterns, all pieces for the puzzle are there to be used; and for any puzzle there exists only one agreed constellation of pieces that counts as ‘solution of the puzzle’. Structured problems – like road construction and maintenance, construction and maintenance of sewage systems, or water provision (in the Netherlands, but not in Tanzania!) – actually are no longer political problems. You may do research into more effective and less expensive means with less negative side effects. However, structured problems are technical designs for professionals and other experts, administrative routine and professional standard procedure, outside the political limelight.

Unstructured problems are political issues where ethical disagreement and divisiveness in the preferences of elite opinion and public opinion among many citizens perseveres; where even recognized experts don’t know for certain how to approach the problem. Integrating ‘newcomers’ in a historically well established nation-state is an unstructured problem; and as we well argue extensively in the next section, so is global warming. To stick to the puzzle analogy, in the case of unstructured problems we cannot agree on which pieces are or are not part of the puzzle; and even less so about which pattern or constellation of pieces constitutes a ‘solution’. In contrast to structured problems, unstructured problems are political through and through; they frequently lead to protracted political conflicts, controversies, and deadlocks.

Moderately structured problems appear in two shapes. Moderately structured problems with goal consensus occur when politicians and administrators largely agree on principles, norms and values about a desirable future state (goal), but simultaneously demonstrate considerable uncertainty on the applicability and reliability of the knowledge required and the means to achieve the goal(s). Thus, economists remain rather uncertain about the best ways and means to fight inflation;
and although most people agree that less car mobility would be desirable, transportation experts do not know how to realize that goal; health experts and others know that obesity is bad for a person’s short and long term health, yet they remain uncertain as to what causes obesity, how to tackle it, and who is responsible (the obese person himself, government, the food industry and supermarket chains, or perhaps medical experts after all?). This problem type typically leads to political fights over what type of research would lead to more usable knowledge. Often bargaining or negotiation is necessary on the issue of who is to finance what kind of research and how to share the results; and on who is to bear responsibility if incomplete means appear (too) expensive of produce considerable amounts of adverse side effects.

Finally, there is a kind of problem of which people have always known how to solve it (for example, euthanasia, or abortion), but where the ‘solution’ itself generates, or even increases ethical divisiveness, disagreement and political conflict in a society. Such moderately structured problems with certain knowledge but contested or contestable ethics may lead to severe political conflicts and require considerable ingenuity and diplomatic skill in their settlement and accommodation. Frequently, they are pacified through being depoliticized, handed over to ‘blue ribbon’ committees of ‘wise people, which allows the political problems to ‘cool down’ by being put ‘in the fridge’. Sometimes this allows politics to gain the time for clever compromises to reconcile possible socially disruptive ethical conflict.

**Climate change in four problem types**

Climate change is a suitable example, it enjoys both political attention and the interests of young people. The issue is hot, multifaceted and complex enough to be used as context in which many of the concepts of social studies become meaningful to students. We demonstrate how the problem of climate change may be viewed from four angles. We focus specifically on the consequences of such an approach for the construction of practical assignments with a research component.

**Climate change as structured problem: giving up (some) polders**

It is expected that climate change and especially local warming will bring possible adverse consequences to the Netherlands. The sea-level will rise; and simultaneously the major rivers (like Rhine and Meuse) will have to transport much more water from melting Alpine glaciers towards the sea; and through extremely long rainfall periods serious local flooding will occur much more frequently. One possible solution is ‘to give land back to water’. This implies leading excessive water to some anticipated spaces or areas where water nuisance is tolerable (“reservoirs” or “storage basins”) in order to preserve more vulnerable areas (Van Buuren and Warner, 2010: 24-25; Van Rijswoud, 2012: 93-96). More often than not, this requires to accept that some areas that were turned into polders in the past will be temporarily or permanently flooded. It is politically difficult to decide which polders should be ‘un-poldered’ again; especially since this implies that people would have to abandon their houses and to leave their jobs. However, un-poldering is structured problem, strictly speaking. The Dutch have lots of expertise and undisputable knowledge about the behaviour of water streams and how to steer and influence them. Of course, numerous hydrologists, geologists, river and dam experts, urban planners and other social scientists will be needed to design detailed policy programmes for polders X or Y. But there can be
little doubt that they will come up with highly feasible solutions as the result of their technical and social research, measurements and waterway and other infrastructural solutions.

Analysis and research questions for a structured problem

In the case of structured problems, it is policy designs that are in demand. In the example above: How to make sure that un-poldering works well? Who will do what, and how much will it cost? Norms and values are not under serious discussion, but for students it still makes good sense to clearly delineate them. They are not only important to clarify in case of controversy, but also as a basis for agreement. Consensus has to be publicly acknowledged, and during a project needs cherishing and maintenance. Students could also research the conditions under which existing agreement may break down (and the problem would move into another quadrant of the typology).

When the analytical framework is very clear, what kind of research would make students feel that they meaningfully contribute to problem solving? We suggest to focus research on questions about managing the project process, comparing different approaches to project work, and testing for effectiveness and efficiency. In order to understand decision making mechanisms and process management, students need all the factual knowledge that was treated in social studies textbooks and lessons. Usually, there are more than sufficient uncontroversial sources of information available: official documents, research reports, and technical and/or social designs. In addition, students may collect information from experts, field specialists, water board administrators, or municipal politicians and policymaking officials. Specific research topics for students could be: how to limit (adverse) side effects (for nature, for humans); how to compensate duped people; listing consequences for infrastructure and urban development plans; what are possibilities for appeal and redress? All these issues have been touched upon in major outline in normal social studies lessons; the structured problem assignments offer opportunities to apply and deepen students knowledge in a specific context.

Student creativity, to the extent not yet sufficiently challenged or addressed, could be demonstrated in a research product that surpasses a mere ‘report’. In this case, it could involve a (partial) policy design, a defence and recommendation for one specific solution, or a publicity campaign (which would also easily lend itself to a multi-media presentation). How should an information campaign be designed so as to ensure acceptance of plans? Please take note that in case of divisive or highly controversial problems an information campaign requires different goals and a different design. If students are aware of the right problem type, they will not ramble in general and over-abstract theories, but search and present targeted information. In the case of well structured problems, information campaigns should stress transparency, clarity and efficiency.

Climate change as moderately structured problem with goal consensus: de-coupling

Let us engage in a thought experiment: imagine that everybody – including large energy-producing and –providing enterprises like BP and Shell, and countries like Saudi-Arabia, Russia and (surprise, surprise!) Norway - would agree that the only possible solution for the dangers of global warming would be a technological fix: stop fossil fuel (oil, gas) production and use, and innovate and apply, as soon as
possible and on as large a scale as possible, non-fossil fuels or carbon-dioxide free energy – with as end-goal the de-coupling of economic growth from (so far inevitable) increase of carbon-dioxide emissions (Pielke, 2010). After all, in the next 40-50 years the world population will continue to grow from its present seven to nine billion people; most of them living or born in as yet poor countries that we would never have the right to demand to curb their levels of welfare and well-being. If we could all whole-heartedly agree on this goal, and be politically, economically and technologically devoted to realizing such a technological fix, the global warming problem would have the character of a moderately structured problem with goal consensus. People all over the world would engage in enormous technological efforts, comparable to those during last century’s two world wars in producing and innovating weapons (tanks, airplanes, radar, the atomic bomb) – but this time to innovate, produce and market clean energy.

Analysis and research questions for moderately structured problems with goal consensus

In this kind of problems, the focus is on scientific research in its most recognizable, applied form. In certain policy domains questions are so urgent that agreement will evolve on the necessity to invest in research and development (R&D). Such (temporary, partial) agreements determine the constraints within which questions are posed for scientists to answer (searching for problem solutions). On problems with goal consensus, science is directly appealed to in order to take the lead in problem solving efforts. This provides a good opportunity for social studies students to participate in multi-disciplinary projects which include topics of chemistry, physics and biology. Questions can be very specific – how to redesign our school to be energy-neutral? Or, they may be rather global but still appealing to students – how to produce sufficient amounts of clean energy, in developing countries as well, so that children may charge and use their laptops? What are advantages and disadvantages of alternative energy sources? How to change existing infrastructure (gas stations, electricity grids, etcetera) to make clean energy universally available – for electrical bikes and cars, for example. How to redesign societal institutions and relations (e.g. less car mobility) for clean energy to become a realistic option for families?

Students’ research may comprise an element to be judged by criteria of validity and reliability as accepted in the field of natural sciences; but one could also create sensible social science research designs and (partially) implement them. This would familiarize students with important concepts like validity, representativeness, replicability, and scientific quality. Doable research tasks for students could involve experiments, reviews of existing research (for example on renewables, electrical vehicles, solar roof panels), creating a forum for discussing research efforts, and initial testing of new hypotheses, finding financial and other resources for relevant research. Perhaps specific research applications are less immediately visible; but this may not be necessary. A very important message to students is that science always operates in a social context that both enables, steers and restrains research interests; yet should also allows sufficient space to ask “what if” questions with high relevance for the future.

The product of students’ research work could be a scientific report on (empirical) research; or a model for testing the feasibility of certain solutions. (If they turn out to be feasible, the problem moves into the quadrant of structured problems.) Alternatively, it may involve a framework for judging the financial utility of research.
For example, a comparison in these terms of different kinds of renewables and existing energy sources.

Also, moving to a more creative mode, students could engage in all kinds of future scenarios creation. Such thought experiments combine the elements of play with serious academic challenge and can be very appealing to the age group.

**Climate change as moderately structured problem with ethical divisiveness: see level rise and the Delta Commission**

History makes the Dutch (more than other Europeans) more inclined to be aware of climate adaptation problems through sea level rise. Which Dutch person is unaware of the 1953 Zealand flooding? And who is not proud of the innovative Delta works intended to prevent a similar national catastrophe in the future? Therefore, some years ago, government established a new ‘Delta Commission’ to check out whether or not the Dutch system of dykes and dyke monitoring is robust enough to withstand new sea level rise due to global warming (Van Rijswoud, 2012: 156-165).

This Delta Commission signalled that in a worst case scenario sea level rise might turn out to be considerably higher than expected. Instead of an assumed sea level rise of 0.6 meters by the National Water Authority (Rijkswaterstaat), or a maximum rise of 0.85 meters by 2100 by the Royal Dutch Meteorological Institute (KNMI), the Delta Commission assumed a possible sea level rise in 2100 of no less than 1.30 meters. From a political-ethical point of view, the difference between a most plausible and a worst-case scenario points in two divergent directions. Sticking to scientists delivering an most-probable prediction, you may adhere to current plans for heightening and improving dykes and the concomitant expenses. Alternatively, policymakers may choose for the so-called ‘precautionary principle’: even though they are not sure about the likelihood of the worst-case scenario actually occurring, they would assume it will happen and in so doing would exclude all risks. In our specific example, this implies: more heightening and improving of dyke systems and much higher public costs.

During the months following their report’s publication, the Delta Commission was attacked again and again for its choice of the precautionary principle. That choice was supposed to be ‘unscientific’, as opposed to the lower expectations by the National Water Authority and the Meteorological Institute. The example illustrates the confusion in practice between normative ambiguity and knowledge uncertainty. The Delta Commission’s preference for the precautionary principle is a political-ethical choice for sustainability and risk exclusion; with as certain consequence – acceptance of higher costs. The antagonists, attacking the Commission for its ‘unscientific’ choice for a higher sea level rise, in fact selected an alternative ethical position: We opt for maximum economic growth, therefore let us run a certain, ‘acceptable’ amount of risk in order to keep costs down. In this case, we see that the value conflict between economic growth- old style versus sustainability plays a furtive or hidden role. Eventually, the antagonists of the Delta Commission won the political battle. Their political victory redefined the dominant problem definition from ‘moderately structured with ethical divisiveness’ back to ‘structured problem’.

**Analysis and research questions for moderately structured problems with ethical divisiveness**

The most important bone of contention in this problem type is the establishment of acceptable risks for citizens, without completely ignoring (economic) implications:
how safe is safe enough? In this case, sources of information are by definition ‘partisan’ or ‘biased’. Students have to learn to trace on which assumptions conclusions are drawn and on which normative positions information sources are based. Looking for ‘objective’ information in this particular framework is a waste of time at least, and, in the end, misleading. The relationships between economic growth, sustainability and different degrees of (un)certainty as assumed by the Delta Commission are the keys to understanding the problem. The tradeoffs for the Delta Commission are ‘in the small’ what the United Nations and all concerned with global warming have to do ‘in the large’. You ask an easily determined group of people (Dutch taxpayers, citizens of rich countries) to make an absolutely certain short term sacrifice (paying higher taxes, accepting lower economic growth) for the uncertain benefit in the far future for other people (citizens of poor countries, future generations). From a political point of view, this is a very difficult demand, hardly likely to get much political support.

A general task in practical assignments for students is the mapping of the different (competing and contradictory) analytic frameworks as a basis for organizing debates and dialogues. For example, research of risk perceptions among inhabitants of a certain district. Or: how much are people willing to pay for more safety? How is it possible to measure such costs reliably? Sometimes this requires interpretation of existing research; sometimes original empirical work – surveys, interviews, citizens’ focus groups in the neighbourhood. Learning to take seriously the position of as many different groups as possible is a key element in these assignments. Looking at the ‘usual suspects’ alone – political parties, business, the church – is usually not enough to break political deadlocks and to restructure the problem on the basis of a broader consensus. Data gathering and analysis should be aimed at the clarification of positions and at organizing debate and consultation as modes of political deliberation. What students would finally submit is most definitely not a scientific report, but a blog, or an awareness-arousing movie in for example YouTube, an advocacy paper or some other information material to influence people’s points of view. Students’ products should be oriented at letting people make reflexive choices through better understanding of assumptions and arguments in public debates.

**Climate change as unstructured problem: global warming** (Hulme, 2009; Vellinga, 2011)

When we look beyond Dutch polders and put our technical performance in a worldwide context, the problem immediately becomes unstructured. Even after thirty years of international and national global climate change policy, we have not advanced one step closer to a solution, except for a reasonable amount of problem awareness among larger parts of the population of some rich countries.

*On the normative side of the climate change problem*, deep ethical divisiveness persists. For many politicians, diplomats and policymakers, global warming is ‘high politics’ – there is an insurmountable contradiction between economic growth and sustainability, maybe the entire economic world order should be revamped, and all of us ought to thoroughly change our everyday life styles, mobility patterns, housing and consumption habits. In addition, it remains ideologically highly contested whether or not attacking global climate change is the responsibility of politics, or business. In addition, we have the divisive ethical issue of distributive justice in imposing climate goals in North and South countries. Or how to deal with the circumstance of global
warming policies having well predictable short term negative consequences for many people, while positive impacts are uncertain and in a far-away future (see above).

On the knowledge side of the problem, it is telling that there remain vociferous denialists and climate sceptics, especially in the USA and some poorer countries. More serious is that nowhere in the world a considerable decrease in carbon-dioxide emissions (CFC’s excepted) can be observed, in spite of the ingenuity of policymakers in negotiating international agreements on decreases per country; in spite of the design of policy instruments aiming for an equitable division of burdens in decreasing climate gas emissions; in spite of an intricate system of emission trade in and between some countries; and in spite of so-called joint implementation (between rich and poor countries) and flexible management practices.

By way of illustration, the system of emission trading through which rich countries can achieve their carbon-dioxide reduction targets by buying emission rights of poor countries who will not exhaust their allowed quota anyway, does not work. This is due to the sheer complexity and opacity of determining how much emissions actually occur, how much are allowed to occur, and how to determine a price per unit emission; and how all this could be well documented and monitored on a worldwide scale. In addition, it turns out that considerable parts of the original problem – estimated at about half the human-made climate change – remains actually outside the attention of policymakers – next to mitigation little attention to adaptation; next to mitigation and adaptation, neglect of large-scale innovation of clean or carbon-dioxide-free energy sources; and finally, we have too little knowledge about sub-surface carbon-dioxide emission storage and other forms of so-called ‘geo-engineering’.

Analysis and research questions for unstructured problems

Information source reliability and exposing efforts to manipulate information ought to be in the center of attention. The most important skills are in the area of analysis of arguments in terms of quality, completeness and structure. For example, do a Toulmin-type (Toulmin, 2003) argumentative analysis (i.e., look for warrants, backings and rebuttals of major arguments pro or con); or, more simply, create a wordle to visualize dominant words in a particular discourse; or make a mind map, in contrast to goal trees in the case of structured and moderately structured problems. Unstructured problems lend themselves par excellence to development of lateral thinking, off-the-beaten-path solution thinking, uncovering (hidden) prejudices and biases, and systematically uncovering certain knee-jerk responses in conclusion drawing.

We badly need new scientific information if we want to avoid fact-free public opinion-making. Science needs to produce new facts and findings if we desire to avoid overlooking marginal but maybe important positions. Do facts exist to corroborate the plausibility of opinions considered deviant? Can we prove something considered untrue or impossible so far? Or vice versa, may we simply reject a popular position because there is sufficient counter-evidence? Analytic work could focus on possibilities: possible problem symptoms, possibly involved but overlooked groups of people, possible stakeholders. Theories and concepts help the order and direction of questioning, especially to turn attention to under-researched and under-theorized aspects. Practical assignments in the sphere of unstructured problems may have as a major guideline not just problem understanding, but to simultaneously find ways and means to put the problem on the political agenda. Practical assignments
could have agenda-setting as a prime goal – a reflexive piece of thinking, or an awareness raising movie, a network mobilizing campaign, or a campaign to attract new and more allies for a certain position. In the case of unstructured problems, good thinking leads not to answers, but to new, not yet posed, let alone answered, questions.

**Finale**

Summarizing, we have shown how students’ analytic work in practical assignments in the high school social studies curriculum may be fruitfully informed by a typology of public policy problems. We have listed the most important analytic and research questions, but differently shaded for each of the different problem types (see Table 1).

Table 1 ABOUT HERE

Taking these major guidelines into account in the design of practical assignments will, we hope, lead to a much better alignment of topic, major research questions, research instruments, and end products of students’ analytic work. Some specific suggestions for types of end products may also be useful for differentiation and adapting to learning styles, without neglecting the demands on substance and lowering standards. Differentiation will also find expression in the degree of difficulty of assignments. We stress our conviction that this kind of critical thinking about political problems is not just important for the more elite types of higher education. After all, more than half of the students are at mainstream schools that are not considered elite; these students will also be tomorrow’s citizens and will vote and engage in other forms of political participation, hopefully on the basis of solid judgments.

Our suggestions may also define possible ways of organizing the curriculum and of structuring practical assignments in particular: for example, assignments for one type of problem, selected by the teacher; analysis of problems and deciding on their problem type; training in specifying conditions under which movement from one to another problem type may happen – for example, opening up of structured problems by up-scaling them, i.e. defining them on larger scales (from local to national to transnational or international); or structuring a problem by reaching agreement on norms and values; or studying the historical development of the ‘same’ problem over time; or studying the ‘same’ problem but differently defined in different countries. An example of a historical comparison is that in the past animal welfare was not considered a problem, but at present animal welfare impinges on apparently well-structured problems like attacking foot-and-mouth disease or ritual animal slaughter. It is very important to be aware that a problem may shift from structured to unstructured, or *vice versa*. This insight is crucial in opposing the tendency (among students, but also among many politicians and policymakers!) to prematurely close down debate, and to start problem-solving action on the basis of pseudo-consensus. For students who love a real challenge, it might be an idea to search for examples of wrongly and prematurely defined problems – the so-called wrong-problem problems – whose solutions subsequently misfired. After all, students learn from failures as well.

However, perhaps our greatest hope is that, through this problem structuring strategy for teaching social studies, students acquire a feeling of being *empowered*. Let us quote a social studies teacher: “From the textbooks students get the impression that government takes care of everything in a top-down way, and that students/citizens do
not have any influence on these processes.” When we describe and analyze the political process not solely in terms of institutions, but as ever continuing deliberation and debate on substantive problems, we do allocate a specific role in that process for our students – and this is a worthwhile endeavour. We invite all our colleagues/teachers to experiment with our suggestions by developing practical assignments and lesson materials. Only by testing elements of the typology in practice, we may elaborate and fine-tune it for our educational purposes. Let is put it this way: we hope that critical thinking about political problems is a moderately structured problem, with goal consensus!

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² Throughout the paper, we refer to the subjects “maatschappijleer” and “maatschappijwetenschappen” in the Netherlands. The subject does not overlap completely with either “social studies” or “civic studies. It contains elements of both. It does not include history, geography and economics. The two pillar disciplines of the curriculum are sociology and political science.
³ We advisedly use the plural ‘sciences’ to indicate both the natural, the social and the humanitarian sciences.
⁵ In the plans for a new social science curriculum in the Netherlands (at the moment in a pilot phase), the concept-context approach is systematically used. However, it remains limited to strictly sociological and political science concepts in ‘traditional’ social contexts. The junction between social and natural sciences has not yet found a place in the curriculum.
Practical research assignments are a common part of teaching social studies in the Netherlands, this is particularly true for the elective subject ‘maatschappijwetenschappen.’ Very often, the acquisition of mandatory research skills is limited to this research assignment only.

All quotes are anonymously taken from real class assignments.

The example also shows how to deal with highly complex problems: by problem decomposition, i.e. cutting the entire problem up in smaller, perhaps more ‘doable’ parts. Such partial problems may differ among each other along the lines of the four problem types – as actually demonstrated by the climate change case. However, we will not elaborate on this aspect of problem structuring here.