THE ABCS OF THE SCIENCE OF STRUCTURED DIALOGIC DESIGN

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Abstract

This paper has been drafted as a layman's introduction to the science of structured dialogic design. Using a helicopter view of the processes involved in a typical organization and implementation of an interactive workshop, the author highlights the limitations of contemporary approaches to dialogues and introduces the reader to the basic laws and principles of the science of structured dialogic design.

Keywords: dialogic design; stakeholder; complex problem; extraneous load; cognitive limitations; requisite action; erroneous priorities

Introduction

During the past decade, we have witnessed an exponential growth in the number of dialogues organized using what is known as the *science of structured dialogic design.* An increasing number of facilitators, workshop organizers, participants, scientists, and lay people show great interest in learning more about this science. This article has been written with all those who would benefit from an easy-to-read introduction to dialogic design and its laws in mind. In the first part of the paper, I have tried to describe typical experiences we all go through when we are invited to participate in any dialogue or workshop that is organized using classic methodologies. Using a helicopter view of an imaginary situation, I attempt to highlight shortcomings and challenges of contemporary methodologies. The second part of the article discusses these shortcomings and introduces the reader to the seven principal laws and a few basic discoveries of structured dialogic design.

You have been invited to a workshop, a round table, or maybe a panel discussion. An important issue is to be discussed. The event will last for one or maybe two days. It might be in your own country or, ideally, in a different one. (I use the term "ideally" here on the assumption that your hosts are subsidizing your expenses.) You have been selected because of your important work, experience, and/or supposedly extensive knowledge of the matter. The invitation states that you are expected to contribute *actively* to the dialogue. If the hosts shared with you the list of attendees, you may already have an idea who else is participating. Occasionally, the organizers of events like this share with you

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short bios of the other attendees. In most cases, however, all you have is a list of names. If you are smart, you might be able to make some rational assumptions regarding the background of the others. You might even anticipate the diverse perspectives and positions they will bring to the table. Of course, all your assumptions could, in the end prove wrong. You might discover that your guesses were based on your personal stereotypes regarding the beliefs and interests of the others.

The invitation includes the title of the event and logistical information such as dates, places, financial details, and so on. Hopefully, it also includes a summary of the objective(s) and some background information about the issue to be discussed. Your first impression could well be that the objectives sound a bit ambitious, but you manage to quickly dismiss that thought. Being determined to achieve far-reaching yet practical results is not a minus; on the contrary, you appreciate this. Those who aspire to engage in social or any other type of change had better be ambitious. The description of the event uses terms like “challenges,” “solutions,” “road map,” “strategy,” and their many synonyms. They are meant to underline the significance of the event. At the same time, they boost expectations—yours, other participants’ and probably the event supporters’—regarding the expected outcomes.

You read the description of the event a couple of times, but you still feel a bit unclear regarding the exact focus of the planned dialogue. However, this is not an important limitation. There is provision on the program for an initial session chaired by one of the organizers dedicated to this issue. The representative of the hosts will introduce the problem, describe the process, and explain what exactly the issue at hand is, and how it will be discussed. She will also probably request that volunteer reporters take minutes and report the results of the interactive dialogue to the plenary during the final session. The moderators will compile a final report, which may take the form of a declaration or a list of recommendations. This will again supposedly reflect the depth and breadth of the dialogue, and it will be distributed widely. All relevant stakeholders will receive notice about the results of your dialogue. Everything seems to have been quite well thought through and appropriately organized. The process has been designed to produce tangible results. Yet, even if this article were to end here, I am sure most of you would be able to make some critical observations regarding the limitations of the process. You might recognize possible challenges related to the use of language and the way terminology might have a negative effect on the possible outcomes of the planned dialogue. It might indeed be possible for you to lie back right now and reflect on what could have been done differently even at the stage of arranging the dialogue.

You promise to yourself to prepare for the workshop before you go. However, if you are like the rest of us, you probably never find the time. The event is *today*. You find yourself already in the opening ceremony trying to catch up on the meaning and purpose of your presence. Your brain is furthermore bombarded by many new and/or old faces—some names you were supposed to remember, some faces you should have been able to recognize. It is not the first time you have been invited to an event like this. It is therefore not unusual that you have met some participants in previous, similar workshops. Others, including many of the organizers, are completely new to you. There are lots of names and faces that your brain is trying to recall or memorize. A significant portion of your brain’s

cognitive resources is already busy with such logistical tasks. Learning scientists call this type of brain effort *extraneous load.* Extraneous load is the load that your brain has to bear in managing logistics in order to operate correctly. To be able to participate actively in the process, you also need to keep track of who is who. But actually knowing peoples' names and faces has nothing to do with the understanding and learning the background information required for your successful participation in the dialogue. On the contrary, because your brain is busy sorting out names and faces, you might fail to listen to and understand the objectives of the event as they are laid down by the presenter. This is why we refer to the effort of the brain to perform such logistical tasks as "extraneous cognitive load," in contrast to the "intrinsic cognitive load" (Chandler and Sweller, 1991), which is related to the inherent difficulty associated with comprehending the content. We will discuss later more about the importance of our cognitive limitations, and how these may influence the quality of a dialogue.

The dialogue starts

After some long introductions and addresses, the dialogue begins at last. Groups are being formed. Discussions soon become quite interesting, lively, and intense. Many people contribute wonderful thoughts. However, you have a feeling that the dialogue is not focused on the issue agreed at the beginning. It occasionally shifts or gets stuck in peripheral and irrelevant issues. The moderator tries to bring the dialogue back to its focus, but she does this within a socially imposed frame of politeness. You sense that on more than one occasion she is probably too tolerant of selected members of your group because of their important status in life outside this room. This happens also when such high-rank participants are trying to dominate the dialogue or impose their own ideas and theses on everybody else. However, wouldn't it be more ethical and more efficient if all voices could be equally heard? Indeed, it also turns out that if no measures are taken, a phenomenon known as "groupthink" appears; a "type of thought exhibited by group members who try to minimize conflict and reach consensus without critically testing, analyzing, and evaluating ideas" (Definition in Wikipedia[1]; see also Janis, 1983 and Whyte, 1952)

Anyway, the reporters are taking notes and they can omit those irrelevant contributions and arguments. However, they also sometimes miss a few points, or more than a few, because they too have to think about their own contributions or sit back and reflect on ideas expressed by others. You would not refuse them the right to participate in the dialogue as well, would you? After all, they have only volunteered to perform this secretarial task. However, a thought or maybe two thoughts might cross your mind regarding their job. Can someone be a participant and a reporter at the same time? Do you trust them to record exactly what you said (or what you might have wanted to say)? You may even suspect that, as they transcribe your ideas, they will filter them through their own eyes. Are they fast enough to perform the task for which they have volunteered? Are they committed to the task? Can they really capture the width and breadth of the ideas that float around that table? If you

[1] http://en.wikipedia.org/wiki/Groupthink

have these thoughts, you would probably go a step further and dare to question the objectivity of your moderator. Is she really neutral and fair to all people and all perspectives? Or, does she too have an agenda or personal views that she aspires to include in the final document?

It is now the time to get your thoughts organized

Ten, twenty, maybe thirty or more people participate in your dialogue. Plenty of ideas are produced during the process. Different opinions, different perspectives, or different interpretations are offered as contributions to the ongoing deliberation. We have discussed in the previous section how difficult it is to keep track of all those ideas. Recording the ideas accurately, maintaining their clarity and fidelity, is certainly not trivial. During a regular dialogue, ideas can be distorted. The original author is not always consulted when the wording of an idea is modified. Soon the formulation of the various contributions becomes very different from the original formulation intended by the author. All of these phenomena make the processes that follow more complicated.

You are now asked to attempt to compress the wide breadth of ideas that came out of the dialogue into a smaller, more manageable set. This can be done by choosing those ideas that are most relevant, most important. It can also be done by putting ideas into groups and subsequently dealing with each cluster as a unit. However, how do we choose among ideas? How can a facilitator or a moderator ensure that this process is done in a democratic and fair manner? In real-life situations, we usually listen to ideas and move on to listen to some more ideas, and then still more ideas. We postpone until the end of the process the difficult task of clarifying or selecting among alternative ideas. In most dialogues, the facilitator will request that the participants group the ideas together in clusters. A smaller group might volunteer to stand up and do this by shifting pieces of paper around on the wall. If you are the tallest person in that group, or if you have a strong personality, you might be able to lead the process and convince the other participants to cluster the ideas quickly and efficiently according to your proposals. Alternatively, the moderator might propose some headings and ask participants to identify all those ideas that could fit under those headings.

One way or another, the task is completed. If you were to assign the process of grouping ideas together to each participant separately, would they all have come up with the same clusters? If the moderator were a different person, do you think the clustering would have ended up in exactly the same configuration? Most probably not! On the other hand, does it really matter? What is the purpose of the clustering? How does our way of grouping ideas influence the outcome of the workshop? Is there a better, scientifically grounded method of grouping ideas into clusters? All the above, are questions that any participant has good reasons to ask. Indeed, there are better and more democratic ways of grouping ideas, based on their common attributes. We shall elaborate on the clustering problem later.

Approaching the end of the event

At last, we reach the point at which we have in black and white a number of actions or projects as they were proposed by the various participants and/or subgroups. All the project proposals sound wonderful. They are very promising and possibly well thought out. They all aim to facilitate the envisioned change. Would it not be wonderful if we could implement them all? However, two questions immediately come to mind:

- Do we have the resources to implement them all?
- Are those who proposed the projects also willing (or capable) of implementing them?

The first question can usually be answered with a very simple—and, in most cases, a very big—no. The second question is a little more complicated. It reveals a problem we inherited from the process. Why did we allow participants to talk about things "somebody else" should do? Was that planned or allowed? Alternatively, did we simply oversee it?

At this stage, we will continue our helicopter-view exploration, focusing only on the answer to the first question: the big no. If we do not have the resources to implement all ideas, we obviously need to choose some of them. Immediately upon making this concession, we face a number of new challenges:

- How do we choose a few out of the many?
- How do we guarantee the support and enthusiasm of all participants (including those whose ideas will not be selected)?
- Who is actually willing to implement these ideas?

Unfortunately, these questions are not trivial. Do you wish to rely on the politeness and sometimes, natural willingness of some participants to sacrifice their own ideas and support those of others? You might think that you have a simple solution for the first challenge. You could submit all ideas to all participants (or other decision makers) who could choose among alternatives by raising hands. You could also be more accurate and ask them to score them from 1 to 5, according to their personal degree of preference. Unfortunately, a popular vote does not work in this case the way you think it would. The challenge is not to choose the ideas that are more popular but to choose those ideas that have the maximum potential to achieve the desired change. In other words, we are asked to choose the ideas that are most influential with regard to achieving the change we desire. In many workshops that have been conducted using structured dialogic design, choosing ideas based on a popular vote has been shown to suffer from a phenomenon known as *erroneous priority effect.* We will discuss this phenomenon in more detail later. For now, let us take notice of the fact that, unless we search for

relations between alternative ideas, choices based simply on majority and popularity voting will most probably be wrong.

The event comes to its end. This is the “moment of truth.” The chair reads the declaration or the recommendations or whatever the final outcome of the event is supposed to be. You might discover that some new ideas that had never been discussed are now included; your own ideas might have been slightly (or massively) distorted. Now your critical self is completely alert. Your mind is clear. The process has suffered from a number of limitations. Maybe you even take a few notes with the intention of sending them later to the organizers as your own suggestions. If someone were to ask you at that very moment what the weaknesses of the process were, you would probably have a lot to say. You have actually determined, like many others, the many shortcomings of most contemporary dialogues. You may have indeed re-discovered the science of dialogic design. Unfortunately, your and many others’ discoveries will dilute and disappear in the rush of life. You soon have to move on. The primary tasks now are saying goodbyes, exchanging email addresses and telephone numbers, collecting your stuff, and leaving the conference site. The next day, new tasks pile up on your desk, and soon you forget your discoveries. You accept the reality of life; nothing practically tangible will really come out of the discussion in which you and maybe 20 others have just invested 200 or 300 person hours. However, you have still made some new friends and benefited from some new ideas. For you as a person, the event was a positive and useful experience. You have developed as human being.

Would there be anything, you or the organizers could have done differently to achieve better results? Would it be possible, within the same limitations of time and money, to achieve a deeper and shared understanding of the problem being discussed? Could another methodological process respect better the authenticity of your ideas? Could it provide a better way of documenting what has been said, and package the knowledge in a way that can be shared with others who are not present? Could you and the others have learned more? (For applications in education, see Laouris *et al*. 2010). Would it be possible to work in a way that would make you feel more energized to assume responsibility, and even take some follow-up actions to make concrete whatever you have envisioned during the process?

In sum, this is the million-euro question: What could have been done differently in order to achieve better results out of the dialogue?

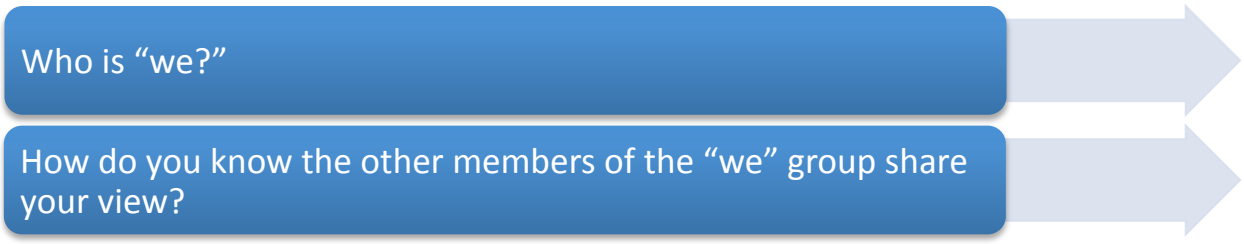
In the next sections, we will consider various aspects of dialogue and acquaint you with some of the concepts of structured dialogue as these are used by the science of dialogic design.

The challenges of the science of structured dialogic design

The language we choose might influence the dialogue

Let us start our quest for better methods for conducting a dialogue with a critical consideration of the effects of language. Have you ever found yourself in a discussion suggesting what others must do in order to deal with a specific situation? When someone asks for solutions to a problem, respondents may quickly offer up to a dozen solutions; but if you take a closer look at these suggestions, you may discover that most if not all consist of actions that someone else must take. They all place the responsibility on others. Very rarely do people contribute an idea about an action they themselves should take or could take in order to resolve a problematic situation. We humans have the tendency—maybe the gift—of recognizing what others must do. Maybe we avoid suggesting actions that we could implement ourselves as part of a defensive mechanism that protects us from committing superfluous energy expenditure. Making such a contribution might, in the ears of others, sound like a proposition or willingness to actually implement that action. We prefer to participate in the dialogue only as experts whose cognitive and philosophical ideas are appreciated, but who of course are unavailable or unwilling to convert ideas into actions.

John Kennedy's statement "Ask not what your country can do for you—ask what you can do for your country," was not an accidental historical expression of wisdom. It was a great discovery of this human limitation. Kennedy's discovery highlights an important rule of dialogue. When we make our contributions, it is better to talk from our personal perspective, to share our own thoughts, ideas, and/or positions. It is better to say, "I think we could do A," rather than saying, "We think somebody should do A." When you use the word "we," a number of possible misunderstandings and distortions of the dialogue immediately emerge, such as:



By using the term "we," you also actually separate yourself and avoid taking responsibility about what you are saying. Even worse, by using the "we," in fact what you do is impose your theses on the other members of the "we" group.

In the introduction of this paper, we talked about another typical problem introduced in dialogues by incorrect use of language. Organizers sometimes mix up terms such as "challenges," "solutions," "road map," "strategy," and their many synonyms. Using these terms interchangeably to describe the aims of their event creates confusion. The terms are meant to underline the significance of the event; but discussing challenges is completely different from discussing solutions. When you speak about challenges, you are usually discussing the obstacles in a situation—that is, the difficulties the

stakeholders face in their effort to deal with a problematic situation. If the discussion is about solutions, then the focus is on practical ideas that, if implemented, will help remove the obstacles that prevent the system from reaching its desired, ideal state. The science of structured dialogic design requires organizers of dialogues to decide what the aim is ahead of the event. If, for example, the aim is to develop a shared understanding of the current problematic situation, then the discussion is framed with an appropriate triggering question that forces participants of the dialogue to remain within the desired context of the dialogue—to focus on the obstacles. If the aim is to discuss projects and activities, a different triggering question serves to keep the focus on actions. The framing of a trigering question is instrumental to the success of any dialogue and we will deal with it in more detail later. If the aim is to engage stakeholders in a dialogue that aims to transform the complex social system in which they live, one should organize at least three consecutive structured dialogues: The first dialogue helps them develop a clear and shared vision of an ideal future state of their system. This serves as a magnet, which pulls and aligns their thoughts and actions. The second focuses on identifying and prioritizing the obstacles they face in trying to transcend to this future state. One of the founders of the science of structured dialogic design, Hasan Özbekhan (1970), called this the "wall of obstacles," root causes, or problématique. The third dialogue facilitates the development of focused and targeted actions and solutions that aim to remove the main obstacles identified in the previous phase. The participants propose actions, which if implemented, will contribute towards the envisioned change. The description of the architecture and phases of structured dialogues are beyond the scope of this paper (Aleco Christakis and his colleagues described the in a number of books and publications available to the reader, e.g., Christakis and Bausch, 2006; Flanagan and Christakis, 2010). What is important to note here is the use of the term "co-laboratory." It is used to describe dialogues because it emphasizes the fact that participants work together to construct the knowledge and discover the various facets and influences between their various contributions.

Are your ideas copyrighted?

Dialogues soon become interesting and lively. Many people contribute ideas. The reporter is not able to record everything that is being said. The moderator records key words on a flip chart to keep track of everyone's arguments. You contribute an idea that is similar to one offered by another person a while ago. You want to contribute your idea because you see a small but important distinction. The moderator considers them to be the same and simply underlines the previous idea on the chart rather than writing your idea separately. The reporter gets the message and moves her attention to the next speaker. Your slight distinction is lost in the crowd of ideas. Nobody actually remembers who said what. At the later stages of the process, you might find your own ideas being re-formulated. Ideas that were supposedly yours now seem foreign to you. The process comes to an end. Summary ideas make it to the report. Recommendations are drafted. You feel completely alienated. Indeed, you can hardly find any of your own words in the final document. Needless to take note that, nobody

gives you any credit for your ideas. Even worse, they now become property of the organizers. They will publish them with their names as authors and they will incorporate them in their writings as if they were their own. Does all of this sound familiar?

This article is not about the ethical considerations of copyright infringement and plagiarism. However, would it not be more considerate of those managing the process if they took measures to ensure that ideas are not distorted and that participants remain owners of their own ideas all the way until the end of the dialogue? Our focus is of course on the effect that such processes have on the outcome of the dialogue. It turns out that if the author of an idea is not protected, she not only feels alienated, but moreover she soon disengages from the process. Kindly and skillfully, she will avoid taking on responsibilities in any follow-up activities. This is why Greek systems scientist Ioanna Tsivacou (1997) formulated a law to underline the significance of protecting the originality of the ideas of any author. She used the term "authenticity." The *Law of Requisite Autonomy in Decision* guarantees that "during the dialogue, the autonomy and authenticity of each person contributing ideas is protected." In the context of the science of structured dialogic design, the law is to be interpreted as follows: If a facilitator does not take measures to protect the authenticity of the authors of the ideas that come into the dialogue, then the quality of the dialogue will be compromised.

The impossible challenge of keeping the dialogue focused

While participating in the dialogue, did you feel the focus shifting from one issue to another? Did you find yourself thinking through your own potential ideas and contribution, even when someone else was sharing hers? Let us consider a case outside our dialogue. Have you ever been upset with a journalist who invites politicians to a live televised debate to discuss a hot issue and allows them to escape from practically all questions, returning instead to the same old issues they talk about every time they are on TV? Do not worry; you are not an exception. Surprisingly, this unreasonable behavior is accepted by society as if it were the norm. Tens of thousands would call technical support to report a TV interruption if their signal were lost for one minute. However, nobody will be bothered if she is watching a live debate that is supposedly about issue A, but shifts to issue B without any explanation, even if issue B is completely uninteresting. Even worse, we continue watching, thus participating in the paranoia, reconfirming for ourselves that discussions tend to shift without purpose and without goal from one issue to another. Does this make any sense? Why does it happen? Why do we digest it without complaint?

The question we should be asking is not *why*. The question that would take us somewhere is *how* we can avoid this. Is there anything people can do to keep their discussions focused? The answer is a very simple yes. The solution is found in the basics of the science of dialogue. We need to agree on what is to be discussed before we enter the room. We can do this with the help of what experts in the science of structured dialogic design call the *triggering question* (TQ). Formulating the right triggering question is not a trivial problem. However, for now, let us simply say that a triggering question forces everybody to make contributions that are *direct* responses to the issue at hand. For

example, let us assume politicians are invited to discuss the reasons why a political problem cannot be solved. They probably have different views regarding the issues. A TQ such as "What are the obstacles blocking a solution to problem A?" helps everybody to stay on track. While discussing this issue, it is difficult to jump to another problem, simply because it is easily identifiable as foreign to the focus of the current discussion.

Having a clearly stated TQ also helps the facilitator distribute discussion time among the various participants in a more democratic and fair manner. For example, in the context of structured dialogic design, the participants are invited to contribute their responses to the TQ in a robin-round manner. On each participant's turn, she is requested to respond with one idea stated clearly in only one sentence. This methodology encourages participants to formulate their ideas in short, clear statements, which in turn greatly enhances active listening while at the same time ensuring that all participants are given, more or less, equal time and opportunity to contribute to the dialogue.

Was anybody missing from the table?

Have you caught yourself halfway through a deliberation, discussing stakeholders who might not be present? Have you encountered a situation in which you wished a representative of a specific ideology or of a different point of view were present to express her opinion in her own words? If your answer is no to both questions, then you have probably never participated in a real dialogue. Inviting the right people to discuss an issue that is of concern to them is not a trivial task.

First, let us clarify the meaning of the word *stakeholder.* Who has the right to participate in a dialogue? Of course, you might argue that any selection process is arbitrary. We live in democratic states and we have the right to discuss anything we desire with anyone we wish. However, this is not the essence of what we are talking about here. When you decide to host a group dialogue to discuss a problem or come up with suggestions for possible actions aiming to change (supposedly, but not necessarily, to *improve*) a specific system, you are indeed invading in the life spheres of those whose lives are concerned. Any system—whether we are talking about a company, an association, a religious group, a community, a minority, a majority, a nation, the environment, the Earth, or the whole universe—contains actors whose futures might be influenced by any decision to change it. This is the question: Who has the right to change their system? Can someone change a system without the permission or consent of those whose lives or futures will be influenced? The answer is a clear no.

Those whose futures may be influenced in any way by a decision-making process are *stakeholders*. Indeed, as Özbekhan's axiom states, "Disregarding the participation of the stakeholders in designing action plans for complex social systems is unethical." What if we violate Özbekhan's axiom? In fact, it is dishonored all the time. As we mentioned above, identifying, inviting, and engaging all relevant stakeholders in a dialogue is not a trivial task. So what happens if we fail to include them? The answer is again straightforward and clear: The dialogue will fail to engage the stakeholders in materializing the actions they collectively decided to implement. Expressed in more formal language, the

corresponding law (known as the *Law of Requisite Action* in the science of structured dialogic design) states that "any action plans to reform complex social systems designed without the authentic and true engagement of those whose futures will be influenced are bound to fail." Aleco Christakis attributed the discovery of this law to the author[2] of this paper (Laouris *et al.,* 2008). As a side note, in the context of our everyday dialogues we focus on human social systems. However, it may be valid to generalize these laws for non-human systems (Wasilewski, 2007). For example, do humans have the right the change the environment without the permission of other living or non-living things whose futures will be influenced? According to Özbekhan's axiom, this would be unethical. Moreover, according to the Law of Requisite Action, such an attempt is bound to fail!

Now let us consider the next problem. You encounter a point in the deliberation at which you discover that a specific point of view is not represented. This might be because no member of the group that represents that point of view has been invited to the dialogue. However, it may well be that many members of that group are present in the dialogue, and yet a specific and important point of view is missing from the many different perspectives offered. Can someone else propose an idea that is currently absent from the list even if that person does not subscribe to that idea? Here we hit a theoretical dilemma. If we accept the proposition, we violate the rule of dialogue that requires participants to contribute only their *own* thoughts, ideas whose survival and selection they would feel comfortable fighting for throughout the process. However, if we refuse to add such ideas to the inventory, we might suffer even more; according to another law of dialogue, the dialogue might again fail. This law predicts that, if fewer ideas make it to the inventory created during the deliberation than exist out there in the real world, then the model of the world that we re-create in the space of our dialogue is not sufficient to allow us to extrapolate the results to the real world.

In scientific vocabulary, this law, known as the *Law of Requisite Variety,* asserts that "design must possess an amount of variety that is at least equal to the variety of the problem situation." In other words, this law calls for appreciation of the diversity of observers; it requires the organizers of the dialogue to be thorough and inclusive when selecting participants, and that they invite "observers" with diverse views. The Law of Requisite Variety is a more general law proposed by Ross Ashby, the father of the science of cybernetics, in 1958. In popular scientific language, the law says that the number of states of a control mechanism must be greater than or equal to the number of states in the system that is being controlled. Applied to the case of social change, it means that the diversity of observations made by the participants of the dialogue needs to be at least equal to the variety of observations that any other group would have made if exploring the same system[3].

[2] For a historical discussion between Christakis and Laouris regarding the formulation of the law refer to http://cwaltd.wetpaint.com/page/New+Language+for+the+Law+of+Requisite+Action

[3] To read more about the law, visit http://en.wikipedia.org/wiki/Variety_%28cybernetics%29

Are you feeling tired or cognitively overloaded during the dialogue?

If your answer to the question in the title of this subsection is yes, do not feel embarrassed about it. It is not your fault. Humans have the most developed brain on Earth, but it is not hard to overload it. Like any other supercomputer, the human brain has technical limitations, which may influence its ability to focus on ongoing discussions. For example, we suffer limitations with regard to remembering much of what is being currently said. In the introduction, we touched upon this issue when we talked about the challenge a participant faces in acquainting herself with other participants while at the same time trying to comprehend the essence of the organizer's introductory presentation. We also find it impossible to follow more than one conversation at the same time. It is very difficult to pay attention to a discussion for a prolonged period of time, or to follow a convoluted argument. When you go through this article, you have the convenience of adapting the speed of your reading to meet your individual attention span. You may choose to stop for a minute or two and reflect silently about something you read. You may even interrupt to look up a term to clarify a point that you wish to learn more about.

You have certainly heard about the concept of short-term memory. If someone tells you a 12-digit telephone number (digit-by-digit), you will find it practically impossible to remember, no matter how hard you try. If they show you 15 pictures on a computer screen, one after the other, and later ask you to describe what you saw, you will discover that you cannot remember more than seven or so. This is an unfortunate limitation of our brain. George Miller (1956), a psychologist, discovered what we now know to be the magic number: we can recall 7±2 items (see also Warfield, 1988). Later research has shown that our memory span is around seven for digits, around six for letters, and around five for words.

How does this constraint influence an ongoing dialogue? Let us take an example. Say someone contributes an idea that is seven sentences long, without a pause. How much of the idea would you remember? The situation might be worse if the person is a native speaker of a language foreign to you, with an unfamiliar accent. To what extent would you be able to capture the richness of her idea? Now assume that another person with another idea speaks immediately afterwards. The process continues and many ideas are put on the table. Can you hold them all in your mind? What if the moderator, requests that you put the ideas just produced into categories? Is this a task, the human brain can deal with? Let me share with you the bad news, as we know it from neuroscience: it cannot. Our working memory cannot hold more than three to five chunks of ideas concurrently. There might be people who can hold more items in their mind at the same time. Those individuals may be well equipped to consider different angles of a complex problem simultaneously. However, we know that the vast majority of us cannot.

Knowing our cognitive limitations is important. This knowledge imposes many constraints on the way we design the process of dialogue. Let us start from the first phase of a dialogue. Usually, most dialogues begin with participants contributing their initial ideas. Some designs give the floor to each participant in a robin-round matter, allowing them to introduce themselves and talk for three to five minutes making their initial statements. In these initial statements, they may contribute one to ten

ideas. Processes that demand more structure may force participants to contribute only one idea at a time, but they may allow them to expand on each idea. However, a strict adherence to the rules of the science of structured dialogic design allows each participant to offer one idea in each round in only one sentence. This forces the person contributing an idea to formulate it in a way that makes sense, that is easy to understand, and that is clear, straightforward, and easy to remember. In other words, this makes it easy for the other participants to capture the idea and use it to expand their own repertoire of ideas. Supported by a computer, a projector, and a beamer, the facilitators ensure that the one-sentence idea is projected on the screen and printed and mounted on the wall.

If you have participated in a co-laboratory designed to exploit all phases of the process, you have probably been fascinated by the exploration of influences. This process is also quite demanding in terms of attention and concentration. This is why the science of structured dialogic design insists that participants avoid considering multiple issues concurrently, especially when those issues are related. Instead, it is advisable to take two ideas at a time and discuss in detail whether an influence relation exists between them.

Taken together, all of these measures ensure that the extraneous cognitive load for the participants is kept to a minimum, that their short-term memory limitation is not exceeded, and that they are encouraged to engage in actively listening to each individual idea. The science of structured dialogic design has a law that considers the importance of these limitations. The *Law of Requisite Parsimony* asserts, “human beings can deal simultaneously with only five to nine observations at a time.” It emphasizes the fact that humans have cognitive limitations that need to be considered when dealing with complex multidimensional problems. This is secured by the fact that participants are asked to focus on a single idea or single comparison at a time. This is part of the reason we use the term *structured dialogue* to describe dialogues that adhere to the laws of the science of structured dialogic design. To honor the great discovery of George Miller (1956), this law is attributed to him.

Why is grouping ideas into clusters so important?

In this initial part of this paper, we humorously described a situation in which the tallest person, or the person who is most forceful in imposing her opinions on the group, eventually determines the categories under which all ideas will be clustered. This is indeed a top-down method. Category headings dictate the way ideas are clustered. The science of structured dialogic design approaches the problem from a bottom-up perspective. We begin without knowing what the categories will be. We take two ideas at a time and discuss whether they deserve to be together under the same heading. Do they have enough in common to justify putting them in the same basket? This discussion enables the surfacing of perceptions that might be completely different. One participant many see the ideas belonging to a category because they both involve financial issues; another participant may see them belonging to different categories because one addresses the needs of one group of stakeholders and the other the needs of another group a.s.o.

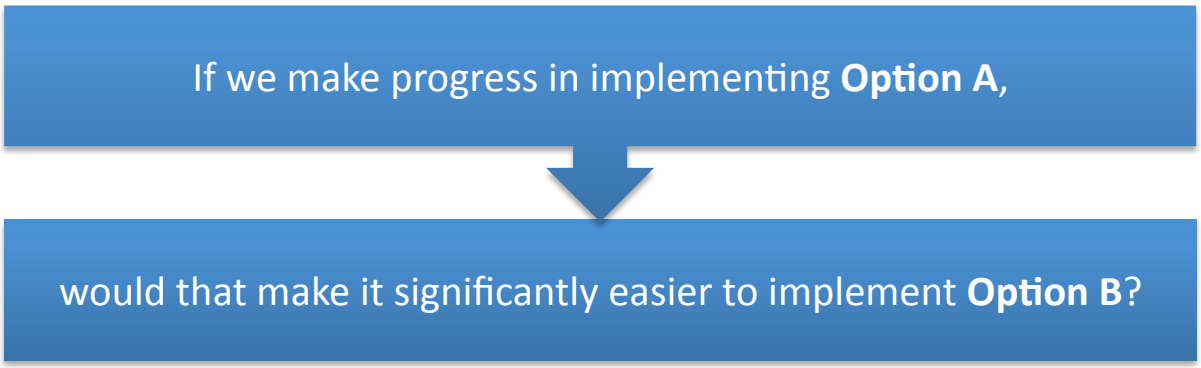
Liberating language and meaning

An amazing discovery in practically all dialogues is how participants go back to previous statements and require further clarifications. When they contribute observations in the first round, others appear to understand the meaning of one's observation. However, when you allow the author to expand on her idea, others immediately require additional clarifications. Even more, in the phase of clustering, participants discover that they still do not understand exactly what their colleague meant and require additional clarifications. The structured dialogic design creates the space for them to revisit and expand the meaning of their contributions. It also frees them to use the language in any way they wish to construct authentic and autonomous descriptions of their contributions and to interpret their meaning. Formulated as the *Law of Requisite Meaning,* it demands that the "design process free its participants to express their ideas in their own words and symbols." This law is attributed to Peirce's ideas of pragmatic meaning (Turrisi, 1997).

Is there anything more democratic than voting?

This section will discuss methods used in various processes of dialogue to choose among alternative ideas. The idea that simple voting is a magical instrument that secures a fair and a democratic process is deeply rooted in the western world. This is why, on practically every occasion where we face the dilemma of selecting among alternative ideas, options, or projects, we vote on them. There might be different ways of counting the votes, but the results are the same. Whether the voting is done by raising and counting hands or using more sophisticated approaches, such as scoring each option and counting the weight of the votes that each option has received, all suffer one important limitation: when people are asked to choose among alternatives, they most probably do that according to their individual—and therefore biased—opinions. They choose whatever appears to them to be important. It is very difficult to select an option based on its capacity to achieve maximum impact.

Kevin Dye (1999), a pioneer among the theoreticians of the science of structured dialogic design, has compared the prioritization produced when participants are asked to choose the ideas that appear to them as most important with the prioritization that is produced when the same participants undergo a structured process of exploring the influences that one idea might have on another. In other words, participants are asked to consider the following question:



If the great majority of the participants think that the answer to this question is yes, it is taken to mean that Option A exerts some positive influence on Option B.

As Dye discovered, when participants go through this process, they collectively decide on a prioritization of their options that is usually quite different from the one they made earlier using the popularity voting technique. He coined the term *erroneous priorities effect* (EPE) to describe the phenomenon that, if one relies only on popularity voting to select among alternatives, one might end up choosing options that are erroneous and/or have little potential to facilitate any change. Indeed, this discovery has applications beyond the science of dialogue. It actually questions many of the democratic procedures currently used in all aspects of our lives.

Christakis formulated the discovery of EPE as the *Law of Requisite Evolution of Observations*, which says, "The elemental observations made by stakeholders in the context of a complex design situation, are interdependent" (Christakis and Bausch, 2006). The process of searching for influences that one idea might have on another helps participants assign priorities based on influences rather than "popularity." The law also asserts, "Evolutionary learning occurs in a dialogue as the observers learn how their ideas relate to one another."

Through the phases described above, the participants are invited to reconsider the importance they assign to various observations. While authors are liberated to clarify their observations with even inventing their own languge and collectively search for similarities in their effort to create categories, they understand better each other's positions. Known as Boulding's *Law of Requisite Saliency*, the law refers to the range of importance that people assign to observations relative to other observations (Boulding, 1966).

The next step: Are you ready to take action?

Let us now consider probably the most critical phase of every real dialogue. The discussion is still vivid; ideas continue to enter the discourse. However, time is running out. The moderator encourages everybody to come up with conclusions and recommendations. The process is being completed. The minutes are typed. Summaries of what has been discussed are reflected in the report. Some recommendations have been made. The participants have supposedly agreed on what the next steps should be. They have probably organized themselves into groups and assumed responsibility to follow up. The question is: will they? Experience has taught us to keep our expectations low. There is rarely any significant follow-up after a two-day dialogue. After all, when you were invited, nobody said that you had to commit to something for the rest of your life. At the same time, however, the organizers aspired to come up with some tangible results. They probably did not envision the dialogue as an exercise in unproductive mental activity or philosophical debate. On the contrary, they expect you to engage actively in promoting your groups' ideas and collectively agreed actions.

The great challenge is making the transition from theory to action. How do we encourage a group of people who have been sitting around a table—brainstorming, clarifying meanings, clustering ideas

into categories, assigning priorities, maybe even exploring influences of one idea on another—to get out of that room and engage in some kind of action? Is it reasonable to expect that a group of theoreticians can be converted into a group of activists? What exactly is expected from them? This problem is again not trivial. It is probably more than a million euro question. If we knew the answer, we would be able to actually materialize large-scale social transformations and change the world.

The problem entails what systems theoreticians call a *paradigm shift.* The transition from theory to action requires a paradigm shift. Thomas Kuhn, the great philosopher who coined the term in 1962, said, "Think of a Paradigm Shift as a change from one way of thinking to another[4]. It is a revolution, a transformation, a sort of metamorphosis. It just does not happen, but rather it is driven by agents of change." Unfortunately, paradigm shifts happen rarely. They happen only when certain conditions have matured and certain requirements are fulfilled. In the long quest for a democratic system of dialogue that guarantees results with reasonable effort, systems scientists concluded that, if all requirements of the science of structured dialogic design are fulfilled, the next logical phase is for stakeholders to transcend into the action phase. They claim that the magical transition from the cognitive phase (which entails truly understanding the problem and envisioning its solution) to the action phrase happens almost automatically. This is the most important contribution of the structured dialogic design process. Participants are always willing to assume some kind of responsibility and take action. The context of the democratic structured process, the development of a shared understanding of a complex situation, the gradual creation of an environment of mutual respect in which the collective wisdom prevails, the sense of ownership over the results, and the fact that a gradual consensus emerges, taken together, create the conditions for a magical paradigm shift to emerge. Moreover, the actions taken up by the participants are the result of consensus, and they have been selected based on their potential to exert maximum influence on the target system and to drive it towards the desired ideal state. This is why the Law of Requisite Action predicts that "the capacity of stakeholders to implement a plan of action effectively depends strongly on the true engagement of the stakeholders in designing it." This requirement can only be guaranteed by the strict adherence to the laws of structured dialogic design.

A word of honor to the founders of the science of structured dialogic design

Structured dialogic design finds its roots in the ancient Athenian Agora. In our contemporary world, the need for such an approach was first envisioned by systems thinkers in the Club of Rome[5] (Özbekhan, 1969, 1970). The Club of Rome was founded in April of 1968 by Aurelio Peccei, an Italian industrialist, and Alexander King, a Scottish scientist. It was envisioned as a global think tank and a

[4] See also http://www.taketheleap.com/define.html [Last accessed 20/11/2009].

[5] The Club of Rome. http://en.wikipedia.org/wiki/Club_of_Rome. [Last accessed 20/11/2009].

center of innovation. As a non-profit, non-governmental organization, it aspired to bring together scientists, economists, executives, international high civil servants, and current and former heads of state from around the world, who are convinced that the future of humankind is not predetermined and that each human being can contribute to the improvement of our societies.

Hasan Özbekhan, Erich Jantsch, and Alexander Christakis were responsible for conceptualizing the original prospectus of the Club of Rome, which is titled "The Predicament of Mankind." This prospectus was founded on a humanistic architecture and the participation of stakeholders in democratic dialogue. In the summer of 1970, the Club of Rome Executive Committee opted for a mechanistic and elitist methodology for an extrapolated future, and these three men resigned from their positions as a result. Driven by their passion, these and other scientists continued to develop a science of dialogue capable of managing contemporary complex problems. The science was systematically refined through years of deployment in interactive management (IM) to emerge as a methodically grounded dialogue practice that is now supported by software specifically designed for the purpose (the CogniScope system being one example; Christakis, 1996). Interactive management, originally developed by John Warfield and Alexander Christakis in the early 1970s (Christakis, 1973; Warfield & Cardenas, 1994), has evolved into its third generation as science of dialogic design recently registered with a collective service mark as SDD^{SM}. A number of books and publications are currently available for the interested reader (Christakis and Bausch, 2006; Schreibman and Christakis, 2007; Laouris and Christakis, 2007; Laouris *et. al,* 2008; Flanagan and Christakis, 2009; for critique on the method refer to Chapter 7 in Romm 2010).

Lessons to be learned

As I stated in the introduction of this article, my intention here is not to explain the theory of the science of structured dialogic design in a scientifically precise way. This article does not present nor does it explain the phases and methods of implementing a structured dialogue. It has been written with the modest ambition of serving as a lay person's introduction to the most basic principles of the science of dialogue. It will have served its purpose if it succeeds in highlighting a few of the obvious limitations of the processes used in most dialogues in diverse settings to date. The reader will hopefully appreciate the fact that nearly all dialogues fail because they violate basic principles of the science of dialogue. They engage participants in tasks that exceed the cognitive abilities of their brains, they disregard the participation of relevant stakeholders, they fail to secure the authentic and true engagement of those whose futures might be influenced by the outcomes of the dialogue, they prioritize ideas based on popular voting rather than exploring the relative influence of one idea on another, and so on.

The interested scholar will hopefully seek further knowledge and decide to study the science of dialogue, referring to relevant books and scientific articles. Those involved in organizing dialogues will ideally invest more time and effort in the preparation phases of the dialogue. They might even become interested in the science of structured dialogic design and seek to participate in ongoing

trainings and summer schools[6]. It is instrumental for the success of any dialogue that the envisioned goals be clear, realistic, and feasible. Another important requirement is to ensure that vision, obstacle, and action statements are not mixed up in the description of the event. More importantly, organizers need to take the measures necessary to constrain the dialogue event before it starts. This can easily be achieved using a triggering question, and requiring participants to come prepared to offer their contributions as responses to that question. This will encourage them to start thinking about the issue long before they enter the dialogue room. Finally, the practicing facilitator will hopefully appreciate the importance of completely separating the process from the content, the necessity to respect the authenticity of the ideas that each participant offers, and in general attempt to adhere closely to the principles of the science of structured dialogic design.

About the author

President of the Future Worlds Center (legally registered as Cyporus Neuroscience & Techniology Institute). Laouris is a medical doctor specialised in neurophysiology and a systems engineer trained in Germany and the US. His research is in the areas of learning through computers and the role of technology in the transformation of our society and ways in which it can serve peace and reconciliation between conflicting societies. He was also founder of a chain of 26 computer learning centers for children known as Cyber Kids. The curriculum for Cyber Kids, which was developed by members of the applicant organization, received seven prestigious international awards for its innovation and social responsibility. Laouris has been actively involved in the citizens' peace movement in Cyprus for the last 15 years. Director of CyberEthics (Safer Internet Awareness Node and Hotline), National Representative for various COST Actions (276: Information & Knowledge Management for Integrated Media Communication; 219ter: Accessibility for All to Services and Terminals for Next Generation Networks; 2102: Cross-Modal Analysis of Verbal and Non-verbal Communication). He pioneers in the application of structured dialogue in many pan-European settings and peace movements.

References

Ashby, R. (1958). Requisite variety and its implications for the control of complex systems. *Cybernetica, 1(2)*, 1–17.

Boulding, K. (1966). *The impact of social sciences*. New Brunswick, NJ: Rutgers University Press.

Chandler, P. & Sweller, J. (1991). Cognitive Load Theory and the Format of Instruction. *Cognition and Instruction 8 (4)*, 293–332.

Christakis, A. N. (1973). A new policy science paradigm, *Futures, 5(6)*, 543–558.

Christakis, A. N., & Bausch, K. (2006). *How people harness their collective wisdom and power*. Greenwich, CT: Information Age Publishing. http://www.harnessingcollectivewisdom.com

Christakis, A. N. (1996). A people science: the CogniScope system approach. *Systems: Journal of Transdisciplinary Systems Sciences, 1(1)*, 16–19.

Dye, K. (1999). Dye's law of requisite evolution of observations. In A. N. Christakis & K. Bausch (Eds.) (2006), *How people harness their collective wisdom and power* (pp. 166–169). Greenwich, CT: Information Age Publishing.

Flanagan, T.R., Christakis, A.N. (2010). The Talking Point: Creating an Environment for Exploring Complex Meaning. Greenwich, CT: Information Age Publishing.

Janis, I. (1983). *Groupthink: Psychological studies of policy decisions and fiascoes*. Boston, MA: Houghton Mifflin.

Kuhn, T. S. (1962). *The Structure of Scientific Revolutions*. 1st. ed., Chicago: Univ. of Chicago Press.

Laouris, Y., & Christakis, A. (2007). Harnessing collective wisdom at a fraction of the time using structured design process embedded within a virtual communication context. *I Int. J. Applied Systemic Studies, 1(2)*, 131–153.

Laouris, Y., Laouri, R., & Christakis, A. (2008). Communication praxis for ethical accountability: The ethics of the tree of action: dialogue and breaking down the Wall in Cyprus. *Systems Research and Behavioral Science, 25*, 331–348.

Laouris, Y., Underwood, G., Laouri, R. and Christakis, A. (2010). Structured Dialogue Embedded within Emerging Technologies. In G. Veletsianos (Ed.) (2010), *Emerging Technologies in Distance Education* (Ch 8). Athabasca University Press.

[6] Summer Schools on the science of structured dialogic design are organized every year by the Future Worlds Center in Cyprus.

Miller, G. A. (1956). The magical number seven, plus or minus two: some limitations on our capacity for processing information. *Psychology Review, 63*, 81–97.

Özbekhan, H. (1970). On some of the fundamental problems in planning. *Technological Forecasting, 1(3)*, 235–240.

Romm, N.R.A. (2010). *New Racism: Revisiting Researcher Accountabilities*. Springer.

Schreibman, V., & Christakis, A. (2007). New agora new geometry of languaging and new technology of democracy; the structured design dialogue process. *Int. J. Applied Systemic Studies, 1(1)*, 15-31.

Tsivacou, I. (1997).The rationality of distinctions and the emergence of power: a critical systems perspective of power in organizations. *Systems Research and Behavioral Science, 14*, 21–34.

Turrisi, P. A. (Ed.) (1997). *Pragmatism as a principle and method of right thinking*. New York: State University of New York Press.

Warfield, J. N. (1988).The magical number three, plus or minus zero. *Cybernetics and Systems, 19*, 339–358.

Warfield, J. N. (1995). Spreadthink: explaining ineffective groups. *Systems Research, 1(1)*, 5–14.

Warfield, J. N., Cardenas, A. R. (1994). *A handbook of interactive management*. Iowa State University Press Ames.

Wasilewski, J. (2007). Dialogue for reconciliation and the management of complex issues: the co-evolution of MIID communities (multicentered, interlinked, inclusive, discursive communities). *Peace Reports: ICU Peace Research Institute (PRI) Newsletter, 5(1)*, 3–4, 6.

Whyte Jr., W. H. (1952). Group think, *Fortune, 45*, 114–117, 145, 146.