Community Science Field Guide

For School Culture

Tools for **learning better, together**

Teacher's Edition

Global ESD

Comparative Cultural Psychology

PROSOCIAL SCHOOLS

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Sustainability and Cooperation

Almost all problems of sustainable development in our society have one thing in common - their solution requires cooperation among many people.

The good news is that research in evolutionary anthropology over the past few decades has come to the conclusion that we humans are extremely collaborative and prosocial. **Prosociality** in behavioral science means the ability and motivation to behave in a way that benefits others. Prosociality, cooperation, group identity, communication, learning from and with each other, are foundational skills and traits that seem to characterize our species, *Homo sapiens*.

Due to our evolutionary history, in which the survival and well-being of individuals depended on the group, cooperation in a group of like-minded people, harmonious coexistence, trust, and social equality are factors which still today significantly influence human well-being and create identity and purpose in life.

However, the bad news is that achieving and maintaining such a social environment is not a given. Most humans today can understand that creating an environment for peaceful coexistence, social equality and a sense of community is a challenge for our increasingly complex society. The challenges for a socially, ecologically and economically sustainable development of our highly cooperative species are - paradoxically - due to an apparent *inability* to cooperate between people.

Cooperation permeates our everyday life, enables science, art, and living together in cities and complex societies. And yet virtually all challenges of sustainable development have to do with insufficient cooperation. We call this fact **the cooperation paradox**.

Prosocial - an approach for exploring and fostering cooperation in our communities

So how can we promote collaboration in our communities? What conditions influence or prevent our skills and motivations for cooperation?

Scientists from many different disciplines, including sociologists, philosophers, evolutionary biologists, psychologists, economists and political scientists, have dealt with these questions about cooperation for centuries.

One such recent researcher was the political scientist Elinor Ostrom, who has studied many different communities around the world to understand the factors that allow some groups to work together in the use of shared community resources. By comparing dozens of case studies, she identified a set of **eight design principles** that appear to be important to the success of communities in the sustainable use and management of their resources.

Later, Elinor Ostrom began collaborating with the evolutionary scientist David Sloan Wilson, who had also dealt with (human) cooperation, but this time from the perspective of evolutionary biology. Both found that the design principles for successful management of community resources can be further generalized and applied to many other forms of cooperation, both in humans and in other species.

Finally, David Sloan Wilson teamed up with another group of scientists, this time from different areas of psychology and behavioral research, and they initiated the **Prosocial World** project, from which the **Prosocial Schools** network has evolved.

Prosocial builds on our scientific understanding of cooperation, its importance in our history, present, and future, as well as our human skills and motivations for cooperation and flexibility. Prosocial aims to help groups of all types - schools, nonprofits, government agencies, communities, and businesses - to understand the principles and challenges of cooperation and human flexibility, and use these insights in order to find their own ways to strengthen and sustain cooperation in their groups with regard to achieving common goals.

PROSOCIAL SCHOOLS

PROSOCIAL INSTITUTE

The Prosocial Schools community and Prosocial Institute provide a global network of people and resources committed to advance the science of working better, together.

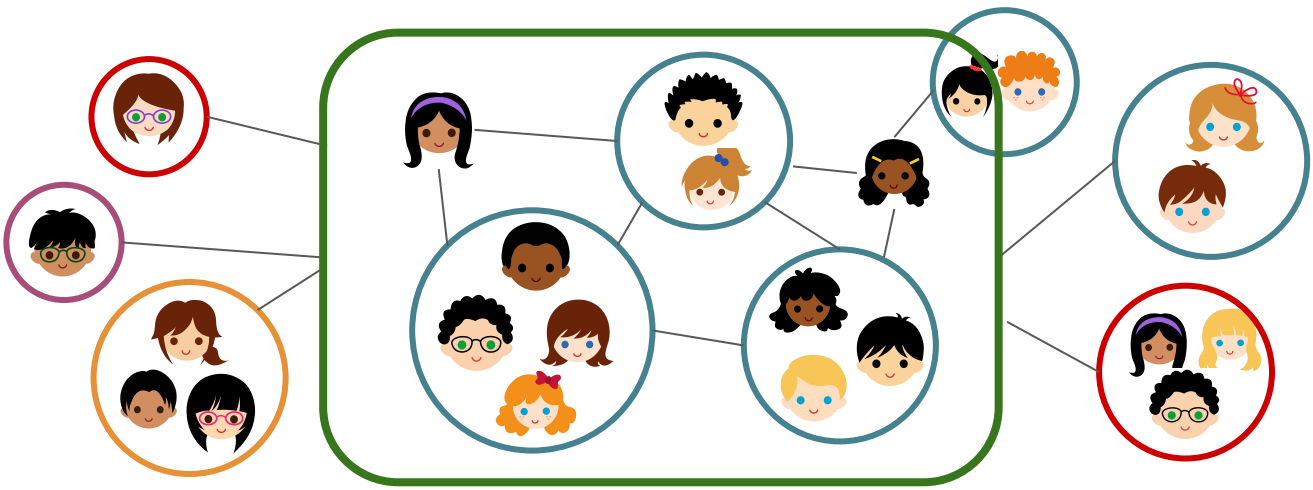
Schools as places for exploring and fostering a culture of cooperation

In order to explore the topic of cooperation with students, one can (and should) apply concepts to the local level and to students' everyday experiences of group life. Schools are places that make up much of the daily life experience of students. How living and working together in a school is designed and experienced has a major impact on students' understanding of how society works. It drives reflection and growth on big questions about what their role in society is, and the role of continuous learning, engagement, values, and communication, in our capacity to work together toward individual well-being and the sustainable development of society.

In this way, the school, as well as classes, project groups, and other sub-groups within a school, are ideal places for reflecting and shaping collaboration using the concepts and methods of Prosocial.

Additionally, schools are also subject to the influences and interests of stakeholders outside of school. This makes students aware that groups of people are always part of larger systems and exist alongside other groups. This fact requires that the groups we belong to have the most cooperative relationships possible with other groups in order to achieve common, higher-level goals in an efficient and sustainable manner.

While many approaches have been developed to help schools understand and improve their school culture or their relationship with the community[1], one unique strength of the Prosocial approach is that it builds on a general, interdisciplinary understanding of the human condition. Based on the concepts and processes of Prosocial, students and teachers can work together to learn about cooperation and human behavior across many different subject areas and contexts, and use this knowledge and understanding to improve the social conditions for learning and growing within their own school.



[1]see e..g. Thapa et al., (2013)

Cooperation and human behavior as interdisciplinary themes for sustainability education

The scientific background of Prosocial allows diverse connections to the curriculum of various subjects. In this way, the principles for cooperation and the role of human behavior can be explored in the classroom and applied to different contexts, including the context of school.

Biology

- Evolution of human behavior and the importance of cooperation and flexibility in human evolutionary history
- Development of human behavior
- Cooperation and social behavior in other species

Ethics

- The importance of (shared)identity, values, autonomy, fairness, trust, belonging for us humans, our well-being and peaceful coexistence
- Perception and perspective taking

Social studies, Civics

- Democracy and other forms of living together; role of rules and norms
- Social equality, forms of justice and fairness

History

- Cooperation and conflict throughout history
- Cultural evolution of democracy, capitalism and other forms of living together

Geography

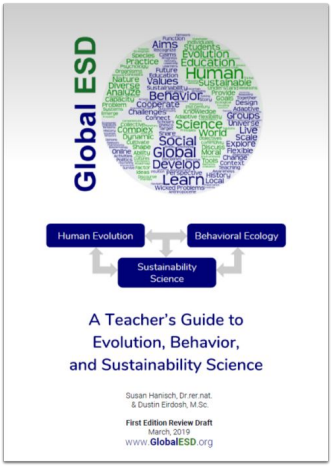
- Cooperation and conflicts in the use of natural resources in different regions of the world, and from local to global levels

Music, Art, Literature

- Role for creating identity, sense of community, well-being, purpose

Math, Computer Science

- Computer simulations of social evolution and the role of social behaviors



Our Teacher's Guide to Evolution, Behavior and Sustainability Science provides an overview of the concepts, methods and insights of evolutionary anthropology and behavioral science, as well as ideas for lesson design.

http://Guide.GlobalESD.org
In German: http://Leitfaden.EvoLeipzig.de

Teaching materials on the science behind Prosocial
http://Prosocial.GlobalESD.org

Design Principles for Cooperation

1 Clear **group identity** and shared **sense of purpose**
2 **Fair distribution** of **costs** and **benefits**
3 **Inclusive decision-making**
4 **Transparency** and **monitoring** progress towards goals
5 Appropriate **feedback** to helpful and unhelpful behavior
6 Fast and fair **conflict resolution**
7 Recognition of **group autonomy**
8 **Appropriate relations** with other groups

The strength of these eight Design Principles lies particularly in their **generality** - they can be applied to virtually all groups on several levels, from families and communities, to schools, organizations, nations and the global community. They can even be applied in a more generalized way to cooperation in other areas of biology - social species such as honeybees or multicellular organisms! Furthermore, their strength lies in the fact that they are often “obvious” - because of our everyday experience in groups, we humans have an intuitive understanding of the importance of these conditions for living together. Still, most of us know examples of groups that don't work very well and / or prevent human well-being because they don't implement some of these principles well.

However, due to their general applicability, these principles are **not a panacea**, as the implementation of the principles can look very different across different contexts. Each group must test and try out for themselves to find out which mechanisms for promoting cooperation work best for them. The principles are also interrelated so that their implementation often requires a simultaneous balancing and weighing of several principles. The continuous discussion and reflection on the many possibilities of implementing the Design Principles promote a deeper and transferable understanding of the conditions for cooperation at different levels of society.

Design Principles for Cooperation

1 Clear group identity and shared sense of purpose

All members have a shared sense of identity and common goals.

This principle is fulfilled when everyone in the group feels that they belong to the group, enjoy and are proud to be part of the group; if everyone understands the purpose of the group and considers it meaningful. In practice, people often find it difficult to identify with a group if they don't believe in its purpose or don't understand it. This principle is critical to group success because we humans have a strong need for identity and group belonging, as well as a high motivation to contribute to group goals and other things that are "bigger than ourselves". We humans are intrinsically motivated to make additional efforts and do our best if we believe in the purpose of a group and identify with the group and its members. It is almost impossible to replace this intrinsic motivation for working with like-minded people with other means such as threats, money or other "carrots and sticks". In addition, common goals and a common identity make it easier to coordinate actions so that everyone can effectively work towards the same goals.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	Students and teachers regularly reflect on the question “why are we learning this?” and are able to link their learning to personal and shared values. A classroom goes on annual field trips where they spend time together doing many fun activities that foster a sense of shared identity.	Students do not know why they are engaged in learning activities, feel coerced into following the rules, and do not connect their learning to personal or shared values. Students and teachers only see each other a few hours during the week, so they don’t really feel like they are a community.
In a school	Students and teachers regularly reflect and exchange ideas about what is important for them when they go to school and what purpose going to school serves for them. The school regularly holds celebrations for everyone on special occasions and to celebrate successes.	Students and teachers only follow the rules without thinking about what is important to them and why they go to school. Many students and teachers are marginalized or feel isolated and would prefer to change schools.

Design Principles for Cooperation

2 Fair distribution of costs and benefits

The costs incurred by members for cooperation are distributed in proportion to their benefits from the cooperation.

This principle is fulfilled when everyone in the group feels that they are not being exploited by others and that there is a reasonable balance between effort and reward. Individual efforts should be adequately recognized by the group, everyone should be able to enjoy the benefits of their own efforts, and everyone should receive what they need in order to contribute. This principle is important because we humans have a strong sense of fairness, which makes us very sensitive to how benefits and costs are distributed in a group and makes us angry or frustrated when we feel that some in the group are enjoying advantages that are out of proportion to their contributions. Perceived fairness is therefore of great importance for the motivation and commitment of everyone involved in the group, helps to avoid conflicts and builds trust. This principle is also important to ensure that everyone receives the resources they need to contribute to the group.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	Students who make a genuine effort and do their best are recognized for their efforts. Students and teachers appreciate each other for their effort in creating a meaningful learning environment for all.	Some students find group work unfair because they do most of the work and other students benefit from it. Students and teachers feel used or misunderstood for their efforts in trying to create a meaningful learning environment.
In a school	Teachers coordinate with each other to ensure the overall student workload is not becoming overly stressful or demanding. Teachers and students who strive to help others and make their school a comfortable place receive recognition for their efforts.	Teachers do not coordinate or have no concern for the role of their assignments on the overall workload of students. Teachers believe that their efforts are not recognized by other teachers, students, school administrators, or parents.

Design Principles for Cooperation

3 Inclusive decision-making

Most individuals in the group can participate in decisions that affect them, such as setting or changing the rules.

This principle is met when group members are regularly asked to share their ideas and views, even if they are minority or unpopular views, and when group members are involved in decisions that affect them, especially decisions about how the group work should be organized and what rules everyone should follow.
This principle is important because we humans have a strong sense of autonomy. Most of us do not want to be commanded around, especially in situations when following instructions comes at a cost to us. We want to have a say in decisions that affect us in some way. Having a say in decisions that affect group members will also increase the motivation and sense of responsibility of group members. So they will be more willing to comply with the agreed rules, even if they have to make some sacrifices. This principle is also important because there are often different experiences and knowledge in a group. The open exchange of these different viewpoints can help the group to identify problems or opportunities and to make better decisions together.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	Students and teachers have certain choices and a say in the content of the lessons and the type of learning methods and assessments they prefer.	Students and teachers are 'just following the curriculum' and feel they have no agency or ability to influence the direction and methods of their learning.
In a school	Regular surveys or other methods are carried out in which students and teachers can give their input on certain aspects of everyday school life and school design. Everyone is aware that their input is actually heard.	The interests of the students are not represented in everyday school management decisions. Teachers and students feel that the curriculum is imposed "from above" without having any say in it.

Design Principles for Cooperation

4 Transparency and monitoring progress towards goals

The community observes and monitors whether everyone behaves according to the agreed rules, and to what degree common goals are achieved.

This principle is fulfilled if there is transparency and a regular exchange about what all group members do in relation to the shared purposes, whether agreed upon rules are followed and whether group goals are achieved. Transparency creates trust in the intentions and activities of the group members, promotes motivation, effective coordination and problem solving ability of the group, promotes helpful behavior, and makes it difficult to get away with unhelpful or uncooperative behavior. This transparency must not result in coercion and surveillance and not take up too much time and resources. The more transparency can be embedded in the everyday routines of the group, the better. Transparency is created when the group comes together often enough to exchange important information and plan for the future, so that everyone has the opportunity to see what is going on, where there are successes and problems, and to what extent goals are being achieved - e.g. regularly working together, engaging in discussion of tasks, or division of the group into smaller teams so that everyone works closely with at least one other person. This principle is about asking how well everyone in the group knows what others are doing and whether the group is successful.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	Students and teachers take care of each other and notice when someone has problems. Students are able to use a rubric or learning plan to monitor their own progress in the classroom.	Teachers constantly monitor all students, so many students are afraid of them. Teachers and students ignore when others are bullied. Students do not know about their performance until they receive a final report card.
In a school	An annual report highlights all of the valued outcomes the school is producing for all members of the school community. There is a publicly visible blackboard in which all the school's clubs present their activities of the past month. Seeing this clear progress is a source of pride for many in the school.	The school is working well for most members of the school community, but there is no sharing of these successes across school groups. Most at the school don't know what a school club or sports team actually does. Teachers don't share their experiences in the classrooms with each other.

Design Principles for Cooperation

5 Appropriate feedback regarding helpful and unhelpful behavior

There are appropriate reactions to helpful and unhelpful behaviors to encourage helpful and discourage unhelpful behaviors.

This principle is met when there are supportive or corrective reactions from others, when a group member does something that is more or less helpful. These responses should be appropriate to the context, so that some minor or unintentional acts are not severely punished, but persistent harmful behavior is appropriately punished, so as not to affect the motivation, trust and efforts of other group members. Research shows that trust in groups increases when sanctions or penalties are imposed for unhelpful behavior, as people can be certain that there are consequences for potential cheaters or slackers. We humans also care a lot about our reputation, and we may feel a little ashamed or guilty for forgetting, making a mistake, or slacking a little in relation to the shared purposes of the group. Therefore, people often do not have to be severely punished for small mistakes because gentle reminders motivate them to do better next time. Furthermore, no one is perfect and everyone sometimes makes mistakes and forgets things; people don't want to be judged and punished too hard when they've actually done their best. On the other hand, people should be given sincere appreciation for their helpful behavior and contributions so that they stay motivated and engaged in the group, because we humans like to be part of groups in which we feel that our efforts and contributions are valued by others. This principle is closely related to Principle 2 (*fair distribution of costs and benefits*), as appropriate feedback can signal or reinforce perceptions of fairness in the group.

Group	How is this principle done well?	How is this principles done poorly?
In a classroom	If a student forgets an important task, the teacher tries to speak to the student to find out what happened and to discuss how to avoid it next time. If a student disturbs others during class, many students voice their disapproval and ask him to stop.	A teacher becomes angry and punishes a student severely for forgetting to do homework, and the teacher does not try to understand the possible reasons for the student's behavior. If a student disturbs others during class, many students cheer him on and join him.
In a school	Systems are in place to recognize and reward a wide diversity of student and teacher efforts to contribute to school culture, and clear systems are also in place to gradually remind or enforce agreed upon rules and norms of behavior.	Positive recognition and/or enforcement of rules and norms are relatively arbitrary, based on the whim of individuals, and without clear guidance or systems to ensure fair processes are consistently engaged.

Design Principles for Cooperation

6 Fast and fair conflict resolution

The group has mechanisms for resolving conflicts among members in ways that are fast (efficient) and perceived as fair by those involved.

This principle is met if the group is honest from the start that conflicts may arise sooner or later and makes efforts to improve the conflict resolution skills of the group members and to create helpful, flexible and fair processes for conflict resolution. This principle is important because conflicts can inevitably arise in any group of people, e.g. about the distribution of resources, responsibilities and other costs and benefits or about the decisions that should be made, because people have different interests and information. Without mechanisms to resolve such conflicts quickly, effectively and fairly, such conflicts can escalate and thus endanger the purpose and achievement of the goals of the entire group or impair the well-being of the group members. The longer a group waits to resolve emerging conflicts, the more harmful the conflict can become to the group and its members, and the more resources and efforts will be required to resolve such a conflict.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	Students and teachers have the opportunity to learn and practice certain skills that are helpful for the non-violent and fair management of conflicts, such as active listening, perspective-taking, self-regulation and greater awareness of the wider context of a situation.	Conflicts between a teacher and a student always end up in the teacher's favor, which gives the students the feeling that the system is unfair. Students in a project group are not supported by the teacher to enable them to resolve an emerging conflict.
In a school	There is a clear conflict resolution process that all school members know and consider fair. The school allows sufficient classroom time for learning and practicing communication skills.	The school administration believes that conflicts between groups of students are not their responsibility, and there is no system to help students manage and resolve their conflicts. Students in a school have never learned about communication skills.

Design Principles for Cooperation

7 Authority to self-govern (according to principles 1-6)

The group has a minimum set of rights and the freedom to set its own rules.

This principle is fulfilled if the group is free to set its own agreements for how to best achieve its own goals (according to principles 1-6). The system in which the group is embedded must enable the group to work together and make their own decisions in a flexible way so that they can adapt to changes and take advantage of opportunities “on the ground”. This principle is important because each group is embedded in a larger context or community that can limit their ability to manage their own affairs. Groups must be able to implement Principles 1-6 without undue interference to function effectively. This is due to the fact that people inside the group often know more about the context in which they work and are often better able to draw up rules and plans that take into account the opportunities and challenges of their situation, compared to more distant authorities. For example, the context may result in over-regulation of the group's behavior or goals to be achieved, which ultimately harms the group and prevents it from being successful.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	A class is encouraged and empowered to set their own rules for day-to-day classroom management. A class can decide what they want to do for their annual field trip.	A teacher is held accountable for improving test results, but has no authority to change the way she teaches. A class feels coerced to go to a particular place for their annual school trip that nobody in the class in actually interested in.
In a school	Schools are free to choose which learning opportunities they want to offer their students within the larger shared aims of the state curriculum. Schools are free to develop their own ways of school management and school culture.	State regulations prevent schools from making valued changes or innovations to the design and management of the school. A school principal wants to encourage teachers to teach across subjects, but the state education system requires that their school only achieve high test scores in individual subjects.

Design Principles for Cooperation

8 Appropriate relations with other groups

There are appropriate cooperative relations between groups and across levels of organization. Principles 1-7 are applied to the relations between groups and on the next level of social organisation.

Similar to Principle 7 (*authority to self-govern*), this principle reminds us that each group is part of larger groups or exists alongside other groups. In today's societies there are many levels of groups, from couples and families, schools, clubs, organizations, unions, communities, parties and other political movements, nations, all the way up to our emerging global society. Because groups are part of larger systems, they can only really achieve their goals in a sustainable and efficient way if they are able to coordinate and collaborate with other groups and within the larger group of which they are a part of. The same design principles are therefore relevant at all levels of a social system. This principle reminds us to pay attention to how the design principles 1 to 7 are implemented at the next higher level in order to promote cooperation and coordination between groups. For example, groups cooperate well when there is a higher common purpose, fairness, or involvement in group decision making across groups.

Group	How is this principle done well?	How is this principle done poorly?
In a classroom	A classroom creates a partnership with a local non-profit organization working on an important community issue. Teachers from across subject areas collaborate to engage students in understanding big questions about the human condition from interdisciplinary perspectives.	Classrooms rarely engage their local or global community as a basis for learning. Teachers do not view other subject area teachers as partners for interdisciplinary teaching. Students from different classrooms bully each other on the school ground.
In a school	A school maintains partnerships with community organizations so that they can improve their school and community together. The teachers and students work with researchers and teachers from other schools and subjects to study and improve whole schools collaboratively.	The local community sees the school as a nuisance and a drain on local tax revenue rather than as vital social capital. Schools compete for resources and view researchers and state officials as outsiders who do not care for the interests of students and teachers. Lessons learned about successes and failures stay only within the confines of the school.

Design Principles for Cooperation

Auxiliary Principles

While the eight design principles will be more or less relevant to many groups, depending on the context, there may also be other factors that are relevant to the success of the group, but which are not adequately covered by these principles.

In this way, additional principles can be identified and named that are relevant for the cooperation and the success of groups in certain contexts. For example, in certain contexts there is a high turnover of group members, so additional mechanisms must be found to ensure that this fluctuation does not jeopardize the long-term success of the group.

Such additional principles can be identified by regular reflections on the challenges for cooperation in a group, as well as on the relevance of the design principles and their implementation in the group.

Which additional principles could be relevant for the success of schools and school groups? Some possible factors and resulting principles that may require additional consideration include:

- **Auxiliary Principle: Plan for high turnover of school stakeholders.**
  Ensure that knowledge about successful school and group organization is transmitted from generation to generation, in case of high turnover of students and teachers from year to year.
- **Auxiliary Principle: Build opportunities for interdisciplinary learning about human behavior and the concepts of Prosocial.**
  Provide assistance and resources for interdisciplinary learning opportunities to motivate and engage teachers across a wide range of subject areas in order to help students and teachers develop an understanding of human behavior, allowing them to shape a school culture that promotes well-being and valued behaviors.
- **Auxiliary Principle: Build opportunities for learning about learning.**
  Provide assistance and resources to help students and teachers develop a shared understanding of pedagogy and learning in order to make informed decisions about curriculum, classroom management, assessment policies, and overall school culture.

Cultivating psychological flexibility

The challenges of sustainable development also require that people are able and willing to consciously change their behavior in order to act in the long term in accordance with personal and shared goals and values.

However, there is also a certain paradox in terms of flexibility - we humans are highly flexible as a species, thanks to our ability to make and transmit culture, we inhabit almost all of the world's ecosystems. No matter in which environment we humans are born into, we learn the knowledge, norms, behaviors, technologies, and traditions of our communities. But people are also "creatures of habit" - it can be difficult for us as individuals and as groups to reshape and reorganize our behaviors and norms, even if this would be better for us in the long term.

Therefore, another important aspect that plays a role in Prosocial is the promotion of psychological flexibility. **Psychological flexibility** combines processes and skills such as mindfulness about experiences and perceptions, taking a step back from our often not very helpful “inner voice”, regular reflection on our values, and committed action in the service of our values.

In schools and classrooms, there will also be moments when something is not exactly fun, when you are frustrated or upset about yourself or others, or something is not going according to plan. At the same time, there will also be moments that seem particularly meaningful, important, or worth living for. Strengthening our human capacity for psychological flexibility allows us to become more aware of these different experiences, to help us find our values, to accept the negative moments that occur in normal life, and to act in accordance with our values and goals.

Importance of values clarification

Central to successful cooperation and for psychological flexibility is awareness and regular reflection on personal and shared values - qualities that make working together and learning worthwhile and meaningful in itself, that give direction to our life and our cooperation with others, and which promote our motivation (see also Design Principle 1 - p. 6). Several studies have shown that regular activities that help students reflect on their values increase students’ sense of efficacy, motivation, and academic performance in school.

Values are like a compass that shows us the direction - no matter where we are and what we do, we can always go towards our “true north”. Also, values are not “goals” that we can “reach” or “tick off”. Value orientation goes on throughout life and gives direction to everything we do.

Values and Goals

An important aspect for understanding values is that they are not the same as goals. Nevertheless, they are related: values help us to define specific long and short-term goals that we can move towards, and goals help us find our values by asking why we actually have those goals.

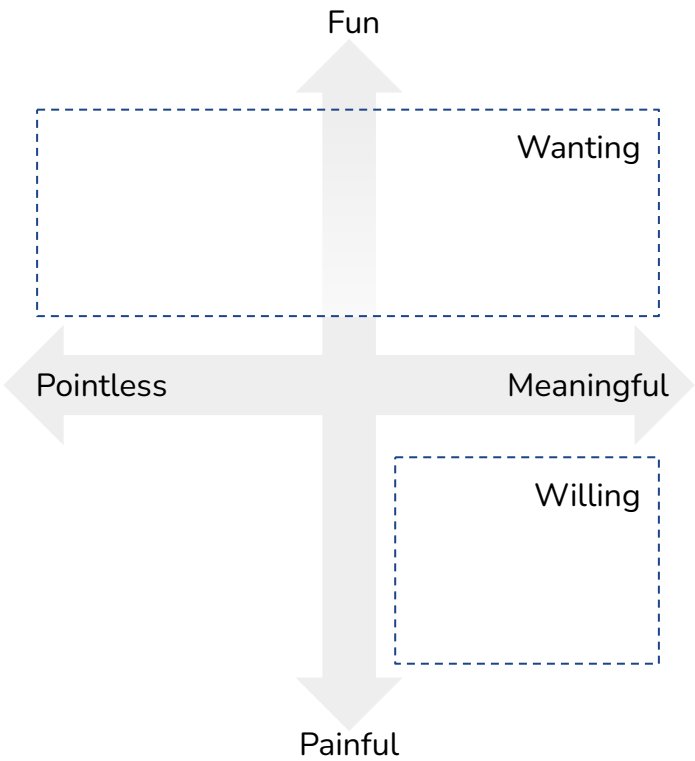
SMART Goals

It is helpful for achieving longer-term goals if we set shorter-term goals that serve to achieve the long-term goal. SMART goals are **S**pecific, **M**easurable, **A**chievable, **R**ealistic, and **T**imely, i.e. goals that can be defined, assessed or measured, and can actually be achieved within a certain period of time. Examples of SMART goals in a school or school improvement committee could include: meeting once this month to discuss how we are doing on the implementation of the Design Principles; preparing a poster or a report to be shared with the whole school.

Cultivating psychological flexibility

One exercise for identifying and reflecting on values is shown below[1]: different everyday activities can be classified or interpreted differently in terms of their meaningfulness and "fun content". It shows us that value orientation is not (always) the same as "having fun". There will also be similarities and differences between people in how they interpret the same experience. This helps us to recognize what we have in common and what different motivations and values each individual has.

- *Doing homework*
- *Having lunch with friends*
- *Finishing an interesting school project*
- *Learning a new skill*
- *Helping a friend learn something difficult*
- *Meeting with a project group to organize activities and tasks*
- *Studying for an exam*
- *Asking someone for help with an assignment*
- ...



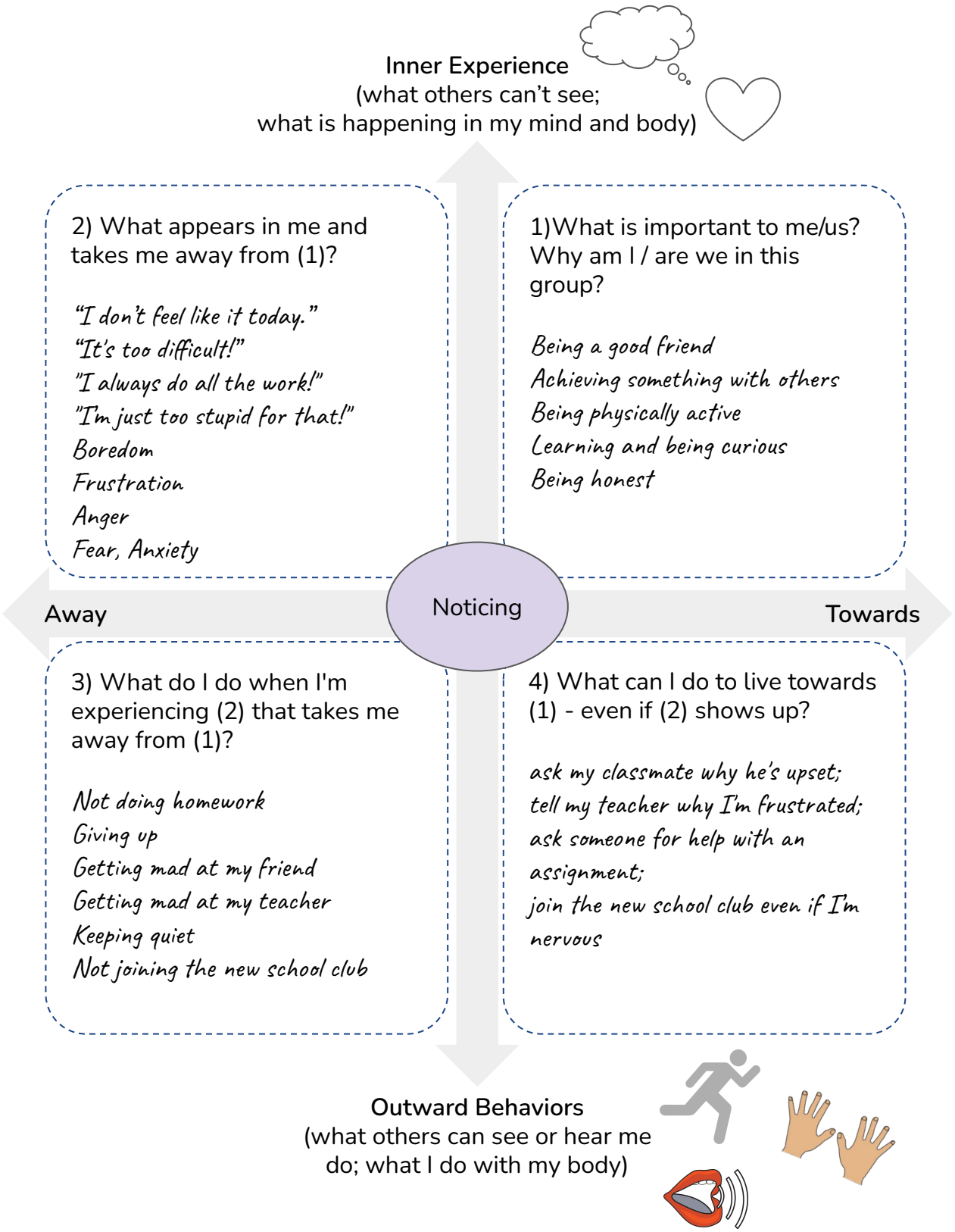
Some possible reflection questions for mindful values clarification:

- Imagine that it is the end of the school year and your group has been really successful! Everything is working well. What would you see? What would you notice people doing? How would they be behaving?
- Describe a situation at school that was particularly important and meaningful for you. What did you do, who were you with, why exactly was the situation important and meaningful for you?
- Describe a situation at school that was particularly frustrating or challenging for you. What were you doing in that moment, who were you with, how did you feel? How did the moment and your frustration relate to what you care about?
- Describe what you learned at school this week that was particularly important or interesting for you and explain why it was so important or interesting for you.
- What is particularly important for you when you work together with others at school? How do others that you work with know that this is important to you?

[1] Adapted from Porosoff & Weinstein (2019, p. 15)

Cultivating psychological flexibility

Another tool for promoting psychological flexibility is the “Prosocial Matrix”[1]. With it we can learn to perceive behaviors and inner experiences (thoughts, feelings, memories, sensations ...) and to "sort" them according to their meaning and function. This promotes our ability to notice and accept all experiences and find ways to act in accordance with our values even in difficult moments.

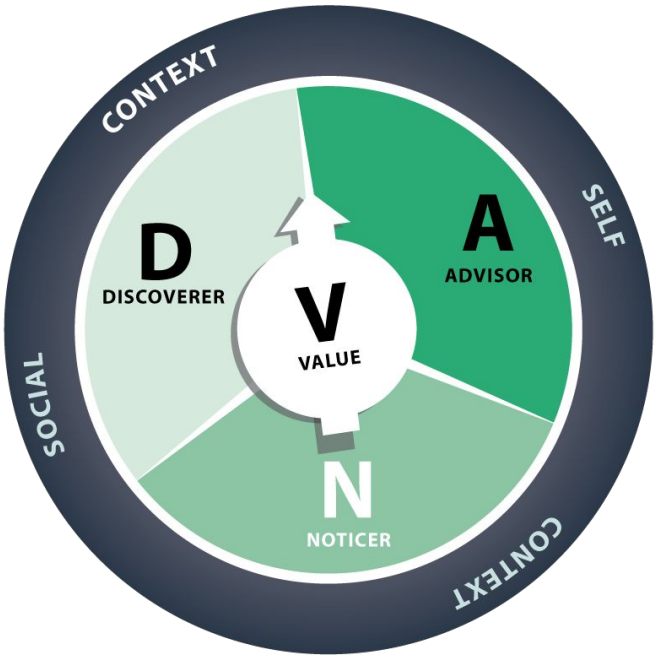


[1]adapted from Atkins, Wilson, & Hayes (2019)

Cultivating psychological flexibility

The DNA-V Model

Another set of tools and metaphors for promoting psychological flexibility is the DNA-V model[1]. DNA-V stands for the "Discoverer", the "Noticer", the "Advisor", and "Values". You can think of them as characters, skills or qualities of our human mind that we can practice and use to be more flexible and live towards what we care about.



The **Discoverer** is our ability to try out and learn new things. The Discoverer helps us to find out what is important to us, and motivates us to do things in new ways, even if we might feel uncertain or scared to fail.

Questions we can ask ourselves and things we can do to practice using our Discoverer in relation to school:

- How can we use our Discoverer in school today?
- What can I do this week to help others in my school?
- What can I try out this week to make my learning more effective?
- What can our project group try out to be better at coordinating our activities? (e.g. in relation to the Design Principles)
- What learning arrangements can our classroom try out so that everyone will succeed in this unit?

[1]based on Hayes & Ciarrochi (2015); www.ThrivingAdolescent.com

Cultivating psychological flexibility

The DNA-V Model

The **Noticer** is our ability to be aware of and sense the present moment - the things that are going on in the world around us as well as the things that are going on inside us. Often we do not notice all the things that are going on, and we might miss things that would be quite helpful or important. Furthermore, our Advisor (see below) is often quite active and distracts us from what is going on inside us and around us. Practicing our Noticer skills helps us to widen our awareness and pause so that we can be more flexible in deciding what to do next.

Things we can do to practice using our Noticer in relation to school:

- Create time during the school day to scan and observe what is going on inside us - thoughts, emotions, memories, sensations.
- Have mindful walks around the school building and school grounds and notice all the sights, sounds, smells.
- Notice how it feels in the body or what our mind tells us when we are frustrated with school work or with other people, or when we need a break.

The **Advisor** is our "inner voice". Because we humans have language, we also have many thoughts in our heads. Our inner voice can help us to make sense of our experience, to plan and decide what to do or not to do, to predict what might happen and to try things out in our heads. But our inner voice is also not always very helpful - it is often negative, predicting the worst or remembering the negative and scary things, and it is often judgmental, telling us what is right and wrong about ourselves, other people, and the world around us. The Advisor does these things because he just wants us to be safe and well. We can use our Noticer to just notice our Advisor and then decide whether he is being helpful and whether we should take him serious or not.

Questions we can ask ourselves to practice using our Advisor in more helpful ways in relation to school:

- What is my Advisor saying right now? Is he giving me helpful advice?
- Is he being quite negative or judgmental?
- How does my Advisor make me feel and behave?

Ultimately, the Discoverer, Noticer, and Advisor skills need to be used in the service of our **values** (see p.16)

Community Science

for understanding cooperation in our communities

Community Science is an approach that combines educational goals with research, and focuses on a commitment to addressing community challenges. Similar approaches that combine these goals more or less explicitly are *Citizen Science*[1] and *Service Learning*[2]. Depending on the focus of the project, the advantages of these approaches can be:

- Students learn about interdisciplinary scientific methods and processes through experiential learning.
- Concepts and topics in the curriculum can be introduced, applied and deepened in the context of the project.
- Students make an important contribution to research in different disciplines and engage different phases of the research process.
- Students make an important contribution to the discussion and solution of real-world community issues.
- Students learn skills such as cooperation, communication, reflection competencies, and strategies for problem solving.
- Participation in projects increases the motivation, self-efficacy, and sense of responsibility of students to be active in shaping social processes.
- The public has better access to scientific knowledge and is encouraged to reflect and take action.

Depending on the issue, students and teachers in community science projects often work together with researchers or university students and other community stakeholders who can support the project with their knowledge and experience.

The methods and goals of Prosocial are such that the greatest and most sustainable added value in strengthening collaboration, well-being, motivation and self-efficacy in a community is achieved when the community continually “investigates” itself by regularly capturing and reflecting the different members’ views of the group’s cooperation and effectiveness, and trying out new possibilities of living together and cooperating based on those insights.

For research into group cooperation, successes and challenges of schools (and other community groups that are important to students and teachers), it makes sense to implement this as a community science project within the school. Depending on the grade level and other circumstances, school groups can investigate themselves or work with another project group - at their own school or elsewhere in the community.

[1] see e.g. Pettibone et al. (2016) [2]see e.g. KIDS Consortium (2001)

Best practice in Community Science Projects

Scholars[1] have identified a number of best practices that characterize effective Community Science projects. These categories of practices are interlinked and specific projects have to negotiate and reflect on how the principles can be instantiated.

Collaboration - All stakeholders work together to identify, understand, and solve real problems facing their community. Collaboration happens in all stages of the research process and the distinction between the "researcher" and "the researched" becomes fuzzy, as all stakeholders contribute with knowledge, skills and experiences. Attention is paid to group dynamics and group facilitation to build trust and inclusivity.

Community-driven - Community Science projects should be community driven from problem and goal definition, to dissemination of the findings and evaluation of the project, to decisions on whether and how to take action based on the research findings. The community is the primary beneficiary of the research project.

Power sharing - Fostering a climate where all stakeholders and researchers share power. In practice, this may be difficult due to differences in knowledge, skills and access to resources. Nonetheless, the project should pay attention to power imbalances within the community and the project and encourage all stakeholders to take part in decision making, including about problem definition, dissemination of the findings, and ethical questions such as of data privacy.

Capacity building - Researchers and practitioners facilitate, motivate, educate, and foster community members, groups, and organizations to become the leaders and authors of their own research and community action. Participants co-learn research and advocacy skills, as well as communication and group working skills, which can be transferred and applied to other projects and personal life, leaving communities empowered and strengthened as a result.

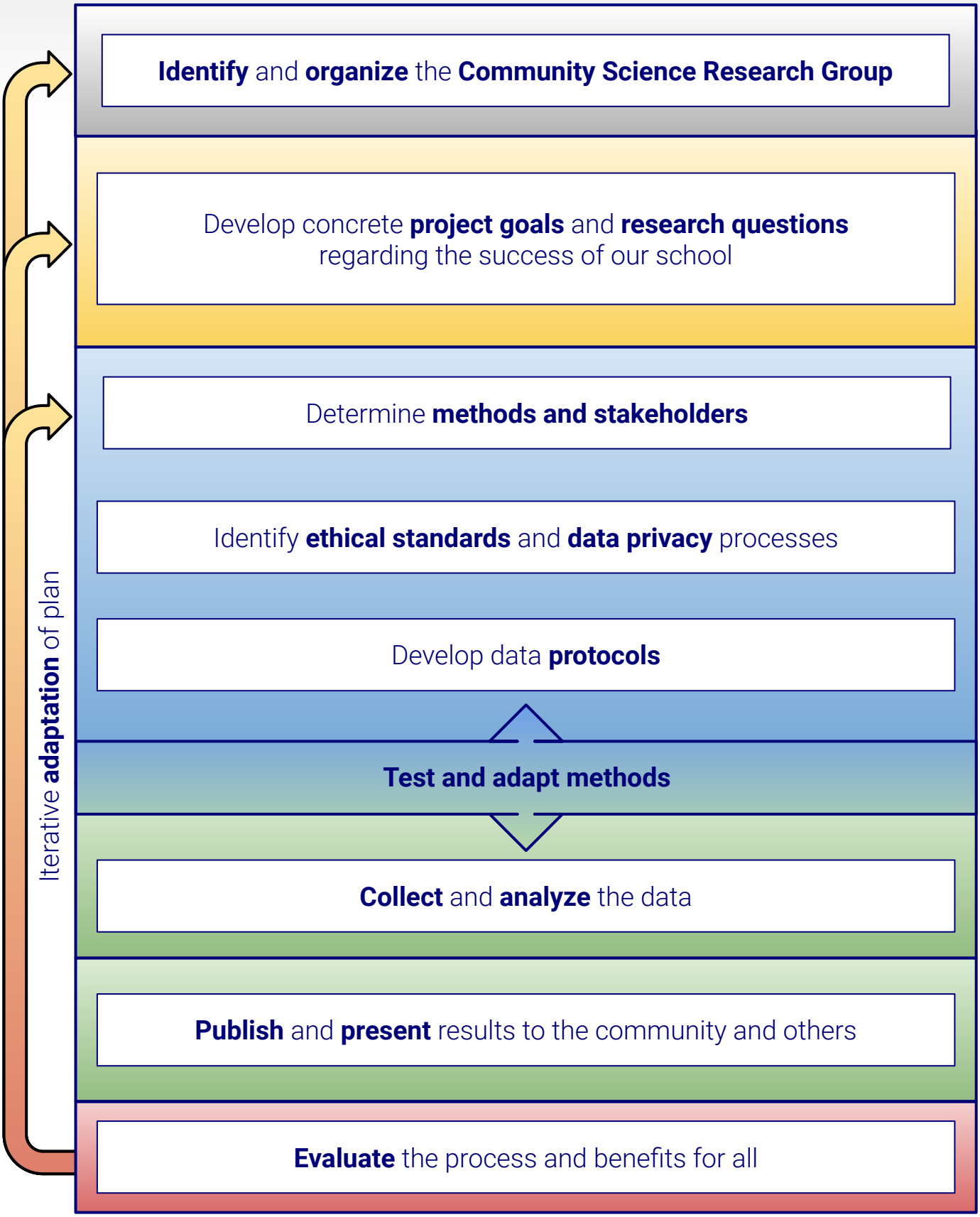
Social action and social justice orientation - There is a commitment of contributing to fostering social action and social equality through the project, including through personal growth and community empowerment. The decision as to what will happen - or not - as a result of the findings rests with the community.

Transformative - There is a commitment to partnerships, ideally long-term, between researchers and community stakeholders in which all sides grow and change through mutual exchange of ideas, experiences, knowledge, and understanding.

Innovative - Community science projects that involve various stakeholders have the potential to find novel solutions to real-world problems that are more meaningful and applicable to the lives of people, compared to traditional top-down research approaches and linear transfers from research to application.

[1] Source: Boyd (2014)

Community Science Workflow



Source: adapted from Pettibone et al. (2016, p. 26)

Community Science Workflow

Identify and **organize** the **Community Science Research Group**

- A class, project group or working group within the school
- A project group from another school or community organization
- Possibly involve students from universities or other partners (especially if they can contribute certain knowledge, skills, and resources).
- Ideally, the project group should apply the design principles for collaboration to themselves and continuously reflect on them (how do we make decisions, etc.).

Develop concrete **project goals** and **research questions** regarding our school culture and the success of our school

Depending on the time available and other conditions, project goals and research questions can be rather specific and short-term or more comprehensive, e.g. a specific question about a certain group of stakeholders at a certain time, or a more extensive and long-term research into the cooperation among different stakeholders.

- What is important for students / teachers / parents / different stakeholders about our school? What are their goals? What do they want our school to be about?
- What are our school's challenges for achieving the goals?
- How do school stakeholders work together and how is life in school organized?
- How can our school strengthen cooperation and the achievement of common goals?

Community Science Workflow

Determine **methods and stakeholders**

Which actors are directly involved or have an influence and interest in the success of our school? Which and how many should we engage?
How can we engage them?

- Stakeholders within our school? - teachers, students (of different grades?), school administration, maintenance staff, etc.
- Stakeholders outside of our school? - Parents, community members, school board, organizations / associations, etc.

Possible methods

- Stakeholder mapping - to identify relevant stakeholders (see p. 29)
- Existing data and documents
- Focus group
- Interviews
- Surveys - online or paper
- Observations (notes, photos, videos)

Identify **ethical standards** and **data privacy** processes

Which guidelines for data privacy and personal protection do we have to consider? How can we ensure that we comply with these guidelines so that we do not violate the consent and privacy of the respondents? Data protection issues also depend on the intended type of publication, in particular whether and which data are not only made available to the respective school or stakeholder group, but also to the general public.

Formulate a declaration of consent for the respondents for the intended use of data, including, for example:

- Participation in the investigation is voluntary and can be terminated anytime.
- Anonymity is guaranteed (no inclusion of name and address, or other data that could lead to the identification of the person)
- Parents' consent must be obtained for students under 14 years of age when results are intended to be made available to the general public.

Develop data **protocols**

- Create interview and discussion protocols, survey tools, observation sheets etc. (see p. 30 ff.)

Community Science Workflow

Test and adapt methods

It is especially helpful for a newly created community science group to test the developed methods and data collection protocols - e.g. interview and discussion protocols, survey tools and recording devices - in a pilot phase with a small stakeholder group, and then to evaluate these experiences. Methods can then be improved if necessary, e.g. the reformulation of questions in order to make them more understandable for respondents, or additional notes for the interviewer in interview protocols.

Collect and **analyze** the data

- In the group, decide who collects which data by which methods, from whom, when. Personal preferences and strengths of group members and joint decision-making (*Design Principle 3*) should play a role here.
- Collection and evaluation of quantitative data (e.g. evaluations on a scale) can be advanced by using data processing software (e.g. a spreadsheet program).
- Evaluation of qualitative data - which overarching themes, topics, and concepts emerge from the information provided by various stakeholders or from various observations.
- Evaluation of data quality - is the information reliable, honest, and representative of diverse school stakeholders?
- Evaluation and interpretation of the results in relation to the project goals and research questions - are we achieving our research goals?

Publish and **present** results to the community and others

- Which audience besides the stakeholders interviewed might be interested in the results?
- How broad do we want to publish results? What data do we want to make available to others and in what form (see also ethical standards and data privacy)?
- Presentation at school, preparation of a report, poster or video, publication on the school website, contribution to a conference, data entry in a database (see Prosocial Schools Network, p. 28)

Community Science Workflow

Evaluate the process and benefits for all

- What have we learned about our school in this project?
- How did our cooperation with stakeholders and within our project group go? What can we improve?
- What did we learn about ourselves in this project?
- What benefits or challenges did our study bring to the school stakeholders?
- Which new questions came up and which questions remain unanswered?
- What can other schools learn from us, what can we learn from other schools?

Depending on the project goal and questions, further specific questions regarding success, benefits and emerging problems can be reflected during this project phase.

Iterative **adaptation** of plan

- How can we evaluate and improve the success of our school in the future?
- Which stakeholders should be interviewed in the future, which additional questions should be explored?
- How can the research methods and the organization of group work be improved?
- What helpful information and guidance can we provide to future community science groups?

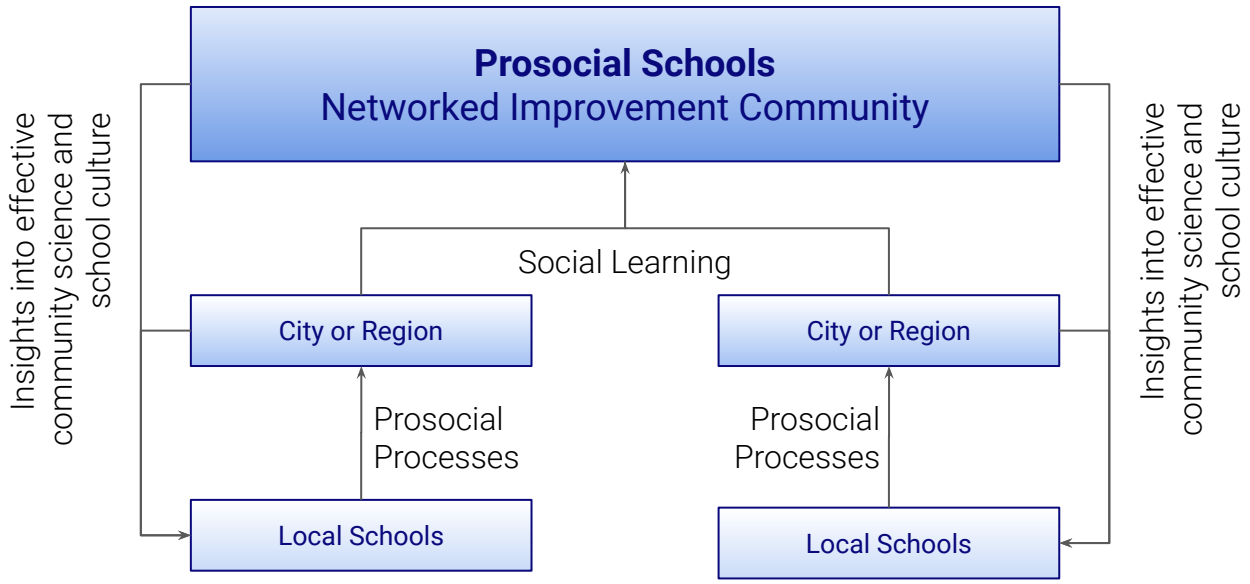
Prosocial Schools:

A Networked Improvement Community

A science project is all the more valuable for the general public if the methods and results of the investigation are made freely available and can be compared with the methods and results of other project groups. This is especially the case as we investigate the cooperation dynamics, the challenges, and the successes of a school. In this way, several schools and school sub-groups can learn from each other, general knowledge about the situation of schools in a larger region can be gained, and finally measures on diverse improvement aims can be identified that can promote the success of schools.

Thus, one of the goals of the our Community Science Lab Model is to develop infrastructure for this collaborative community science. This includes in particular:

- Supporting the formation of *Prosocial Schools*, a network of actors to learn from each other and to further develop this approach to school improvement
- The creation and ongoing development of this Community Science Field Guide
- The creation and ongoing development of templates and instructions for the collection of project data and metadata, as well as guidance for data evaluation in order to make the data collection and analysis by different project groups transparent, reliable and comparable
- The creation of a public database in which the results can be fed in differently aggregated and anonymized form by project groups

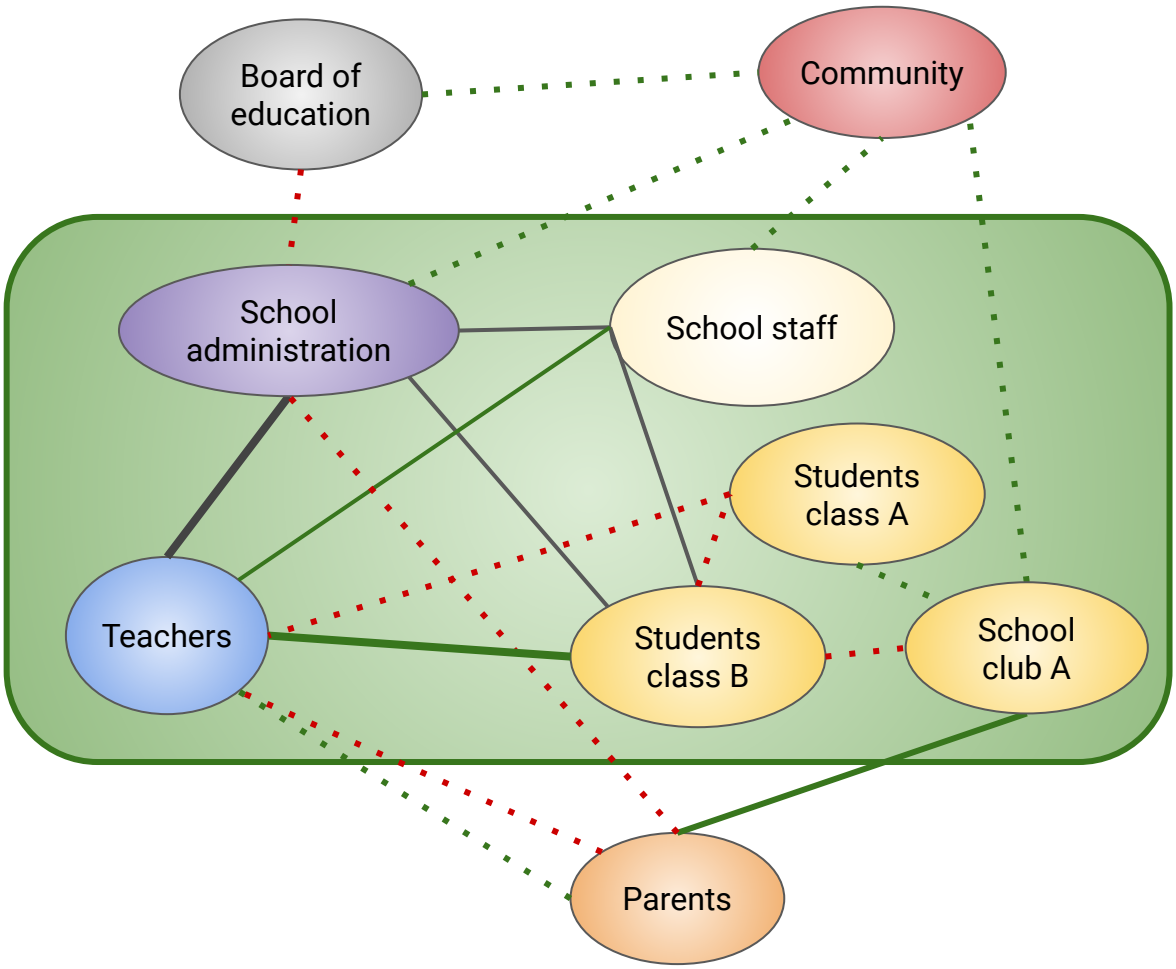


Stakeholder Mapping

A stakeholder of a school is anybody who can influence or is influenced by the school and its success. It is important to identify the different stakeholders, what is known about their goals and interests, and about how they affect the culture and success of the school. Some important stakeholder groups of schools will include: teachers (by subject?), students (by age, class?), school administration, parents, community members, researchers and research institutions, government agencies (local, regional, and national), organizations, and companies.

Stakeholders can be internal to the school - people or groups of people who are present at the school on a regular basis and/or are directly involved in the organisation of the school, or external - people or groups of people who are not directly involved but do have some influence or interest in how the school operates. Just as with many groups, there will often not be hard or rigid boundaries between "internal" and "external" stakeholders, as some may be more or less involved in the school. Stakeholders can also be more or less important and influential.

Below is an example of a stakeholder map of a school. Different lines can be used to mark different kinds of influence (enabling, constraining, strength of influence). Depending on the research question and project goal, members from these different kinds of stakeholder groups can be engaged through different methods (interviews, surveys, focus group discussions) to find out more about their goals and their perceived challenges and opportunities for school success.



Template for survey/interview/Focus group

All Stakeholders

Stakeholder: Student / Teacher / Parent / Other _____
Date:

How satisfied are you with the culture of our school?

Not at all ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very

How much do you participate in the design and management of our school?

Not at all ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very

What do you like about our school? Why?

What do you not like so much about our school? Why?

What would you change about our school? Why?

What other comments, ideas, or questions do you have about our school?

Source: adapted from Gibbons (2019)

Survey / interview / focus group templates

School/classroom/project group-specific stakeholders

Stakeholder: Student / Teacher / Parent / Other _____
Date :

How satisfied are you

- with the effectiveness of our school/classroom/project group in relation to our goals?

  Not al all ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ very

- with the cooperation among members of our school/classroom/project group?

  Not al all ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ very

How often are you involved in work related to the organization of the school/classroom/project group? About how many hours per week? _____

- Who is involved in our school/classroom/project group, or has an influence or interest in the success of our school/classroom/project group? (Stakeholder mapping)
- What is the aim and purpose of our school/classroom/project group? What is important to us about how we live, learn, and work together? What do we want to achieve as a group? Do we all have the same or different goals? (Design Principle 1)
- How do we assure that work and tasks in our school/classroom/project group are distributed in a way that is considered fair by all? (DP2)
- How do we assure that all that are involved in our school/classroom/project group can enjoy the benefits of being part of the group? (DP2)
- How do we make decisions together? Who is involved and does everyone who is affected by a decision get to take part in the decision? (DP3)
- How do we know whether we are successful and are achieving our goals? How do we know, what others in the school/classroom/project group are doing? (DP4)
- How do we react when someone is particularly helpful or contributing a lot? Do we acknowledge it sufficiently? (DP5)
- What happens when someone behaves in a way that is not helpful or that endangers the success and well-being in of our school/classroom/project group? Do we have a way to discourage or sanction such behaviors? (DP5)
- Are there conflicts between people in our school/classroom/project group? How do we solve conflicts, and does everyone have the knowledge and skills for solving conflicts effectively? (DP6)
- Does our school/classroom/project group have the ability and authority to organize itself, set its own goals and rules, and to make our own decisions? (DP7)
- Does our school work with other groups within and outside our school, such as other schools or the local or global community, in order to achieve our aims? (DP8)

Survey / interview / focus group templates

School/classroom/project group-specific stakeholders

The following questions are suitable for groups who are already familiar with the specific design principles for collaboration. These reflections can be carried out as more or less anonymous surveys, interviews or as group discussions, and if possible several times in the course of a collaboration (e.g. in the course of a school year). From the results, the group can discuss how they could strengthen their collaboration and success by finding new ways to implement the principles.

Stakeholder: Student / Teacher / Parent / Other _____
Date :

Principle 1 Clear group identity and shared sense of purpose

How important and relevant is this principle for the cooperation and success of our school / classroom / school group?

Not at all ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very

How well does our school / classroom / project group implement this principle?

Not well at all ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very well

In what ways does our school / classroom / project group implement this principle well?

What is our school / classroom / project group not doing so well and how could we improve the implementation of this principle?

Glossary

Community Science
A research approach that involves various community stakeholders in the entire research process and focuses on issues or problems that the community itself considers relevant and important.

Core Design Principles for Cooperation
General conditions that tend to promote cooperation among individuals at various levels of social organization. Many different mechanisms in different contexts can meet these principles. In very small groups of like-minded people, these principles can already be implemented implicitly by everyone's motivation and communicating regularly with one another. The larger and / or more complex the group, the more new mechanisms (explicit norms, rules, laws, democratic elections, meetings etc.) have to be found to implement these principles.

Prosociality
The motivation or ability to act in such a way that it benefits others in the social group (regardless of whether it benefits the actor). Prosocial behavior can be caused by different motivations and external conditions. For the long-term promotion of cooperation and well-being among humans, it is best if self-interest and the interest of the common good are in harmony so that people show prosocial behavior through their own motivation (see Design Principle 1 - p. 6).

Psychological Flexibility
The ability to change one's behavior or to be persistent in the service of a value-oriented life, even under constantly changing internal and external conditions. Psychological flexibility means that a person is in full contact with the present moment and depending on what the current situation and the self-defined value-related goals require, can change or persist in their behavior. Psychological flexibility is not an end in itself, but serves what is important to the person in their life and what is meaningful and valuable for them.

Values
Values are self-chosen qualities of one's own actions that make the action, the moment, and life meaningful and worthwhile. Values can be named ("being curious", "being a good listener"). In contrast to goals, values can never be achieved or "ticked off", but are continuously lived from one moment to another. When clarifying personal values, it is important that they do not reflect or are influenced by other people's expectations or social norms ("I should be a good listener"), mere avoidance of unpleasant feelings ("I just want to be happy") or rigid self-images ("I am a shy person").

Literature and Resources

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Information about Prosocial

Prosocial World: http://prosocial.world
To join the Prosocial Schools group: https://community.prosocial.world/groups/prosocial-schools
Prosocial Institute: http://prosocialinstitute.org/
Prosocial teaching materials at Global ESD: http://prosocial.globalesd.org

Tools for promoting psychological flexibility in students:

Connect Curriculum materials based on the DNA-V model: https://www.connect-pshe.org/approach
The Thriving Adolescent materials based on the DNA-V model: https://thrivingadolescent.com/
The Matrix in the classroom by Phil Tenaglia: http://www.philtenaglia.com/matrix-education/

Mechanisms for group organization

Sociocracy is a set of principles and methods congruent with Prosocial, which can help to operationalize a number of Design Principles.
Sociocracy for All: https://www.sociocracyforall.org/

Community Science resources

Global ESD Community Science Lab Model: http://CommunityScience.GlobalESD.org
YPAR (Youth-led Participatory Action Research) Hub: http://yparhub.berkeley.edu/

Collaborators

Lead authors and editors:
Susan Hanisch, Dustin Eirdosh, and Paul Atkins

This is an **evolving** and **collaborative** document, to **get involved**, visit **www.GlobalESD.org** and **contact us**!

Version: September 2020
Available in German: http://CommunityScience.EvoLeipzig.de

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Egalitarianism
Norm Psychology
Education
Social Learning
Emotions
Creativity
Intuition
Symbolic Thinking
Future
Economics
Science
Moral Cognition
Technology
Education
Innovation
Genes
Feedback
Cognition
Sustainability
Mindfulness
Beliefs
Natural Selection
Childhood
Evolution
Cultural Evolution
Beliefs
Mismatch
Human
Moral Cognition
Beliefs
Knowledge
Teaching
Cumulative Culture
Biology
Language
Intellectual Humility
Tools
Biology
Nudge
together
Learning
Function of Behavior
Imitation Bias
Ethnocentrism
Creativity
Development
Democracy
Egalitarianism
Innovation
Cumulative Culture
Sustainability
Cooperation
Psychology
Brain
Anthropology
Context
Mindfulness
Cognition
Behavior
Evolution
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Emotions
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Sustainable Resource Use
Natural Selection
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Complex Systems
Social Temperament
Technology
Teaching
Empathy
Cognition
Anthropology
Social Cognition
Phylogeny
Tradition
Sociology
Symbolic Thinking
Perspective Taking
Mental Time Travel
Intuition
Capitalism
Symbols
Brain
Egalitarianism
Development
Knowledge
Imitation Bias
Nudge
Language
Perspective Taking
Culture
Feedback
Social Dilemma
Natural Selection
Tools
Religion
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Democracy
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Capitalism
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