

# Creating a Generation of Problem-Solvers: A Cognitive Perspective on Service-Learning

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## Abstract

This paper takes a foray into the psychological literature and applies a cognitive framework, the Reasonable Person Model (RPM), to a well-respected service-learning program, Earth Force's Community Action and Problem (CAPS) framework. Seeing CAPS through an RPM lens provides insights into the aspects of service-learning experience that may be most pivotal in ensuring positive outcomes. Likewise, while the RPM makes intuitive sense, this analysis offers an empirical demonstration of its effectiveness.

## Introduction

The evidence is mounting that quality service-learning experiences have positive impacts on young people. Be it an increased sense of self-efficacy, commitment to ongoing involvement in one's community, or improvements in academic performance, the effectiveness of service-learning is gaining advocates beyond its original circle of believers (RMC, 2005). But why does it work? In this paper, we examine a well-articulated service-learning program, Earth Force's Community Action and Problem Solving (CAPS), from the perspective of the Reasonable Person Model (RPM). RPM, a recently developed cognitive framework, has demonstrated its flexibility in a wide range of contexts. It has been applied to forestry (R. Kaplan, 2004), urban places (R. Kaplan & S. Kaplan, 2005), environmentally responsible behavior (S. Kaplan, 2003) and public health (S. Kaplan & R. Kaplan, 2003).

Seeing CAPS through an RPM lens provides: 1) insights into the aspects of the service-learning experience that may be most pivotal in ensuring these positive outcomes; 2) a context for explaining the effectiveness of the CAPS process that allows one to generalize it to other settings and groups; 3) a broader conceptual framework with a strong link to relevant literature and areas for further research.

## The Reasonable Person Model

For decades, researchers in the fields of problem-solving, community engagement, and decision-making have struggled to explain why it is so difficult to effectively engage people to address and make decisions about community issues that affect their lives. In addition to a focus on the social and political aspects of public participation, there is another body of literature that takes a cognitive look at the challenges inherent in trying to explain human behavior. From that perspective, there are several important considerations that can make interactions more effective and participatory. That literature has pointed out that we achieve better results when we:

- Find ways to adequately share and manage information – especially about complex, poorly defined issues, that have been characterized as “wicked problems” (Mason & Mitroff, 1981).
- Use strategies that help people become better problem-solvers by ensuring that they adequately explore and understand a problem before jumping right to a solution (Bardwell, 1991).
- Encourage small experiments, celebrate “small wins,” (Weick, 1984) and view failure as a learning opportunity (Irvine & Kaplan, 2001 and Kaplan, Kaplan & Ryan, 1998).

The Reasonable Person Model (RPM) provides a framework for understanding human behavior and the convictions that incorporates these strategies. In simplest terms, RPM deals with the deep concern people have to understand what is going on around them, to be able to achieve understanding through exploration (what we call “Model Building”.) In addition, people want to be competent and clear headed (“Become Effective.”) And finally, the RPM asserts, people want to engage in “Meaningful Action;” to participate in making a difference in the part of the world they know and care about. Let’s take a closer look at these three components and their relationships. RPM states that people are strongly motivated to:

1. Build mental models which permit them to make sense of their world.
2. Be effective, which requires being both competent and clear-headed.
3. Engage in meaningful action, which includes participating in what is going on around them and doing so in such a way as to obtain the respect of one’s colleagues.

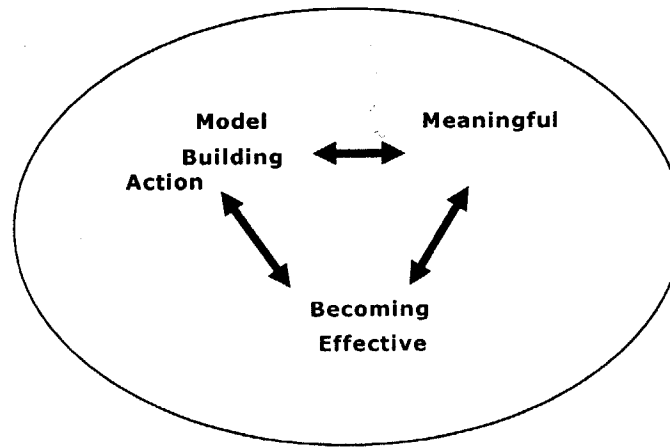
Each of these three components relates to the other two: Building models allows people to understand the world around them, which in turn gives them the ability to act competently and meaningfully. It also enables them to engage in useful exploration, which in turn increases their degree of understanding. Exploration is the preferred mode of acquiring information since it makes it more likely that the information they acquire will make sense in terms that they already knows. It also has the great advantage that the rate at which the new information is acquired is more likely to be compatible with how much people can handle.

Effectiveness grows with competence, which in turn depends upon exploration and understanding. Competence is, however, not sufficient to ensure effectiveness. Clear-headedness also has a key role; unfortunately people often have no idea how to foster this vital mental state. This is an area in which guided exploration can lead to understanding of what might be called the “care and feeding” of clear-headedness (Kaplan, 1995).

The extreme absence of the ability to promote meaningful action is exemplified by helplessness, a highly unsatisfactory (and even corrosive) state of mind. Carrying out meaningful action not only reassures people that they are not helpless, it also provides palpable evidence to others that people are worthy of respect. Being respected, in turn, is one of the great human concerns (Goldschmidt,

1990). This deep concern may, in turn, be related to the fact that humans evolved as highly social animals, whose survival often depended upon support from the group.

Thus the RPM framework has highly interrelated domains (Figure 1). Both the experience of competence and achieving respect are profoundly important sources of meaningful action. People who feel helpless, confused, or exhausted are not at their best. Conversely, when these concerns are minimized, people are considerably more likely to be reasonable and constructive. We are likely to see the best in people when the environment supports exploration and understanding, enables meaningful action, and facilitates competence and a clear head.



**FIGURE 1 – REASONABLE PERSON MODEL: INTERRELATED DOMAINS**

From an RPM perspective, a focus on helping young people manage and effectively use information might be an important strategy for engaging them in doing a project, working together, and even getting excited about school. If RPM is correct, a well-designed, information-oriented service-learning process should provide a learning/doing opportunity that brings out the “best,” in RPM terms, in young people. In this sense, in addition to providing a lens for viewing CAPS, this context provides a test of the usefulness and validity of RPM.

### **Earth Force’s Problem Solving Process**

Earth Force ([www.earthforce.org](http://www.earthforce.org)) is a national non-profit, committed to engaging young people as active citizens who improve their environment and communities, now and in the future. It works with adults who guide groups of young people through a problem-solving process with the outcome being a project where students identify an issue, research it, and then develop a program to address an environmental issue in their community – hopefully for the long-term. Issues youth have addressed in the past include helping to establish a resident call-in system to monitor

industrial odors, encouraging non-English speakers to recycle, rejuvenating community gardens, and trying to get their city to repair potholes.

The Earth Force CAPS framework, based on the best-practices in service-learning (Toole, 1999) has the youth work through a six step "expedition" that involves:

1. *Checking It Out*: the youth define the community they want to explore and conduct a community environmental survey, listing the issues in their community, its strengths, and resources.
2. *Deciding What's Wrong*: the group establishes criteria for selecting an issue and then chooses one to work on.
3. *Sleuthing*: the youth research the issue, gaining a better understanding of it, exploring its causes (and effects), finding out what others are doing that affects the issue and assessing how effective those strategies are.
4. *Deciding What to Do*: the youth look at the options they have for affecting the issue and select one to work on as their project.
5. *Taking Action*: The group develops and implements an action plan it thinks will address the issue for the long-term.
6. *Looking Back and Ahead*: The youth evaluate and reflect on their actions and learning, and, of course, celebrate!

### **The RPM Overlay**

CAPS has proven remarkably robust and effective in terms of effectively engaging young people, identifying creative solutions to community issues, creating relevance within the classroom, and transforming how educators teach (Melchior, 2007). Our argument here is that it is effective because it provides a structure for participatory problem solving that brings out the best in young people (and, very likely in adults as well) as they work to address issues they care about. Placed within the context of the RPM, it becomes manifestly clear why the program has such powerful results.

First, we describe each CAPS step in more detail and then outline how it supports an important aspect of the RPM.

#### **STEP 1: CHECKING IT OUT**

In this step, youth establish the scope of their process by agreeing on how they want to define their community. This might be their school, an area of their neighborhood they can reach during the school day, or their city. CAPS emphasizes that the community needs to be something the students can see and access directly. Defining their community provides some parameters for the information gathering they do as part of their community environmental survey. This inventory stage can include a walkabout where the youth note what they see, hear, smell, etc., a newspaper search for issues that affect their community, interviews, written surveys, or any other strategies the youth come up with for learning about the strengths and concerns within their community.

In the end, the young people need to be able to identify issues they think might be important to address. In some cases, this step is very open-ended, with the educator encouraging the youth to learn about a variety of aspects of their community. In others, especially in the classroom setting, the educator may have a curricular focus he/she wants to incorporate that more specifically defines the search. For example, if the curricular focus is around water, the educator might include a field trip to the local water provider, water quality monitoring along a local river, or encourage the youth to survey students in their school about their water drinking habits or use of the drinking fountains. As we shall see, it is important to the process that the educator frame that exploration around a topic (e.g., water) and not a particular issue related to water (e.g., poor water quality). The issues are for the students to discover.

*The RPM Overlay:* A central focus of RPM is Model Building, which translates into doing exploration in order to understand, and in using that understanding to support further exploration. Having the direct and disciplined strategy provided by this step gives young people a solid grounding and a richness of imagery about what issues there might be in their community. That exploration is bounded (by the physical constraints of their community and the structure of the process), which makes it easier for them to think about the issues and less likely that they will be unrealistic about what they can do. Finally, from the beginning, the group is engaged in Meaningful Action, gathering important information the young people need to be able to change their world.

#### **STEP 2: DECIDING WHAT'S WRONG**

The second step introduces a very powerful skill --- criteria-based decision-making. The group lists the issues it identified during the search phase, grouping those that fit together, until the group has 4 or 5 on which to focus. Together, the students discuss what criteria they want to use to decide which issue they will work on. For many of these students, the notion of having systematic reasons for their decisions is quite novel. To keep the process from becoming too cumbersome, the group decides which criteria it feels are most important. Because, at this point, the group is focusing on issues (not specific projects), its criteria are very general --How serious is the issue? How much of a concern is it to our community? How much is it a concern to the group? Are there resources available that might help us? The group may need to do more research to assess some of this, but eventually, it collectively assigns a series of criteria ratings to each of the issues. The issue with the highest rating becomes the focus of the group's remaining work. If, at this point, a number of students are unhappy with the issue that emerged, the facilitator cycles back through the criteria setting to help the group assess what criteria should be added to the list so that the group can come up with a decision everyone can support.

*The RPM Overlay:* Having the young people start by identifying criteria creates a sense of competence, a component of Becoming Effective. If the group had selected an issue, a priori, or been told what issue to work on, the young people would be more likely to start the process with some self-doubt ("How should I know why we're looking at this issue?") or have an unrelated

reason for looking at it (“Our teacher told us we had to”). By contrast, this two-step process both builds confidence and allows the students to feel grounded in their decision. Unlike many service-learning processes, where the young people are given their project, these students have a deep buy-in to the process and ultimately, their project.... They picked it! The step also supports additional Model-Building, because the students now have a logical framework that supports their decision. They also have a decision-making process that can be readily generalized to other contexts. A most heartening indicator of the success of this process is when program staff see young people applying a criteria-based strategy to other life decisions.

### **STEP 3: SLEUTHING**

With an issue in hand, the group discusses what else it needs to know about the issue and develops a strategy for gathering that information, just as the group did for the inventory. This might include going on field trips, inviting guest speakers, or developing surveys.

One group, concerned about traffic safety around the school, did systematic data collection of traffic at the beginning and end of the school day, and then surveyed the residents around the school about their perceptions of the traffic and receptiveness to some traffic controls. The youth talked with the city’s transportation department to understand city policies about stop signs, traffic lights, creating one-way streets, and traffic calming strategies. They interviewed their principal, who was responsible for monitoring the traffic, and talked to peers about their perceptions. They searched the Internet to see if others had addressed the issue. The outcome of this step is a list of potential projects the students could undertake to address their issue.

*The RPM Overlay:* The systematic process of revisiting and expanding what they know moves the young people’s understanding (i.e., Model-building) to a new level. Within the RPM context, this iteration ensures that the group is strengthening both its sense of competence and confidence. This occurs both because the students have more information and because they have been responsible for deciding what aspects of it are important and for finding it.

### **STEP 4: DECIDING WHAT TO DO**

In the fourth step, the students again use criteria-based decision-making, this time with more specifics related to their project – how affordable is the project idea? Can we accomplish it in the time frame we have? How much support do we have from other stakeholders? Will this option have a long-term impact?

*The RPM Overlay:* This is another iterative step, with the students having the benefit of practicing a familiar approach, further fostering their sense of competence. In groups that have done CAPS several times, one often sees students eagerly take over leading their peers through this decision-making process. As noted before, because the group followed a disciplined process, it has a mechanism for assessing how good it feels about the decision, and if necessary, for revisiting its criteria to come up with a decision with which the group can move forward.

#### **STEP 5: TAKING ACTION**

Finally! The fifth step is what the group has been anxious to get to all along – the doing. At its best, this step includes the students developing a plan with a timeline, a budget, and roles for each member of the group. It also includes an articulation of what they will consider a success. It is all too easy for us, as adults, to set up the perfect project and find out at the end that the students had no investment, and subsequently, very little learning from their participation. Earth Force's rubric for an excellent project focuses less on the content of the project itself, and more on the process the group followed to get there. While the goal is to have projects that result in tangible changes in communities, CAPS is less concerned with each group developing a "home run" project than with ensuring that students accomplish outcomes that CAPS sees as critical to encouraging participation: Do students develop an increased sense of competence; Do they begin to see their efforts as part of something bigger; Do they gain a more realistic sense of their ability to make a difference; and did they understand their issue well enough to come up with a project that has a long-term impact?

*The RPM Overlay:* Here again, the structured step by step process helps the young people to see where they are going and to gauge what they want to accomplish, thus enhancing their competence and confidence. It introduces new, broadly useful skills that they immediately get to apply to the real world. In other words, the group engages in Meaningful Action.

#### **STEP 6: LOOKING BACK AND AHEAD**

While reflection is integral to each step of the process, this final structured reflection step incorporates a larger examination of the whole project. It may also include a celebration. While the students hopefully have a sense of accomplishment, they also have a much better real world understanding of the hard work involved in addressing issues. In many instances, they have met roadblocks, struggled with group dynamics, or had to rush their project because they were running out of time. This reflection process helps the students step back from those pieces, value what they did learn and accomplish, and think about what they might do differently next time.

*The RPM Overlay:* Here a disciplined approach to gaining perspective helps the young people gain an overall understanding rather than dwell on the most recent or vivid aspects of the experience. It gives them a chance to think about the "story" of their project. CAPS sees this in its evaluation results where young people report feeling that they were engaged with others in meaningful activities, developed new skills, felt ownership of their work, and that they had had a real opportunity to make a difference. Furthermore, young people can assess that they have learned, be it civic skills and knowledge or that they have identified local environmental issues, and learned how to collaborate, conduct research, and express their views. They also report increased confidence, efficacy, and belief in the value of long-term solutions to environmental problems (Melchior, 2007).

## **Why Does This Work? Providing Structure to Facilitate Meaningful Action**

From an RPM perspective, the most impressive aspect of the CAPS process is its structure which so aptly supports the 3 participatory strategies outlined at the beginning of this article. By helping the group 1) manage information and build an understanding of its work (Model-Building), the process 2) supports the group in exploring the problem before it starts to solve it (thus promoting Becoming Effective) and, 3) in taking small, deliberate steps that allow the group to explore, experiment, and take corrective action (thus supporting Meaningful Action).

### ***Managing Information***

First, the Earth-Force process requires that the group set criteria for making choices, thus helping the group establish the scope and parameters of its effort. Youth decide what criteria they will use (with input from the facilitator), but then must abide by the resulting decision (or revisit what they missed in terms of setting their criteria). This is one of the most powerful parts of the process and is the basis for group decision-making. The youth have to grapple with why they think an issue is important or interesting or that their project is doable and will result in long-term change. Having criteria gives the group a way to manage the logic of its process. The group has some data behind its assertions (e.g., How serious is the issue and how do we know that?). If the students need to revisit a decision, they know why they made it in the first place. And, they have a finite number of reasons to focus on and talk about as they work towards a group decision.

The process also provides benchmarks the group can use to figure out where it is. Even though the delineation of each step is somewhat artificial, it breaks the group's effort into manageable pieces. Within those pieces, it provides strategies that help the group gather and manage information. Building on its expedition metaphor, each step ends with a "stop and think" box that helps the group assess what it set out to do in that step, whether or not the group got there, what each student learned along the way, and ensures that everyone in the group is ready to proceed. For example, the process ensures that the community inventory is multi-faceted so that youth learn about their community by using at least 2 strategies – be it a walkabout, interviews, newspaper search, and/or reading about what other youth have done. The group has multiple points of view and can talk about issues the youth have been able to actually see, feel, smell, and touch.

CAPS encourages educators to have the students make a timeline or map that visually charts the group's work as a classroom prop. The timeline becomes a colorful, vibrant testimonial of the process, complete with the name of the project, artwork, maps of the neighborhood, pictures, surveys, newspaper articles, lists of people contacted, etc. Sometimes, the students will have to go back and "retrace" their steps if they hit a dead end or realize they need some additional information. The group can use the timeline map to physically figure out where it needs to go.

Furthermore, the structure values participants' input and builds from their knowledge base, which is critical to ensuring their investment. Throughout CAPS, the group decides what information to use and builds from its collective experience. CAPS staff members often think of the process as a



series of funnels, where the group takes in many different pieces of information and then consolidates them. After agreeing on the scope of their investigation, by defining community and the geographical scope of their inventory, the students undertake a wide-ranging information gathering effort. In "Deciding What's Wrong," they consolidate and organize that information. They then take the information, i.e., their issue, and open up their search again to learn more about it in depth. In "Sleuthing," they focus in again as they assess what aspect of the issue they want to address and how. Consequently, the group makes small, incremental decisions that build on each other. A mixture of decision-making and additional information leads to and informs the next decision.

Building on the knowledge base and resources of the group is critical to this incremental accumulation of information – and to the effectiveness of the group's final project. For example, students in one of our summer programs were concerned about the trash and litter in their neighborhood. They wanted to educate the neighbors about recycling, waste reduction, and composting. Through their research, they found out that Denver Recycles had struggled to implement curbside recycling in that area. The youth, as a result of their inventory, knew that many of the residents were non-English speaking immigrants. They also knew (given that many of them were family members), that these residents probably did not understand recycling, and would not have read the materials distributed by the city (even though they were in their native language). The youth decided their best strategy would be to go door to door, explaining the program in English and Spanish. Of the 82 households that didn't recycle, 64 of them filled out cards to sign up for curbside service. The mayor and Keep Denver Beautiful honored the group for their efforts.

In contrast to the resistance one might expect, especially with adolescents, of a group being told what to do, having this structured participatory process can have near-magical results. The students often take on projects that they would have groaned at had an adult suggested the idea. For example, a group wanted to focus on a very unglamorous issue, potholes. The students had decided that the potholes in the streets of their community posed a hazard not only to cars and drivers, but even more so to anyone trying use alternative means: bikes, scooters, walking, strollers, or wheelchairs (and, of course, skateboards). They carefully mapped out the streets in the area and noted the most severe holes and the ones that were in more critical crossing/pedestrian areas. They filmed their own dramatization of what can happen to pedestrians "when potholes attack!" The students presented their information to the city's street maintenance department. The staff was amazed and impressed with the information the youth had gathered and analyzed. They told the group that due to budget constraints, they would not be able to act on all of the suggestions, but that they would use them to help prioritize street repairs.

### ***Exploring the problem before trying to solve it***

The process does a wonderful job of keeping the group off of solutions. While this may sound counterintuitive, our human tendency is to jump to solutions before we have really examined an issue. Much of the problem-solving literature focuses on how to help groups really examine a

problem before deciding how to solve it. With CAPS, the focus for first three steps is on issues and problems, not projects or solutions. The group spends much of its time developing a shared definition of the problem, and ideally, a more complete understanding of it. As a result, the final project design ends up being more resilient, with the youth coming up with a multi-pronged approach to address their issue. The cyclic nature of the process encourages revisiting earlier assumptions and steps. The youth have something to go back to if their project does not look like it is going to work. (This is manifestly obvious when a group has jumped to a project without research, realizes its project is not feasible, and is discouraged because the group feels like it has to go all the way back to the drawing board. If the young people had worked from an issue it had initially explored, they would have had any number of other strategies in place that might help address that issue).

The CAPS program evaluation results further support this. Skill and attitudinal gains are significantly larger for young people in programs that provided longer, more fully implemented program experiences. Students in Earth Force programs of longer duration (18 weeks or more), that provided greater in-class hours (19 hours or more) and completed all six segments in the Earth Force model showed significantly greater gains on attitudinal measures than students in shorter, less intensive, or less fully-implemented Earth Force programs. Likewise, students in programs that provided opportunities to research and discuss their community issue, and programs that allowed students to hear from outside experts also showed significantly greater gains than students in programs that did not include those key features (Melchior, 2007)

#### ***Promoting a Small Wins, "Can Do" Mentality***

The CAPS process implicitly assumes that the group, given some guidance, is capable of and wants to take meaningful action within its community. Earth Force views youth as untapped resources, with energy, creativity, and ideas they want to contribute. It takes some retraining to convince teachers, community residents, and sometimes the students themselves of this. Rather than asking, "Why doesn't the city fix this problem," we want youth to ask, "How are we going to address this?" Instead of deciding what would be a good project for their students to do, we challenge educators to support a process that allows their students to make that choice themselves.

From this vantage point, the role of the adult is as an expert in the process, responsible for bringing the group back to the big picture (e.g., what is our issue?); helping guide information gathering, setting constraints, and ensuring that all the students have a voice. The best adage we have heard from teachers about doing Earth Force for the first time is, "I trusted the process." CAPS also uses more traditional experts to provide technical assistance and to serve as partners. Again, the tables are turned a bit, in that the experts respond to questions the youth have for them, rather than dispense with whatever information they think is important. CAPS works with those experts to understand that the youth do not want to know who "out there" is going to solve the problem for them; rather the experts' job is to help the youth think about how they can begin to address it and how the expert can assist them.

The CAPS process operates out of optimism – looking at what the youth can do and expect they do it. At the same time, the process is realistic, with the group honestly assessing what did and did not work. How CAPS participant students frame success is really important. The tendency of groups, without some guided reflection, is to diminish its accomplishments and to focus on what did not happen. CAPS reinforces the notion that the group's work is part of a bigger picture and bigger effort. The students' contribution is one of many – a small experiment that they share with others. CAPS also ensures that the youth reflect and celebrate both outcomes and what they have learned along the way. As noted above, the CAPS evaluations show greater gains for students who complete all 6 steps – doing the process is as important as the project outcomes (Melchior, 2007). Finally, CAPS works hard to ensure that youth have multiple opportunities to participate in Earth Force, for like many adults, it is unlikely they will “get it” in an optimum fashion on their first try. Ideally, the process becomes second nature in terms of the students' emerging vision of themselves as active environmental stewards and community change agents.

### **Implications for Research**

As advocates of young people, the CAPS leadership wants them to have an understanding of how the world works and how they can have a meaningful impact on it. Both anecdotal and quantitative evidence suggest that service-learning may be uniquely configured to help us accomplish these kinds of outcomes. An RPM perspective supports that conviction. Additional research and application of this framework to service-learning could add even more.

Clearly, the entire CAPS process revolves around helping young people build an internal model of their community and the issue they are addressing. Can we capture how those models develop and change through the duration of a service-learning process? Young people learn and practice skills that help them manage that information and feel increasingly confident about their abilities to be effective and actually do something. Beyond self-reports, it is possible to develop some strategies for assessing how young people actually transfer those skills to other domains.

Finally, service-learning goes beyond just having confidence about taking action – young people are taking action, working on something they feel is important and has a real chance of making a difference. A basic tenet in the service-learning field is that we are cultivating civically-minded individuals -- young people who feel connected and needed, who know they are part of the bigger whole, that they can make a difference and have skills, attitudes, and strategies to do it. However, service-learning research is very weak in documenting these kinds of accomplishments. We need to better understand the long-term impacts of engagement in service-learning on young people's skills, attitudes, and dispositions relative to engaging in the civic life of their communities.

## **AUTHORS**

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