

# Health, Supportive Environments, and the Reasonable Person Model

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The Reasonable Person Model is a conceptual framework that links environmental factors with human behavior. People are more reasonable, cooperative, helpful, and satisfied when the environment supports their basic informational needs. The same environmental supports are important factors in enhancing human health.

We use this framework to identify the informational requirements common to various health-promoting factors that are realizable through well-designed physical environments. Environmental attractors, support of way-finding, and facilitation of social interaction all contribute to the health-relevant themes of community, crime, and mode of transportation. In addition, the nearby natural environment, although often neglected, can serve as a remarkably effective resource. (*Am J Public Health*. 2003;93:1484-1489)

**URBAN ILLS ARE ALL TOO** familiar, as is their capacity to undermine health. The results of numerous studies have increased our understanding of pieces of these problems but have been less effective in drawing attention to their interrelatedness. In this commentary, we suggest a conceptual framework that provides a broader view, embracing domains currently addressed by disparate fields of study. The Reasonable Person Model (RPM) bridges environmental factors and public health domains by focusing on meeting people's informational needs. RPM posits that people are more reasonable—cooperative, helpful, constructive—when the environment satisfies such needs.

Crime, lack of community, and dependence on motorized transportation serve as pertinent examples of rampant urban ills. They have a number of commonalities: clear links to public health, strong social components, and major ties to the built environment. Crime and its associated fears have pervasive and damaging influences on people's well-being and physical activity.<sup>1</sup> Fear of crime has also been an important factor in the flight from the cities and the resulting proliferation of sprawl. At the same time, the residential patterns that have mushroomed across the country in the last half century have reduced the sense of community, leading to social isolation, to "disconnection and fragmentation."<sup>2(p13)</sup> The same development patterns have vastly

increased reliance on motor vehicles, leading to reduced physical activity and numerous other physical health problems.<sup>3,4</sup> These highly interrelated domains of urban and regional planning are thus intimately related to physical, mental, and social well-being.

Does reasonableness have anything do with these urban problems? Clearly, connecting with others requires reasonableness. Many exchanges among people do not fare well; incivility knows all too many forms. It is hardly a big leap to propose that unreasonableness undermines trust among people. However, the RPM addresses more than such social patterns. It also links human behavior with environmental factors. It is useful, then, to explore what qualities encourage people to be more reasonable with each other, with themselves, and with the places they depend upon.

## THE REASONABLE PERSON MODEL

The RPM posits that people are more reasonable when their environment supports their basic informational needs.<sup>5,6</sup> To appreciate the importance of such needs, one must consider the role of information in human evolution. Lacking the speed and strength of other species, humans have depended on their capacity to seek, store, and share information.<sup>7,8</sup> However, at the same time information can be the bane of human functioning.

An overwhelming amount of information, confusing information, and untrustworthy information can all readily threaten reasonableness.

We have organized people's core informational needs into 3 categories. The first, *exploration and understanding*, focuses on the acquisition and comprehension of information, both basic survival mechanisms for our species. The second, *meaningful action*, involves acting effectively based on the information one has. *Restoration*, the third category, deals with maintaining the capacity to focus on, select, and respond appropriately to the information in the environment. The 3 categories are highly interrelated. Meaningful action often requires understanding and invites exploration. Exploration can facilitate restoration. A more restored individual, in turn, can more effectively maneuver in complex settings.

## Exploration and Understanding

Research on preference for outdoor environments, yielding results contrasting strongly with both theory and traditional practice at the time, led to us to propose these tandem concepts.<sup>9</sup> Across numerous studies using scenes of diverse outdoor environments, the single most important factor in predicting preferences turned out to be the content of the scene, and more particularly, the presence of natural elements. Beyond that, we found that 2 content-indepen-

dent predictors played important roles. First, the results showed preferences for scenes that were not confusing and where it seemed possible to wander without getting lost. This component came to be called *understanding*. Secondly, preferences were greatest if the scenes offered the possibility of discovery and learning, and especially the promise of more information as one imagined oneself walking further into the scene. This was called *exploration*.

Although originating from research on landscape preferences, these 2 themes—to make sense of and acquire new information—represent enduring inclinations in many domains. For an information-based animal, survival requires the mental capacity to recognize what is going on and to figure out what might happen next while there is still time to take appropriate action.<sup>10</sup> This requires a high priority on exploration to learn about the environment, while at the same time requiring that the animal not stray far so that it can understand the situation. As a result, humans are eager to explore but quick to retreat to the familiar, leading to a chronic restlessness characteristic of the species.

People want to make sense of what is going on and have a strong aversion to being confused. At the same time, they prefer and benefit from acquiring, at their own pace, information that is relevant to their concerns. Exploration provides a potent means of achieving understanding.

What properties of an environment can help support exploration and understanding?

1. The amount and rate of information should be manageable.

Ideally, the individual has some role in deciding how much and how quickly to explore at any one time.<sup>11</sup>

2. Understanding requires building a cognitive map. This takes time and repeated exposures.<sup>11</sup>

3. In any environment, some things (like landmarks) are important; others (like advertising) may be less so. The bigger, brighter, and more distracting the less important aspects are, the harder it will be to build a mental map of the environment.<sup>11</sup>

### Meaningful Action

The meaningful action component of RPM arose from the compelling findings about the harmful effects of feelings of helplessness,<sup>12,13</sup> along with the misguided notion that control offers an appropriate antidote (for detailed critiques, see references 14 and 15). Essentially, control is an unsatisfactory antidote for several reasons. (1) People only want control in certain circumstances; much more often they do not want the responsibility that comes with control, but rather want things to be *under control*. (2) Control is readily a zero-sum situation—when one party has more control, the other has less. (3) Control is often unrealistic; the forces of nature are typically not under human control. Human efforts to control nature have had many disastrous consequences. By contrast, participation is more realistic, less demanding, and far less likely to be harmful. People often want to be heard and to be a part of the process.

Helplessness has strong parallels to feeling “out of the loop,” being disregarded, not mattering—all qualities that undermine reasonableness. By contrast, opportunities for exercising one’s

effectiveness serve as important examples of meaningful action. By achieving and enhancing competence, being useful to others, and gaining their respect,<sup>16</sup> one is less likely to feel helpless and worthless. Such motivations make good evolutionary sense. Being effective is adaptive; being known for one’s effectiveness helps secure one’s place in the group.

We propose participation as an important corrective to helplessness. Participation responds to people’s strong motivation to be heard, to make a difference, to feel that they are needed.<sup>17</sup> It involves being part of the action, providing input or helping to do something that needs to be done. In the urban context especially, participation can link the individual to both the physical and the social environment,<sup>18</sup> ensuring that the person remains a functioning member of the local community. At the same time, activities that enhance a person’s effectiveness can be health promoting in themselves and increase the likelihood of living in an environment that is compatible with the person’s needs.<sup>19</sup> However, such occasions for participation can be meaningful even if they entail activities a person might not have chosen or find appealing. In his inaugural address in 1994, Detroit mayor Dennis Archer offered no promises, but rather challenged citizens to do their part—to “clean the rubbish from the storm sewer on YOUR street. Pick up the broken glass in YOUR alley. . . .”<sup>20(pA7)</sup> This call for participation was answered by a standing ovation.

### Restoration

The third component of RPM deals with the decline in effec-

tiveness and reasonableness because of mental fatigue. Deficits in understanding and exploration as well as the lack of opportunities for meaningful action can lead to such declines. However, even environments that are supportive in these respects can result in ineffectiveness and irritability if they contain large amounts of distracting information.

Although mental fatigue describes a very familiar phenomenon, it is a misleading label, as the mind per se is not fatigued. Rather it is a particular aspect of mental functioning, more appropriately described as the fatigue of directed attention.<sup>21</sup> Directed-attention fatigue makes it difficult to continue to pay attention to the many complex and competing demands in one’s environment. In addition to irritability, characteristic symptoms of directed-attention fatigue are distractibility, impulsiveness, and impaired capacity to make and follow plans.

In the course of human evolution, directed attention was presumably needed far less than in modern times. A key function of directed attention is to pay attention to things that are important but not inherently interesting. For early humans, most of the things that were important—potential game, potential mates, potential dangers—were also innately interesting (just as they are to modern humans). However, for modern humans many things that are important are not particularly interesting, and many that are interesting (such as commercial advertising) are not important. Thus, directed attention is used far more extensively and is more likely to be fatigued in our contemporary world.

Many of the most effective settings for recovering from directed-attention fatigue involve the natural environment.<sup>22</sup> Such restorative environments are in short supply in many urban contexts. Unfortunately, environments that have the opposite effect are rampant. Transportation offers many examples of settings that can contribute to mental fatigue. Attentional resources are drained by the demands of traffic whizzing by or of navigating jammed highways lined with distracting billboards. Waiting endlessly for a bus in a place that is exposed to constant traffic as well as the elements can make mass transit no less demanding. The very notion of traffic-calming patterns acknowledges the widespread fatiguing influences of our daily means of locomotion. Road rage may be one of the more widely publicized symptoms of the resulting mental fatigue.

## INFORMATION AND THE PHYSICAL ENVIRONMENT

A vast literature links the physical environment to community, crime, and transportation modes. In this section we look at some of the research findings in the context of the RPM. In particular, we take an informational perspective in examining the environmental factors to assess their impacts on human informational needs, and, in turn, on issues of health.

The arrangement of space conveys information that can make environments more interesting and attractive, facilitate way-finding, and enhance opportunities for exchange among individuals. In addition to environmental factors that are based on the way the space is orga-

nized, this section also highlights the particular role played by natural environments. Here it is the content—the trees, water, vegetation—that has strong health impacts.

### Attractions

Gaining understanding generally requires repeated contact. In the neighborhood context, such repetition requires that people get out of their houses and move through their environment, ideally on foot. Exploration is encouraged when there are interesting, diverse, safe, and accessible routes and reasons for being outside. Booth et al.<sup>23</sup> found that among 2300 elderly persons in Australia, physical activity was significantly influenced by the availability of safe footpaths and access to facilities such as a park or recreation center. The importance of esthetic factors, including enjoyable scenery, in encouraging physical activity has been found in studies by King et al.<sup>24</sup> as well as studies reviewed by Humpel et al.<sup>25</sup> Attractive tree-lined sidewalks and functionally useful destinations (such as shops, parks, or a library) can thus contribute to health both by encouraging physical exercise and by fostering community as people become acquainted.

Benefits of having schools within walking distance have been documented in a variety of places. The Ontario Walkability Study,<sup>26</sup> for example, has shown that a vast majority of more than 6000 elementary school-aged children would prefer to walk or bicycle to school. One could easily have assumed that the comfort and convenience of being driven to school would have been their preference. The walk to school

helps children understand their local environment. In a study of 6- and 7-year-old children in 57 schools in England, Lee<sup>27</sup> found that those who walked to school fared better than their peers who were bused, according to a variety of “adjustment” measures including concentration, response to affection, and aggression. Lee interprets this finding in terms of the inability of the bused children to make a comfortable connection between home and school; rather, he suggests, they experience a “semi-permeable barrier” between these 2 environments.

As we have seen, an object, scene, or environment that fosters understanding and exploration is more likely to be preferred. Reactions to efforts by planners during the 1960s to achieve “slum clearance” provide useful evidence of such preferred environments. The intense and persisting grief Fried<sup>28</sup> described after the dislocation of Boston West End residents is clearly based on the loss of their social community; however, at the same time, their deep understanding of the physical structure of the community was also shattered. Similarly, Jacobs<sup>29</sup> perceptive work provides vivid imagery of the attractions and opportunities for exploration offered by sidewalks, multiple alternative routes, and diversity of kinds and ages of structures.

People are attracted to environments that permit exploration and understanding and that offer nature with its restorative properties. Destinations that allow people to carry out meaningful actions, even purposes as simple as obtaining groceries or a library book, are also attractive. Thus, knowing what people pre-

fer<sup>17</sup> is important to each aspect of RPM and more likely to provide settings that encourage active engagement.

### Way-Finding

In the context of his incisive analysis of urban form, Lynch<sup>30</sup> wrote long ago of people’s profound terror of being lost or disoriented. Such fears are by no means restricted to making one’s way in cities. In 1981, Reizenstein and Vaitkus (cited in reference 31, p. 67) reported that when visitors and patients were asked about their sources of stress in the hospital environment, getting lost was highest on the list. Given the many other stresses associated with hospitals, this is all the more remarkable. Fear of being lost, in turn, can reduce the likelihood of exploration.

Exploration depends on way-finding. Way-finding can be assisted by signage and maps; it is also more directly enhanced by the way the environment is structured. Lynch<sup>30</sup> found that some cities were far more supportive of effective way-finding than others. He identified distinctive landmarks as an important factor in reducing the danger of disorientation. Diversity of land-use patterns as well as the styles and ages of buildings also support the ease of finding one’s way. The sameness of many recently built housing developments and shopping strips fail to offer such guidance.

Way-finding can also be strongly impacted by street patterns. In many newer communities, cul-de-sacs reduce automobile traffic but at the cost of discouraging walking and bicycling and making way-finding more difficult. Neotraditional designs have thus returned to the grid pattern. A fascinating

synthesis of the 2 approaches, combining cul-de-sac and loop patterns at a neighborhood scale with a grid pattern at the community scale, offers the promise of supporting both local nonmotorized transportation and way-finding at the larger scale.<sup>32</sup>

### Fellow Humans

The attractions offered by the environment and the environmental patterns that support needs for way-finding strongly impact how people relate to each other. The previously mentioned works by Jacobs<sup>29</sup> and Fried<sup>28</sup> provide classic examples of urban patterns that encourage social bonds. Fried interpreted the enduring grief experienced by the relocated residents of Boston's West End in terms of their loss of social networks that had been formed in a setting that fostered knowing each other. Such networks are less likely to develop where there are no sidewalks, where one sees one's neighborhood only as one drives through it to get to the nearest main road. Duany et al.<sup>33</sup> offer ample imagery of the social consequences that traditional subdivisions have for young people, elderly people, commuters, "soccer moms," poor people, and the surrounding cities. As Engwicht<sup>34</sup> shows, the simple act of reducing vehicular traffic opens the way to a multitude of environmental solutions for creating "vibrant communities."

Interestingly, the anonymity and lack of social bonds attributed to suburbia have also been negative forces in public housing. Pruitt-Igoe, a public housing project in St. Louis, served its tenants so badly that it was ultimately razed to the ground.

The failure of this costly project can be understood in terms of the absence of "defensible space" and "semi-public space."<sup>35,36</sup> These concepts emphasize that community and trust require places where neighbors can meet to become acquainted and where surveillance is easily possible. In apartments for elderly people, for example, the area where residents get their mail can serve these functions. Front porches, a theme that has been revived by new urbanist designers, similarly offer a transitional space that allows information to be exchanged and encourages people to get to know each other.<sup>37</sup> Oldenburg's<sup>38</sup> concept of "third places," such as pubs, drugstores, and cafés, provides a similar example of the way a setting can help create familiarity and hence community.

### Special Role of Nature

The powerful effects of the natural environment are striking because they apply so broadly yet do not require extensive exposure in terms of either time or space. Even the minimal encounters with nature afforded by the view from the window have been shown to be related to health benefits in the context of hospitals<sup>39,40</sup> and prisons,<sup>41,42</sup> as well as the workplace<sup>43</sup> and home environment.<sup>44</sup> In a large-scale, 5-year follow-up cohort study of older people, perceived access to walkable green space was found to predict longevity, even after controlling for age, socioeconomic status, gender, and marital status.<sup>45</sup> Frumkin<sup>46</sup> discusses findings of numerous other studies that document the health benefits of the nearby natural environment.

The work of Kuo and Sullivan has been particularly important in showing the dramatic role played by the availability of vegetation in the context of public housing. In a series of studies they have shown the presence of nearby natural areas to be related to reduced crime, aggression, and violence<sup>47,48</sup> as well as increased civility and neighborliness.<sup>49</sup> As these researchers indicate, the results strongly support the restoration portion of RPM<sup>21</sup>; their careful statistical analyses showed the effect to be attributable to the greater attentional capacity of residents in apartments with natural areas nearby.

Strong preference for nearby natural settings is evidenced not only in many empirical studies but by countless ballot outcomes showing citizens' willingness to be taxed for urban green spaces and for the preservation of nearby farms and forests.<sup>50</sup> Municipalities that offer opportunities for public participation often hear that citizens desire more natural areas and trails. Having natural areas nearby can provide incentives for walking and bicycling; increased pedestrian activity can enhance the likelihood that people will become familiar with each other.<sup>51</sup> Participation in local nature activities can increase the sense of pride in one's community<sup>52</sup> and strengthen urban neighborhoods.<sup>53</sup>

Natural areas have the potential to be both attractive and restorative. They encourage outdoor activities and have the potential for making one's neighbors more reasonable and one's community safer. They can thus enhance exploration and understanding as well as facilitating meaningful action in the form of community participation.

### SMALL THINGS THAT MAKE BIG DIFFERENCES

Recognition of the multifaceted and extensive connections between the public health domain and issues related to land use and planning has been growing,<sup>2,54</sup> with this issue of the *American Journal of Public Health* taking a further step in that direction. However, identifying these connections may not be sufficient for finding workable solutions. We offer the RPM as a way to provide general principles for identifying needed changes by addressing both environmental factors and broad health issues in the context of human informational needs. Although many studies support the appropriateness of such an approach, many opportunities for directly testing this model remain to be explored.

In some ways, what we are proposing may be seen as a radical change; however, the factors we have identified can be implemented in many small and inexpensive steps. Such changes involve making the environment more understandable, creating interesting but reassuring opportunities for exploration, providing settings that offer restorative experiences, and incorporating processes that include people in decisionmaking.

Natural environments can bring a remarkable range of benefits. Preservation and enhancement of small pieces of nature in the urban environment can be achieved at little cost. Incorporating volunteers in these efforts, as has been the case with respect to urban tree planting and natural area maintenance, does much more than reduce the cost. It provides health benefits and opportunities for

meaningful action for the participants and is a source of pride to their community.

The economic perspective, currently dominant in planning, views many environmental changes in terms of amenities, failing to recognize their health implications and significance in terms of less tangible yet far more vital consequences. RPM shifts the emphasis from economics to a concern for meeting human needs. Such an approach can be implemented through numerous small changes that can make big differences. Such changes can offer even greater benefits when they are made by, and not for, communities. Through their participation, community members gain meaning while contributing to their own health and that of their community. ■

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