

重要却被低估的景观功能 ——提升专注力

A SIGNIFICANT BUT UNDER-APPRECIATED BENEFIT OF LANDSCAPE ARCHITECTURE: SUPPORTING PEOPLE'S CAPACITY TO PAY ATTENTION



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收稿时间 RECEIVED DATE: 2015-01-22
中图分类号 / TU986.2 文献标识码 / C

摘要

专注力——即将注意力集中在某一想法或任务上，同时屏蔽大脑中诸多刺激与思绪——是所有人类成就的基础。但是这项能力却是一种有限的资源，我们会在专注过程中变得疲劳而无法集中注意力。科学家们最近发现：接触绿色空间，即便是高密度城市中的绿色空间，也是恢复专注力的一种有效方法。因此，公园、相互连通的绿色廊道、行道树、雨水花园、绿色屋顶、绿色景观墙等绿色空间的功能不止局限于提供生态系统服务，它们还能帮助人们集中注意力，并在保持专注的过程中实现人生活中的目标。这项研究成果意味着我们应该加倍努力在每一扇门前营造出绿色自然环境。

关键词

专注力；修复；精神疲劳；景观设计；绿色基础设施

ABSTRACT

Our capacity to pay attention — to direct our focus toward one idea or task while excluding from our minds a host of competing stimuli and thoughts — is key to every human achievement. But our ability to pay attention is a limited resource, it fatigues with use. Scientists have recently discovered that having contact with green spaces, even in otherwise dense urban settings, is an effective way to restore our ability to focus. Thus, green spaces in the form of parks, interconnected green corridors, street trees, rain gardens, green roofs and green walls do more than provide ecosystem services. They help people concentrate their attention and in doing so, help us achieve our goals in life. One implication of these findings is that we should re-double our efforts to ensure that we provide nature at every doorstep.

KEY WORDS

Attention; Restoration; Mental Fatigue; Landscape Architecture; Green Infrastructure

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1. 现代世界需要我们关注的信息源源不绝。这些无休止的信息洪流影响着我们的注意力。景观设计师能在多大程度上使我们从今天所面对的无尽的信息所带来的精神疲劳中恢复过来？

1. Our modern world requires us to pay attention to a constant stream of information. This relentless torrent of information impacts our ability to pay attention. To what extent can the landscapes we design help people recover from the mental fatigue that results for the unremitting river of information we face today?

一直以来，景观设计师受到的专业教育都是要尊崇设计的生态功能——净化和存储水资源、保持生物多样性、遵循自然规律。然而在以往教育中，甚少涉及景观设计对人类专注力的促进或抑制作用，而专注力却是我们实现美好生活的基石。

专注力是所有人类成就的基础，是解决问题、保持耐力、善于规划的关键，是在社会生活中保持连贯的思路、设定目标、制定并执行任务、监督并调控个人行为、保持高效行动力的必要条件。任何伟大的成就都离不开专注力。

本文提出了两项被许多景观设计师低估的要点。第一，虽然专注力对成功至关重要，但人们很容易感到疲劳。尽管我们所有人都体验过这种精神疲劳，但我们可能并不清楚它对效率的影响。当我们精神疲劳时，便很难集中注意力，记忆力也会下降，容易忽略一些细小的社交线索，更易冲动并草率下结论。

第二，绿色景观能够帮助我们恢复专注力，继而提高各方面的效率。在接下来的章节中，我将介绍景观如何影响我们的专注力，并重点介绍绿色景观在恢复专注力上所发挥的重要作用。文章最后阐述了上述论点设计与规划的启示。

专注力

专注力是我们最强大、最必要的资源

之一。任何做设计提案、制定预算方案、解决复杂设计问题，甚至是做度假计划的人都有过亲身体验：一个人的专注力是有限的，然而这种能力对实现上述这些目标都至关重要。人类有两种接收信息的模式：

非主动性注意力

这种模式简单、不耗费精力、在不知不觉中发生。我们接受某些对象、观点、风景和情境时不需要付出额外的精力。这种模式被称作“非主动性注意力”，关注对象为具有吸引力的事物^[1]，比如看着窗外的鸟觅食、欣赏瀑布的美景、遇到一条野犬等。当你坐在瀑布边，你无需费力便可以注意到它。当你坐在篝火边，也许你自己还没有意识到，就已经被火苗深深吸引了。

许多事物与活动都让人着迷。有些属于软性吸引——例如园艺、观鸟、林中散步。关注这些具有软性吸引力事物的同时，我们可以做其他事情。以园艺为例，它不会占用你全部思绪，你可以一边清除杂草，一边思考其他事情。而另外一些事物或活动是如此吸引你，以至于你会完全被它们吸引而没有能力再去思考别的事情。这就是硬性吸引，包括激烈的竞赛、许多电视节目与电影、向你头顶飞来的物体，以及绝大多数攻击与暴力行为。无论你觉得这篇文章如何有意思，但如果你正在读这一期《景观设计学》时，如果身旁有人在争斗，你需要非常努力才能将注意力集中在阅读上而不是旁边的争斗上。

专注力

这种接受信息的模式需要集中注意力（或专注）。专注需要花费精力。比如说，为了将注意力集中在这篇文章上，你需要从你的意识中排除两种导致分心的事物：其一是周边发生的活动与信息输入（例如背景电视声、孩子打闹声、手机上的新短讯等）；二是你头脑中浮现出的所有思绪。经过一段时间的专注，你会逐渐疲于屏蔽这些干扰，由此专注于手头任务会变得越来越困难。

以上述这种方式集中注意力——即花费精力专注——一段时间后你就会感到精神疲劳，无论这些事是你喜欢且乐意做的，还是你认为辛苦的事。精神疲劳对我们而言再寻常不过，我们生活在一个被信息淹没的工作环境中，而且我们的休闲活动中对信息的接触也不断增多。

精神疲劳可能造成严重的损失。与不疲劳时相比，人们精神疲劳时会更容易犯错、忽略一些细小的社交线索、变得健忘和注意力涣散。他们很可能会发觉：精神疲劳时做出决定需要比平时耗费更多精力，并可能变得易怒。

为什么专注力很重要？原因有二。首先，我们所有的目标都取决于我们的专注能力，从日常琐事（比如按时就餐）到重要的事情（倾听并回应所爱的人的倾诉、提出一项创意设计提案、做一如既往的好父母、为改变世界做一些贡献、充满敬意和友善地待人等）。换言之，专注力对我们实现所有

真正在意之事的基础。

第二，专注力如此重要的原因在于，精神疲劳时我们容易情绪化，这将降低我们的能力，不利于我们实现目标。烦躁不安和冲动都不利于提升竞争力。和精力充沛时相比，人在精神疲劳时明显更难以提出创造性的解决方案，更难以耐心倾听并做出有敬意的回应。

下文中将阐述景观对精神疲劳的影响，无论是积极影响还是消极影响都值得我们思考借鉴。

从精神疲劳中恢复

景观是一种软性吸引，其不仅不需要耗费我们的专注力，还有助于专注力的恢复。著名的景观理论家斯蒂芬和雷切尔·卡普兰认为：绿色景观主要是在不经意间吸引注意力，因此接触绿色景观有助于恢复精神疲劳。^{[1][2]}

现已有许多学者针对绿色景观对注意力的影响进行了研究，并取得了显著成果。置身于绿色景观之中，能持续提升人的专注力。不仅在绿化率较高的环境中，如大森林、小树林^{[3][4]}、乡村^[5]、旷野^[6]、草原^[7]，会有如此的效果，也包括绿色程度一般的环境，如社区公园^{[8][9]}、学校^{[10][11]}和居住区^{[12]-[14]}。

密歇根大学实验室曾做过一项关于专注力的研究，该研究首先对成年人的专注力进行了评估。评估之后要求每个受试者在安娜堡市（一座小型城市）的商业中心，或在密歇根大学植物园（一处树木繁盛的大型绿色景观）散步50分钟。当散步回来后，研究人员对受试者专注能力进行再次评估。一周之后，这些人再次回到实验室，并对他们进

行同样的测试，但上一周在商业中心散步的人这次改在植物园散步，而上一周在植物园散步的人则改在商业中心散步。这次试验取得了令人瞩目的结果：在植物园散步后，参与者的注意力集中程度提高了20%；但在商业中心散步的参与者的专注能力没有任何提高。一个人的专注力提升20%是非同小可的，它相当于临床上使用一剂治疗注意力障碍药物的功效，如利他林、安非他命或右旋苯异丙胺。也就是说，注意力集中程度提高20%是一个巨大的提升，这将对个体的机能表现产生显著影响。

绿色景观对专注力的影响到底是适用于所有人还是只适用于一小部分人呢？科学研究成果表明：不同的人都能因接触绿色空间而获益。研究已经表明：无论是公共住房中的居民、艾滋病携带者、癌症患者，还是在校大学生、草原生态恢复志愿者、大型机构的雇员，在从事对专注力要求较高的任务时，绿色空间与他们的表现呈正相关性。

也许最值得注意的是，研究发现被诊断为注意力缺陷多动障碍（ADHD）的儿童因接触城市公园和住宅附近的其他绿色空间而获益。在一系列的研究中，儿童接触绿色空间都能使其多动症得到缓解^{[13][16][17]}。与前文密歇根大学研究项目类似的研究表明，相比在市中心或住宅附近散步，患有ADHD的儿童在公园散步后，其专注力得到更显著的提高^[17]。

总之，大量证据表明：接触绿色景观——比如在城市公园里散步或眺望学校窗外的绿色空间——将减轻精神疲劳的症状。在各种环境中，对多种人群的测验得出的大量证据均支持这一结论，这无疑对我们如何规划与设计各种尺度的景观具有重要的指导意义。

对景观设计的启示

我们生活在一个信息密集的世界，这个世界要求我们只要醒着，就需要去关注大量的事情。许多人的生活与工作环境都需要他们对信息快速做出反应。这对我们的专注力提出了更高的要求，并导致许多成年人在生活中感到精神疲劳。

景观设计师可以通过为人们创建全天候、多途径接触绿色景观的环境，帮助个体减轻精神疲劳，从而提高生产力。景观设计师可在不同的尺度进行设计，下文列举一些具体的建议：

最大限度地接近自然。我们应努力保护并修复项目内及其周边的自然区域。这方面的一个杰出案例是土人景观设计的贵州省六盘水明湖湿地公园，这个方案不仅修复了水城河的部分水体，还吸引了人们前来公园体验河流景观之静美。

连接起公园等自然区域。美国著名的景观设计师弗雷德里克·劳·奥姆斯特德是美国西部第一位主张将公园等自然区域与绿色基础设施实现相互联接的设计师。一系列相互连接的绿色空间具有多重功能——提高防洪能力、改善水质、为多物种提供栖息地、增加人与自然日常接触的机会。通过将步道与自行车道整合融入这一相互连接的绿色空间，设计师可以创造出更多的人与自然接触的机会。

设计绿色屋顶和绿色景观墙体。在密集的城市环境中，很难通过植树创造绿化程度更高的环境。不过，景观设计师可以通过设计绿色屋顶和绿色景观墙，使人们更接近自然，并增加我们从住宅、学校和办公室欣赏到绿色景致的机会。

景观设计师可以与城市管理者合作，



2. 从窗户观看野生动物或观赏绿色基础设施可以使我们的精神休息，并恢复我们的专注力。
3. 科学研究表明绿色基础设施可以帮助人们从精神疲劳中恢复过来。已有相关研究证明如图中所示的绿地可以增强人的专注力。

2. Watching wildlife or viewing green infrastructure from your window provides rest and restoration for our ability to pay attention.
3. Scientific research demonstrates the power of green infrastructure to help people recover from mental fatigue. Green spaces, such as the one shown here, have been shown to increase a person's ability to pay attention.

研究制定城区树冠覆盖率目标，使所有市民至少在住宅附近拥有最少量的绿色基础设施。最近的研究表明，林冠覆盖率应保持在25%~35%^{[19][20]}。我们也可以与当地政府合作，将未充分利用的地产与公共空间转化为绿色资产，如公园、社区花园、具有吸引力的雨水管理设施等。

结论

一直以来，景观设计师所受的专业教育是创造具有健康生态功能的设计。我们的设计在净化和储存水资源、增加生物多样性、遵循场地的自然规律等方面成绩斐然。但是我们的设计在另一个被景观设计师和公众低估的方面同样做出了贡献：我们创建了帮助人们从精神疲劳中恢复的空间，我们所设计和营造的景观有助于人们实现各种各样的目标和梦想。

拥有健康绿色基础设施的景观，不仅能够净化水体、为动物提供栖息地，还能够使人们更快地从现代社会每天所产生的严重精神疲劳中恢复。

这方面的研究表明，经常接触城市绿色基础设施（例如拥有树木、草地、雨洪花园的场所等），能够帮助人们从精神疲劳中恢复，这对个人、家庭和社区而言有着深远的意义。从有助于恢复精神疲劳的角度看，城市绿地不必追求面积大小或自然原始的面貌，这些绿地必须易达，方便人们从住宅或工作场所前往。通过设计拥有健康绿色基础设施的场所，景观设计师能够帮助人们创造出更健康的社区，人们可以在其中安乐兴旺地生活。**LAF**

A SIGNIFICANT BUT UNDER-APPRECIATED BENEFIT OF LANDSCAPE ARCHITECTURE: SUPPORTING PEOPLE'S CAPACITY TO PAY ATTENTION

Landscape architects are trained to respect and honor the power that our designs have to support ecological functioning — to help clean and store water, support biodiversity, and work in concert with natural cycles. We have considerably less training, however, regarding the ways in which our designs support or inhibit a resource that is fundamental to living a successful life — our capacity to pay attention.

Our ability to pay attention underlies every human achievement. It is fundamental to problem solving, perseverance, and planning. It is necessary to maintain an ongoing train of thought, set goals, initiate and carry out tasks, monitor and regulate one's behavior, and to function effectively in social situations. Nothing great has ever been accomplished without it.

This article makes two points that are under appreciated by many landscape architects. First, although our capacity to pay attention is fundamental to human success, it also fatigues with use. While all of us have all experienced this mental fatigue, we may not be aware of the price it exacts in terms of our effectiveness. When we are mentally fatigued, we have difficulty focusing and concentrating, our memory suffers, we miss subtle social cues, we are more

likely to be impulsive and jump to conclusions.

Second, the landscapes we design can support the process of restoring our ability to focus our attention and thus improve our effectiveness in almost every human endeavor. In the paragraphs that follow, I describe how landscapes impact our capacity to pay attention, focusing on the important role green landscapes have in restoring our attentional functioning. At the end of this article, I consider the implications of these ideas for design and planning.

Attention

Our capacity to pay attention is one of our most powerful and essential resources. As anyone who has ever written a proposal for design services, planned a budget, solved a complex design problem, or even planned a vacation can attest, one's ability to pay attention is not only limited, it is also essential to accomplishing all our goals. Humans have two modes of absorbing information:

Involuntary Attention

The first mode is easy, effortless, and involuntary. Some objects, ideas, landscapes, and situations are effortlessly

engaging and require no work as we take them in. This mode is called involuntary attention and it includes attending to things that are fascinating^[1], such as watching birds eating outside your window, a waterfall, or a wild dog that has just crossed your path. When sitting by the waterfall, you do not make a conscious decision to pay attention to the water. When you sit beside a campfire, you most often find yourself absorbed by the fire before you are aware of it.

There are a host of things and activities that are fascinating for humans. Some of them are softly fascinating — gardening, bird watching, walking in the woods. Attending to softly fascinating things allows you to carry out some task — working in the garden for instance — without filling your head — that is, you can pull weeds and still retain the capacity to think other thoughts. Other objects and activities are so fascinating that they completely absorb you and thus leave no capacity for thinking about something else. This so called hard fascination includes such things as intense competitions, many television programs and movies, an object flying toward your head, and most forms of aggression and violence. No matter how interesting you find this article, if a fight



4. 当景观设计师设计绿色屋顶或绿色校园时，他们往往关注于生态健康和场所的功能问题。但也许同样重要的是，这些绿色场所可以使人们从精神疲劳中恢复，从而有助于他们达成其生活中的目标。



4. When landscape architects design green roof or green school grounds, they contribute to the ecological health and functioning of places. But perhaps just as importantly, they also contribute to the ability of people to achieve their goals in life because these green places help them recover from mental fatigue.

broke out nearby as you are reading this issue of *Landscape Architecture Frontiers*, it would take an extraordinary effort to focus on your reading rather than watching the conflict playing out.

Paying Attention

The second mode of attending to information requires one to pay attention (or to concentrate). Paying attention requires effort. In order to pay attention to this article, for instance, you have to exclude your awareness from two sources of distraction: activities and input from your surrounding environment (for example, the television in the background, the noise from children playing, the new text on your cellphone); and all the thoughts that are running around in your head. After a period of paying attention, your ability to keep these distractions at bay fatigues and it becomes harder and harder to keep your mind on the task at hand.

Concentrating in this way — that is, expending effort to pay attention — for an extended period of time leads to mental fatigue. This is true even for topics that you enjoy and in which you want to engage as well as for topics that are hard work. There is no shortage of opportunities for us to become mentally fatigued. We live within a constant surge

of information at work and, increasingly, in our leisure activities too.

The costs of mental fatigue can be considerable. Individuals who are mentally fatigued are not fatigued. They are more likely to make mistakes, miss subtle social cues, and be forgetful and distracted. They are likely to report that making decisions takes a great deal more effort than usual. They are likely to be irritable.

Why is this important? For two reasons. First, just about everything we seek to accomplish depends on our ability to pay attention. This includes things that range from the mundane (for example, getting to dinner on time), to the critical: responding to a loved one by actually listening, coming up with a creative design solution, being a good and consistent parent, making a difference in the world, treating others with respect and kindness. Put another way, being able to pay attention is fundamental to accomplishing things that we care about.

Second, it is important because people who are mentally fatigued are often in an emotional state that works against their capacity to accomplish their goals. Feeling irritable and impulsive is unlikely to promote competence. Compared to when you are not mentally fatigued, it is significantly more difficult to come up with a creative solution to a problem or to listen with patience

and respond with respect when you are mentally fatigued.

Next, we consider how landscapes impact mental fatigue. There is some bad news and some good news for us to consider.

Recovering from Mental Fatigue

Landscapes that are softly fascinating give our capacity to pay attention a chance to rest and restore. Noted landscape theorists Stephen and Rachel Kaplan suggest that contact with green landscape should assist in the recovery from mental fatigue because green settings draw primarily on involuntary attention.^{[1][2]}

Quite a number of studies have examined the impacts of green landscapes on attention and the outcomes are impressive. Exposure to green landscapes consistently boosts a person's capacity to pay attention. The findings come not only from very green settings such as large and small forests^{[3][4]}, rural areas^[5], wilder settings^[6], and prairies^[7], but also from more modestly green settings such as community parks^{[8][9]}, schools^{[10][11]}, and neighborhoods^{[12]-[14]}.

In one fascinating study, adult's attention was assessed in a University of Michigan laboratory. Following the assessment, each participant was asked to walk for 50 minutes in either downtown Ann Arbor (a small city) or

in the University's arboretum (a large green landscape with many trees). When they returned from their walk, their attention was assessed again. The following week, these individuals came back to the lab and repeated the same activities except those had who originally walked downtown walked in the arboretum and vice versa. The results were compelling. After the walk in the arboretum, participants' attentional performance improved by 20 percent. But no gains in performance were found after the walk downtown. A 20 percent improvement in one's capacity to pay attention is no trivial matter. It is on the order of a clinical dose of attention deficit drugs such as Ritalin, Adderall, or Dexedrine. In other words, a 20 percent increase in attentional performance is a huge increase that will certainly have significant implications for a person's functioning.

Is the impact of green landscapes on attention available to everybody or only a small segment of population? The evidence from scientific studies shows that a wide variety of people benefit from exposure to green spaces. Studies have demonstrated the links between green spaces and higher performance on attentional tasks among public housing residents, AIDS carriers, cancer patients, college students, prairie restoration volunteers, and employees of large organizations.



5. 对人们从精神疲劳中恢复起到最大影响的景观往往都是易达的。人们可以从办公室或住宅中看见，或稍行数步便可到达这些景观。景观设计师如果想帮助大多数人从精神疲劳中得到恢复，需要努力将绿色基础设施延展到每一户家庭的周遭。

5. Landscapes that have the largest impact on helping people recover from mental fatigue are easily accessible. They can be seen from an office or home or are a close walk away. Landscape architects who want to help large numbers of people recover from mental fatigue should work to extend green infrastructure near every doorstep.

Perhaps most strikingly, children diagnosed with attention-deficit hyperactivity disorder (ADHD) have been found to benefit from exposure to urban parks and other green spaces near their homes. In a series of studies, such access has been consistently linked with a reduction in ADHD symptoms^{[13][16][17]}. In findings similar to those in the University of Michigan study describe above, Taylor and Kuo report that children with ADHD concentrated significantly better after the walk in a park than after the walk downtown or in a neighborhood^[17].

In sum, there is considerable evidence to show that exposure to a green landscape — such as a walk in an urban park or a view to a green space outside a school window — will reduce symptoms of mental fatigue. Evidence from a wide variety of settings and a great diversity of populations provides support for this conclusion, which surely has important implications for how we plan and design landscapes at a variety of scales.

Implications for Landscape Architecture

We live in an information intensive world that requires us to pay attention to a great number of things during nearly all our waking hours. Many of us also live and work in settings in

which we are expected to respond to information quickly. Such requirements put great demands on our attention and result in many of us feeling mentally fatigued in our adult lives.

Landscape architects can help individuals reduce their mental fatigue — and thus be more productive — by creating places that provide multiple opportunities throughout the day to have contact with green landscapes. We can work at multiple scales. Here are some specific guidelines:

Maximize access to nature. We should work to preserve and restore natural areas within and around our projects. An outstanding example of this is the Liupanshui Minghu Wetland Park in Guizhou Province designed by Turenscape. Not only does this design restore a portion of the Shuichenghe River, but it also does so in a way that invites people to the site so they can experience the beauty and restorative calm of the river brought by this restoration.

Connect parks and other natural areas. The influential American landscape architect Frederick Law Olmsted was the first western designer to advocate that parks and other natural areas be interconnected with green infrastructure^[18]. A series of interconnected green spaces produce many benefits — from better flood control, improved water quality, and

habitats for a wide variety of species, to increased opportunities for people to connect with nature on a daily basis. By integrating walking and bicycle paths into this system of interconnected green spaces, designers can increase opportunities for people to connect with nature.

Install green roofs and green walls. In dense urban settings, it can be difficult to add trees for creating greener settings. But landscape architects can design green roofs and green walls to bring nature closer to people and increase the chances those citizens have green views from their homes, schools, and offices.

Landscape architects can work with city governors to develop and set urban tree canopy goals so that all citizens have at least a minimum level of green infrastructure close to their homes. Recent researches suggest that tree density should be between 25 to 35 percent^{[19][20]}. We can also work with local managers to convert underutilized properties and common spaces into green assets like parks, community gardens or attractive rainwater management features.

Conclusion

Landscape architects are trained to create designs that support healthy ecological functioning. We do a wonderful job of designing places that help purify and store water, increase biodiversity, and support the natural

rhythms of a place. But our designs also benefit society in another critical way — in a way that has been underappreciated by landscape architects and the public. We create places that help people recover from mental fatigue and in doing so, the landscapes we design and build support people in the achievement of a wide variety of their goals and dreams.

Landscapes with healthy green infrastructure do more than clean water and provide habitat for wildlives. They also quickly recover from high levels of mental fatigue that our modern lives produce on a daily basis.

Researches in this area show that regular contact with urban green infrastructure — places with trees, grass, rain gardens, and the like — helps people recover from mental fatigue and this has far-reaching benefits for individuals, families and communities. These urban green spaces not necessary to be large or pristine to aid recovery from mental fatigue. They must, however, be easily accessible from a person's home or workplace. By designing places with healthy green infrastructure, landscape architects help create healthier communities where people can thrive. **LAF**

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