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Citizen Science as Serious Leisure: Self-Image, Self-Worth in Everyday Life

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Citizen science encompasses both educational activity and scientific activity, with the latter intended as a contribution to advancing a given science. In these both spheres of life, leisure plays a significant role. Nonetheless, it is especially prominent, indeed dominant, in contributory science, where it is evident in the role of its amateurs. These amateurs pursue their interests in all Western societies. They are the principal subject of this article.

The fact that citizen science is leisure needs explaining, not least of all for those who engage in it. For – it is no surprise — the common-sense view of leisure fails to recognize what citizen scientists do:

In contemporary parlance, leisure is synonymous with relaxation and rest. But there is another, older conception of leisure, according to which it is not just time off work but a special form of activity in its own right. Leisure in this sense is that which we do for its own sake, not as a means to something else (Skidelsky and Skidelsky, 2012, p. 165).

Citizen scientists pursue their (scientific) leisure in line with the older conception, but nevertheless must live in daily life with an assortment of people who see leisure through a contemporary common-sense lens.^[1] The common-sense view of leisure is pervasive (Stebbins, 2017), and those whose leisure is of the older conception – referred to in this article in modern terms as “serious leisure” – need some conceptual tools with which to explain and hence defend their interest in a scientific pursuit. The following discussion can also foster the scientist’s understanding of self, of one’s self-worth, of one’s leisure passion seen against all the other (mostly non-serious) activities the vast majority of people do in their free time.

Still, it should be noted, that hobbyist and project-based leisure also have a place in citizen science, though primarily in the area of education. Thus these two along with casual leisure will be discussed here as well, the object being to frame the amateur side of citizen science in the larger world of general serious leisure and its related forms of casual and project-based leisure. The overarching framework tying all this together is known as the serious leisure perspective.

The Serious Leisure Perspective

The serious leisure perspective (SLP) is a theoretic framework that synthesizes three main forms of leisure, showing, at once, their distinctive features, similarities, and

interrelationships (Stebbins, 2007/2015). Those forms are the serious pursuits, casual, and project-based leisure, briefly defined as follows:

- **Serious Pursuits**

- *Serious leisure* is the systematic pursuit of an amateur, hobbyist, or volunteer activity sufficiently substantial, interesting, and fulfilling for the participant to find a (leisure) career there acquiring and expressing a combination of its special skills, knowledge, and experience.

- *Devotee work* is activity in which participants feel a powerful devotion, or strong, positive attachment, to a form of self-enhancing work. In such work the sense of achievement is high and the core activity endowed with such intense appeal that the line between this work and serious leisure is virtually erased (Stebbins, 2004/2014).

- **Casual leisure** is immediately intrinsically rewarding, relatively short-lived pleasurable activity requiring little or no special training to enjoy it. It is fundamentally hedonic, pursued for its significant level of pure enjoyment, or pleasure.

- **Project-based leisure** is a short-term, reasonably complicated, one-off or occasional, though infrequent, innovative undertaking carried out in free time, or time free of disagreeable obligation. Such leisure requires considerable planning, effort, and sometimes skill or knowledge, but is for all that neither serious leisure nor intended to develop into such (Stebbins, 2005)

The SLP offers a classification and explanation of all presently-known leisure activity and experience, as these two are framed in the social, psychological, social, cultural, and historical contexts in which the activity and experience take place. (A diagram of the SLP is presented in www.seriousleisure.net/SLP Diagrams.) That is, so far as

can be determined at present, all leisure (at least in Western society) may be classified according to one of these three forms and their several types and subtypes. More precisely the SLP would seem to offer a classification and explanation of all leisure activity and experience, as these two are framed in the social-psychological, social, cultural, and historical contexts in which the activity and experience take place.

Serious Leisure

We must now add to the foregoing definition. That is, amateurs are distinguished from hobbyists by the fact that the first, because they are found in art, science, sport, and entertainment, have a professional counterpart, whereas the second do not. Some hobbyists, however, have commercial counterparts. The five types of hobbyists are set out in Figure 1. Participants in activities include people who hunt, canoe, gather mushrooms, and observe birds. Hobbyist players of sports and games lack professional counterparts. The liberal arts hobbies are based on self-directed education in an area of life or literature, including science, in general, or one science, in particular. Serious leisure volunteers offer un-coerced, altruistic help either formally or informally with no or, at most, token pay and done to benefit both other people (beyond the volunteer's family) and the volunteer (Stebbins, 2015). The benefit to the volunteer is not, however, extrinsic (eg, privileges, monetary gain) but rather intrinsic (eg, feeling good about helping, gaining and expressing personal skills and knowledge) For example, some amateur scientists routinely volunteer at open houses featuring public displays of their field, as officers in one of its clubs or associations, or as members of organizational committees (eg, recruitment, fund raising, social events).

All serious leisure is further defined by six distinguishing qualities (more fully discussed in Stebbins, 2007/2015). One is the occasional need to *persevere*, such as in learning how to be a capable museum guide. It has been found that

positive feelings about the activity come, to some extent, from sticking with it through thick and thin, from conquering adversity. A second quality is that of finding a *career* in the serious leisure activity, shaped as it is by its own special contingencies, turning points and stages of achievement or involvement. Careers in serious leisure commonly rest on a third quality: significant *personal effort* based on specially acquired knowledge, training, experience, or skill, and, indeed at times, all four. Fourth, several *durable benefits*, or broad outcomes, of serious leisure have so far been identified, mostly from research on amateurs. They are self-development, self-enrichment, self-expression, regeneration or renewal of self, feelings of accomplishment, enhancement of self-image, social interaction and belongingness, and lasting physical products of the activity (eg, a painting, scientific paper, piece of furniture). A further benefit is that of self-gratification, or the combination of superficial enjoyment and deep fulfilment. Of all these benefits, self-fulfillment — realizing, or the fact of having realized, to the fullest one's gifts and character, one's potential — is the most powerful.

A fifth quality of serious leisure is the unique and complex *ethos* that grows up around each instance of it. At the center of this ethos is its special social world in which participants pursue their free-time interests. Unruh (1980) developed the following definition:

A social world must be seen as a unit of social organization which is diffuse and amorphous in character. Generally larger than groups or organizations, social worlds are not necessarily defined by formal boundaries, membership lists, or spatial territory. . . . A social world must be seen as an internally recognizable constellation of actors, organizations, events, and practices which have coalesced into a perceived sphere of interest and involvement for participants. Characteristically, a social world lacks a powerful centralized authority structure and is delimited by . . . effective communication and not territory nor formal group membership.

The sixth quality rests on the preceding five: participants in serious leisure tend to *identify* strongly with their chosen pursuits, as in “I am an amateur botanist” and “I am a contributing ornithologist.”

These six qualities have commonly been used to separate serious leisure from its casual counterpart. This procedure is required when studying a leisure activity for the first time, since it is by no means always evident at first glance whether it is serious, casual or project-based. Moreover, it is often used to separate participants according to their depth and extent of involvement in their pursuit. A comparison of serious and casual leisure along the lines of the six qualities is available in Stebbins (2007/2015).

Among the motives for such free-time involvement for the amateurs as well as for the professionals are the several and diverse personal and social rewards gained from engaging in science. As noted already self-fulfillment is a main personal reward, most evident in science by having achieved excellence in the research area. A main social reward is the sense of contributing through data collection to the advancement of the science. Other personal rewards include the senses of self-achievement (eg, published articles, conference papers), self-enrichment (e.g., being absorbed in astronomical space, in awe of the movements of a bird or animal), and self-expression (eg, ability with a microscope, knowledge of types of mushrooms and their habitat).

Scientific amateurism is rarely theoretic, but rather is commonly centered on describing the phenomenon of interest, usually that observed in the vicinity of the participant's home. Numbering among the physical sciences with lively amateur wings are astronomy, botany, ornithology, meteorology, mineralogy, mycology, and entomology. Amateur participation is comparatively weak in the social sciences, where it is limited primarily to archaeology and history. Scholars working in the interdisciplinary field of leisure studies have conducted

research on amateurs in astronomy (Stebbins, 1981a; 1981b; 1982), ornithology (Ainley, 1980; Scott and Lee, 2010), mycology (Fine, 1987; 1998), archaeology (Stebbins, 1980; 1981a; Taylor, 1995; Geoghegan, 2009), and history (de Groot, 2009; Yakel, 2004).

Typically, amateurs, following their professional counterparts (the occupational devotees), collect scientific data, preferring to publish them alone, with other amateurs, or with professionals. Alternatively, they may send their data to a clearinghouse. Hobbyists are part of the public served by the amateurs and the professionals. Furthermore, the first, as liberal arts enthusiasts, strive for an extensive reading knowledge of their science. Other hobbyists pursue a serious leisure career as photographers of such scientific phenomena as stars, flowers, and various fauna. They remain non-professionals to the extent that their pursuit offers little or no chance of becoming dependent on it as a livelihood. Finally note that, when hobbyist interests take hold at school, the line between educational and amateur citizen science blurs somewhat. A recent example (Komarnicki, 2011) involved a group of university students in medicine, science, and engineering developing a process to monitor toxins in oilsands tailings ponds believed to be cheaper and faster than those currently in use.

Casual Leisure

There are eight types of casual leisure (see Figure 1). The last and newest addition to this typology – pleasurable aerobic activity – refers to the physical activities that require effort sufficient to cause marked increase in respiration and heart rate. Here reference is to “aerobic activity” in the broad sense, to all activity that calls for such effort. Thus the concept includes the routines pursued collectively in (narrowly conceived of) aerobics classes and those pursued individually by way of televised or video-taped programs of aerobics (Stebbins, 2004). Yet, as with its passive and active cousins in entertainment, pleasurable

aerobic activity is, at bottom, casual leisure. That is, to do such activity requires little more than minimal skill, knowledge, or experience.

In the scientific fields casual leisure is sometimes pursued as dabbling, in for example, playfully catching and observing insects in a jar, scanning the night sky with a cheap telescope or pair of binoculars, or watching the actions of the local birds. Keeping fish in an aquarium or birds in a cage qualifies as casual leisure (ie, when only minimal knowledge is needed for this). It occasionally happens, however, that the dabbler's interest deepens, possibly fuelled by a desire to know more about the insects, stars, or birds and to devote more time to being with them. Soon he or she is reading about them and soon this (now) neophyte amateur may start searching for others who share the same interest, as organized, say, in a club or assembled in the same adult education classroom. A commitment to the new passion grows, launching the newcomer on a serious leisure career seen in a growing competence in the core activities and the knowledge needed to carry it out. In sum, entry into citizen science sometimes get its start in hedonic pleasure, inaugurating a process – the serious leisure career – that leads the participant away from it to an array of far deeper and enduring rewards.

Project-Based Leisure

Project-based leisure requires considerable planning, effort, and sometimes skill or knowledge, but for all that is neither serious leisure nor intended by the participant to develop into such.

Whereas systematic exploration may reveal others, two types of project-based leisure have so far been identified: one-off projects and occasional projects.

One-Off Projects

In all these projects people generally use the talents and

knowledge they have at hand, even though for some projects they may seek beforehand certain instructions. This may include reading a book or taking a short course. And some projects may require a modicum of preliminary physical conditioning. Always the goal is to undertake successfully the one-off project and nothing more, and sometimes a small amount of background preparation is necessary for this. It is possible that a survey would show that most project-based leisure is hobbyist in character, while its next most common type is a distinctive kind of volunteering. First, the following hobbyist-like projects have so far been identified:

- Making and tinkering:
 - Interlacing, interlocking, and knot-making from kits
 - Other kit assembly projects (eg, telescope, stereo tuner, craft store projects)
 - Do-it-yourself projects done primarily for fulfillment, though commonly undertaken with minimal skill and knowledge (eg, build a rock wall or a fence, finish a room in the basement, plant a special garden, construct a vivarium). This could turn into an irregular series of such projects, spread over many years. They might even transform the participant into a fully involved hobbyist or amateur.
- Liberal arts:
 - Genealogy (not as ongoing hobby)
 - Tourism: special trip, which is not part of an extensive personal tour program, to visit different parts of a region, a continent, or much of the world. For example, a trip to the Galapagos to view marine life.
- Activity participation: long back-packing trip, canoe

trip; one-off mountain ascent (eg, Fuji, Rainier, Kilimanjaro, African safari),

One-off volunteering projects are also common, though possibly somewhat less so than hobbyist-like projects. And less common than either are the amateur-like projects, which appear to concentrate in the sphere of theater.

- Volunteering
 - Volunteer at a convention or conference, whether local, national, or international in scope.
 - Volunteer at a sporting competition, whether local, national, or international in scope.
 - Volunteer at an arts festival or special scientific exhibition mounted in a museum.
 - Volunteer to help restore human life or wildlife after a natural or human-made disaster caused by, for instance, a hurricane, earthquake, oil spill, or industrial accident.
- Entertainment Theater: produce a skit (a form of sketch) or one-off community pageant; create a puppet show; prepare a home film or a set of videos, slides, or photos; prepare a public talk.

Occasional Projects

Preliminary observation suggests that occasional projects are more likely than their one-off cousins to originate in or be motivated by agreeable obligation. Examples of occasional projects include the sum of the culinary, decorative, or other creative activities undertaken, for example, at home or at work for a religious occasion or someone's birthday. Likewise, national holidays and similar celebrations sometimes inspire individuals to mount occasional projects consisting of an ensemble of inventive elements. Public "star nights" in astronomy, which are usually annual affairs, may also be conceived of in these

terms.

Conclusion: The challenge of Choice

In citizen science the amateur branch vis-à-vis the educational branch is the more problematic, in that amateurs have alternatives. True, amateurs are partly defined by a noticeable commitment to their activity, in this instance to their science. Yet, when circumstances warrant, they are typically free to leave it or cut back the time they spend there. The demands of family and work constitute one such set of circumstances. Physical limitations may also develop, forcing the participant to the sidelines or into a non-scientific role like volunteering. Consider the ornithologists and mycologists who lose their mobility because of arthritis or the botanist who develops an allergy to certain pollens. Furthermore, in all the serious pursuits, it is possible to reach saturation, to have gained as high a level of fulfillment from the activity that the participant believes possible (Stebbins, 2008). Faced with this realization he or she may conclude that it is time to move on to another leisure passion.

Most people have serious leisure alternatives or, if they prefer, leisure projects to which they may turn. Those alternatives may include volunteer work for the science. But the point to be made here is that the science amateur, unlike the classroom student, is in principle a somewhat more inconstant participant in science. Students going on a field trip in a school science class to examine, for example, local stratigraphic formations as an instance of educational citizen science have no real choice but to participate. Yet in this situation there are those among them with a deep interest in the subject impatiently waiting for the trip to begin. In fact, even professional scientists are not usually chained to their specialties, many of them being able, for example, to head into university or research-center administration, take up a different branch of their science, or devote significantly more time to teaching and less to research.

Science, both amateur and professional, has a profound inherent appeal for those who pursue it. Abandonment fired by declining interest is the exception not the rule. Nevertheless, in our efforts to encourage citizen science, we must also take account of this possibility. At bottom, it is a critical issue of recruitment to and retention of amateurs in this highly interesting area of life.

Endnote

[1] The older conception got its start with the thoughts of Aristotle, which have been with us ever since.

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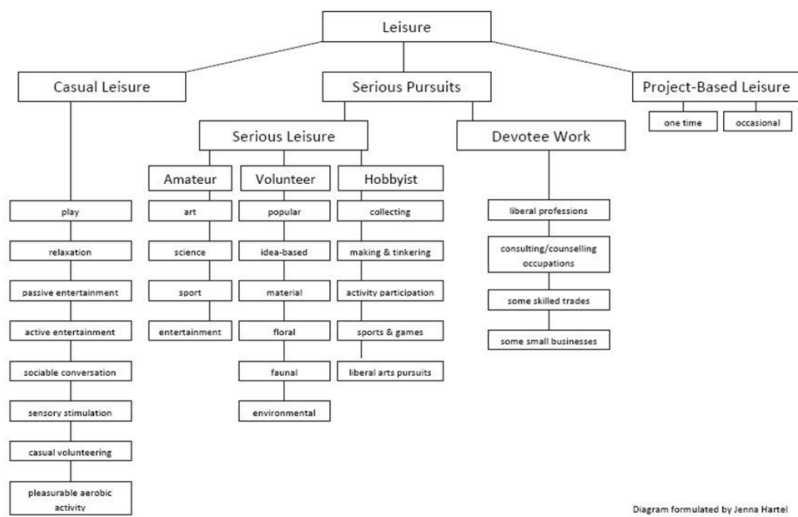


Diagram formulated by Jenna Hartel

Types explained in:

Stebbins (2007/2015). *Serious Leisure*, pp. 6-10, 38-39, 45-47

Stebbins (2007). "Leisure Reflections . . . No. 16" (volunteering)

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On "Obligation and Volunteering in the Non-European Sense "