Spontaneous but Long-lasting Online Communities — A Case Study

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Abstract

I outline a few of the challenges to long-term sustained communities, particularly between people who seldom or never meet face-to-face, and use the **xkcd** forum discussion group for the **xkcd** #1190 "Time" comic as an example.

This paper represents the ideas I had prepared to bring to a group discussion session during the conference *Towards a Sustainable Online Community* at The Bochum University of Applied Sciences, on the 12th and 13th February 2015. I was to "lead" the session by video-conference link, with everyone else encouraged to speak up either audibly or by sending tweets.

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1 Introduction

These ideas are similar to many that you have heard, and will hear, in this conference.

I want to encourage everyone to make additions, comments, and corrections, to any and all points in my talk. For this purpose, I have provided a full outline at `mrob.com/time/sustain` and encourage you to send a tweet containing **@mrob_27** (note the underscore) if you wish to provide comments silently.

I will begin with a few ideas to provide a background: how I define "sustainability", some challenges I see to the particular type of sustainability we are concerned with here.

Most of my talk will summarise the history of the xkcd 1190 "Time" thread, and its community, as I experienced it. My perceptions suggest many questions. I suspect some of these could be answered immediately by sociologists, while others will be open problems for quite some time.

As I am not a sociologist, I intend only to raise questions, and omit a conclusion, but suggest further research.

2 Background — Challenges to Sustainability

An old and often-repeated expectation associated with the Internet was the promise of "bringing the world together", but this does not appear to have happened in the ways that a person my age might have hoped as a child. One could say that when viewing the actual Internet and its consequences, I am "disappointed".

Since I can easily find many other people with precisely the same interests and opinions, I could limit my social interaction to only those sorts of people. The Internet enables this behaviour, and this has been related to political polarisation, for similar reasons as in older theories concerning the increased availability of older media (television, radio, newspapers, pamphlets, etc.). The fear is that media offering many very narrowly-focused points of view encourage people to only interact with, or listen to, those with whom they agree. For example, at [29] is a study of politically liberal and conservative people in the United States, and includes broadcast and Internet media. Those who wish to, can find quite a bit of evidence to support a *correlation* between the availability of niche communities and political polarisation — but there are many other things going on.

If we merely observe the correlation, we might hypothesise one "disappointment" of the Internet — there are evidently very few communities of diverse opinion, as compared to the large number

of communities of highly-aligned and narrow opinion. Is it also true that such diverse communities are unsustainable?

If most Internet communities draw their membership from a small fraction of available participants, other "disappointments" are suggested: ghetto culture (in which a group's ideas are limited by a relatively small population and lack of intercultural exchange); balkanisation (in which different groups, isolated from each other, find their ideas and ways of expression are so highly contrasted that it is hard to communicate, agree or interoperate); inefficiency or underutilisation of talent (a society comprised of "narrow" groups each lacking diversity may be unable to complete projects that require diverse specialised labour).

As with earlier media, the Internet facilitates the distribution of politically volatile propaganda. As cinema and radio were used in the spread of communism nearly 100 years ago, the Internet has been used by al-Qaida and ISIL (*Islamischer Staat*). I will just mention that these modern groups disapprove of the ways the Internet has spread the ideas and culture they do not like, and I suggest that no matter what your political views, you can probably find some other views that you highly disapprove of. Therefore, to the extent that the Internet enables those ideas to be spread, the Internet would be "disappointing".

In the early history of the xkcd 1190 "Time" thread, which we will get to next, it was suggested that most any Internet discussion group "ultimately devolves to flame wars". This opinion reflects another disappointment of the Internet, held by many if not all, i.e. that communities cannot be sustained over the long term. This belief took hold fairly early in the history of whole-society Internet access, for example in Lackaff [2] you will find a summary of the experience of 1980s BBS "WELL" founder Howard Rheingold, and a statement that (in Lackaff's words) *"Now that membership in many online communities is no longer limited to an elite, idealistic subset of the general population, it seems that a community needs more than love to meet both of Rheingold's ideals: diversity and freedom of expression."* Modern versions of this "inevitability of flames" theory seem to profess that *any* community, no matter how narrowly-focused (see xkcd 1095 [7]), will end in flames — so perhaps the element of diversity *vs.* homogeneity is only a minor factor.

I must also mention the more mainstream and commonly-discussed type of "sustainability" we aspire to: ensuring the long-term viability of our planet as a physical environment for life, including humans. Much advancement of human culture has come about through communities that were, and still are, maintained through the frequent and expensive travel of their members to common meeting-spots (a phenomenon that is much more pronounced in my own country). These communities include businesses, schools, sport and other recreational organisations, religious groups, the international academic research community, and so on. For example, in the United States most employed persons travel much farther, on a daily basis, than was common or even possible 150 years ago. In the future we need an economy that is fully carbon-neutral if not carbon-negative. Many of the communities that now depend on travel will need to reduce their carbon footprint, and remote interaction through the Internet is an obvious path towards that goal — but we need to address "disappointments" like those I just described for that to be a realistic possibility. Thus, though the environmental type of sustainability is commonly viewed as more urgent and important than the sociological type, I would argue that the two go hand-in-hand.

3 The "OTT" as a Case Study

3.1 Establishment

A community using the name "OTT" (*"One True Thread"*) is centered around the users of a single thread [9] in the discussion forum [5] of the webcomic **xkcd** [3]. The community generally self-identifies as being spontaneous in origin, long-lasting, diverse, and for the most part free of "flames" and "trolling" without the need for active moderation. Their entire history is thoroughly

documented, in original words, by the forum itself which serves as a permanent, public archive. The OTT therefore makes an ideal case study for this discussion.

The **xkcd** fora are controlled (and funded) directly by **xkcd** itself, and tend to be used primarily by **xkcd** readers. As a little research will quickly reveal, the **xkcd** webcomic is eclectic but tends to be focused on various "hard sciences" (with emphasis perhaps on computer science and mathematics) and popular culture (with notable emphasis on Internet-related things). The users of the fora are thus of diverse background, having little in common apart from knowledge of **xkcd**, Internet access, and fluency in the English language.

Each **xkcd** strip gets its own discussion topic. Comic #1190 "Time" [8] (hereafter called simply *Time*) was published beginning on the 25th March 2013, a Monday. (In this paper, when necessary I will use the United States Eastern Standard time zone, UTC-05:00, because it is the time zone of **xkcd** author Randall Munroe, and also my own personal time zone.)

Unlike all previous **xkcd** comics, *Time* was configured through a variety of technical measures to change every half-hour for the first five days (120 hours), automatically displaying a new "frame" at precisely 00m00s and 30m00s past the hour in any JavaScript-enabled browser, simultaneously everywhere in the world. It was also arranged in such a way that no past frames could be viewed unless users took some action to preserve either the frame images themselves or links to their static URLs on the image servers; these image URLs were intentionally obfuscated through a double-redirect and the use of seemingly-random strings. The content [12] was otherwise unremarkable (by **xkcd** standards) during this initial five-day period.

As the discussion in the OTT reveals, many **xkcd** fans remained in contact with the Internet for a substantially greater fraction of the day than would have been typical for them, specifically for the purpose of seeing the next frame(s) of *Time*. Though the comic up to that point contained very little dialogue, humour, social commentary, etc., the OTT discussion included much speculation (largely humourous in nature, but also largely serious) about what was *about* to happen next. Objectively, there was very little concrete subject matter to sustain an ongoing 24-hour-per-day conversation, but the OTT nevertheless added approximately 25 posts per hour during the first 48 hours [23] and 50 per hour after that (when there was a new **xkcd** strip, #1191, to attract the attention of anyone wishing merely to learn about whatever was on the `xkcd.com` front page). Thus, the "core members" of the OTT (which I define as those forum members posting messages to the thread at least once per day), were by self-selection comprised of 1) **xkcd** fans who were 2) interested in staying around to view the next frame, who were 3) prone to wild speculation and other types of creative thought, and who 4) wished to communicate with others fulfilling these criteria.

3.2   The Transitions of the Fifth Day

As the frame number of *Time* reached the low 200's, an annual **xkcd** fora tradition called "Mod Madness" began. During Mod Madness, many common words are automatically changed by the forum software, so that, for example, a post containing the words *What do you think they would have a trebuchet for?* is altered to instead read *hwæt do eow reckon they woll-did have a ballistae for?*. This tradition, ostensibly a chance for the forum moderators to let off steam, often results in strife and drives some of the "more serious" participants away permanently. Possibly as a warning about these effects, the Madness announcement [13] very clearly stated, using a JPG image to prevent the message itself from being altered, *"If you can't possibly tolerate your VERY IMPORTANT DISCUSSIONS on a webcomic forum being momentarily disrupted, I suggest taking this opportunity to go outside, take a walk, ..."* and continued with other intentionally satirical suggestions of what an annoyed participant might do.

The Madness began during *Time* frame 192 [21], at 11:30 PM on Thursday the 28th March, and grew in effect as word-filters were steadily added. One filter in particular made it impossible

for the **xkcd** forum to be used for announcement of permanent links to past frames of *Time*. Possibly for this reason, and at Munroe's request [26], 11 hours later the senior forum moderator made a special change affecting only the OTT [14]. From that point onward, only the contents of quoted text (i.e. text from an earlier forum message contained within a later forum message) were altered by the word-filters (and only because the forum software could not distinguish such text from an author's original typing). The Madness ended entirely at *Time* frame 309, 8:00 PM on the following Monday (only coincidentally April Fool's day), and also at that time, all automatically-altered text in earlier posts reverted to original form.

It is to be noted that the Madness affected the OTT less than if it had continued in full for the entire 4 days. One could hypothesise that the OTT's collective behaviour was influenced by this "special treatment", but it seems [27] that OTT members did not perceive it as special treatment at the time.

The Madness coincided with a weekend, which also brought a demographic change in forum participation — many participants who mainly access the Internet during the week (perhaps from work or school) were temporarily less active, whilst others who only access the Internet on weekends became more active.

The Madness also coincided with the slowing-down of the *Time* frames, from two frames per hour to one per hour, an event that happened at the end of the day (midnight) on Friday. With a slower frame-rate, there was even less in the *Time* comic that one could discuss. Any participants who were waiting for the next frame (perhaps staying late at work or staying up late at home) necessarily had to wait twice as long before having the chance to see the next bit of the comic.

Any three of these events (the Madness, the demographic change of the first weekend, and the slowing of the *Time* frames), or any combination of these events, could have had an effect on the OTT membership, or on its "culture" as reflected in the tone and content of discussion. The only thing that is clear is that, by definition, anyone who continued to participate in the OTT through these events must have been "compatible" with, or at least minimally tolerant, of the events and their effects. Perhaps these events served to "immunise" the community during its critical formative first several days by ensuring that the membership self-selected itself towards more tolerant attitudes. It is to be noted that some OTT members did leave the forum, but returned after the Madness ended; these persons could be considered demonstrably "tolerant" in that their absence was temporary.

3.3 A Puzzle-Solving Culture and Specialisation

Time continued for months. Though the initial frenetic pace of OTT posting slowed down somewhat, participation was high enough (and sufficiently timezone-agnostic) to keep the thread active continuously for the entire four months.

The story presented in *Time* became gradually more confusing, with dialogue [11] and events that had no clear explanation, suggesting a long story of the mystery genre. As the characters in *Time* began to move [18] it became possible for people knowledgable in specific fields (including geology, botany, zoology, astronomy, and linguistics) to lend their expertise to help solve the mysteries. Those with computer skills created *Time* viewers, animated GIFs, and other resources to make it easier to review the story so far. Literary analysis was used [19] to predict how long *Time* would last. Most of this was shared only through the OTT, though some was also available elsewhere (such as the explain xkcd wiki [6], [10]).

As in many fan subcultures, the OTT originated inside jokes, *Time*-related jargon, "filk" songs, poetry, fan art [16], and so on. Though not directly required for appreciation of *Time*, this creative work became part of an increasingly diverse and complex OTT culture. Through the provision of tangible directly-related contributions such as geology expertise, or through artistic expression, many OTT members were able to contribute something personal, specific, and objectively useful.

All evolving communities specialise; perhaps most relevant to the present discussion is the OTT's self-moderation. Though the **xkcd** fora are moderated, little or no active moderation was needed in the *Time* thread: moderators read the thread but did not comment or intervene. This is particularly remarkable given the *Time* thread's volume — with 50748 posts out of a fora total of 120945, the OTT comprised 42% of all **xkcd** fora activity [23] during the 124-day period of *Time*, and was responsible for 65% of file attachments (mostly images) during the same period [24].

Self-moderation was provided by OTT members making explicit advisory statements [20], and by a culture of universal tolerance. For an example of the latter, when a member would ask if his/her contributions were appreciated, the reply was almost always to the effect that "if people like your posts they probably won't say anything, and if people do not like your posts they probably won't say anything". This was not the result of general apathy, but from a collective shared philosophy of aesthetic relativism, and conscious effort towards universal acceptance supported by a *"ha-ha-only-serious"* aversion to consensus.

3.4   The Transitions of the Fifth Month

Most forum threads concerning individual **xkcd** comics last only a day or two past the publication of the comic itself. Such was not the case with the OTT. Though *Time* left a few unanswered questions after its frames had all been revealed, the OTT's original purpose was clearly almost moot; but there was by that time a very strong sense of affinity and desire for continuation; the OTT was now a significant social outlet for many core members.

The OTT gave much time and attention to anticipating and preparing for this transition. As expected, OTT membership and message-posting activity declined dramatically [23]. If smaller community size is a contributor to stability (as suggested by "Dunbar's number" [1]), this may represent a transition towards greater long-term stability for the OTT; there was also some membership turnover. New members, including this author, became active and cited the now-slower rate as a reason for prior non-participation. Others joined simply because they had just discovered the OTT.

It was decided, more or less by default and without debate, that the OTT would continue and expand its creative (art / music / fanfiction) activities. Mashups of *Time* with other **xkcd** comics and works by other artists, called "OTTifications", became popular [17], and other creative works included **Sandcastle Builder**, a videogame based on **Cookie Clicker** that soon had a fanbase far outnumbering the OTT[25], [30]. Several *Time*-like sequels, with a similar slow time-released frame-by-frame format, were created and one is currently ongoing.

3.5   The State of the OTT at Initial Publication

At the initial writing of this paper, the OTT had survived an additional 17 months, including the arguably far tougher *Gottesurteil* of Mod Madness 2014. The OTT's survival through the three transitive forces (end of *Time*, diminution and turnover of membership, and realignment of its "mission and purpose") of the 5th month demonstrated that the OTT had matured into a self-sufficient sustainable community prior to that time. The period of greatest interest, therefore, was that discussed in section 3.3 above.

As mentioned in the abstract, the OTT organised and executed a two-day workshop at Bochum, out of which the following points were made (and originally given in an appendix in this paper's online version).

3.5.1   The OTT as an "Accidental Outlaw" Thread

During "Mod Madness 2015" some of the moderators of the **xkcd** fora discussed their perspective on the OTT. It is now clear that, due to the extremely high volume of the OTT, moderators were

unable to keep up with it, and had to "skim" just for the more egregious violations (spam, racist or similarly offensive speech, etc.). They did not do much to try to regulate the OTT's scope of discussion topics to things that are tangibly, provably related to *Time* (a "keep on topic" policy that is one of the forum rules and usually enforced). As a result, the OTT drifted further and further from the narrowly-defined standard [31] that Individual Comic threads are normally held to. After some time, the moderators realised there was a significant, defined, and closely-aligned community within that thread and it was too late to try to break the discussion up into separate threads [31]. The OTT was allowed to continue "breaking the rules" of the **xkcd** fora in this regard. This is significant both as a possible formative influence, and a possible endorsement of "hands-off" moderation doctrine for formation of sustainable online communities.

3.5.2 OTT Mirrors and Backups

For section 3.3: Another service provided by the computer specialists was to "mirror" the OTT's posts, thereby insuring against failure or loss of the **xkcd** fora website itself. This was deemed necessary because of occasional **xkcd** server failures, and an unpleasant and frightening experience during "Mod Madness 2014".

3.6 The Challenges of the Seventh Year

The seventh year of the OTT social experiment started with the OTT's 6th anniversary in the spring of 2019. By this time the community had diminished somewhat in active membership, though the vast majority of members that had been active at the end of the 2nd year remained connected via occasional visits to tell the still-active members that they're still alive and well. The community was actively creating two ongoing works (*BSTA* and *phys*) both of exceptional quality, and generating side-discussions in the familiar way. Two major challenges ensued, one anticipated and the other unexpected, and either could be seen as an existential threat.

The anticipated challenge was also the greater existential threat: the sudden disappearance of the **xkcd** fora without warning. This happened at the end of August 2019, when the fora were taken down to address a security breach. OTT members were left to their own individual ability to find an alternative means of communication, or to remember the alternatives that had been set up in advance expressly for this purpose. Some were able to reach out to each other through shared side-channels (email, a Facebook group, the OTTercon registration list, etc.) and others needed to resort to blind searching (e.g. searching the entire web for "xkcd Time discussion group" or similar which alone is not enough [32]).

The unexpected challenge came with the COVID-19 global pandemic. Though the time of global crisis, online communities were the best way for much of the world's population to remain connected. However many such communities could be too weakly connected to withstand the forces of anxiety, emotional stress, etc.

4 Speculation

This paper is full of questions, and has no conclusion. As I mentioned in the introduction, a lot of potential hypotheses are suggested by the details of the OTT's evolution and "transitions" as I have described them. Some will be easy to refute while others will remain mysterious for many years.

There are other Internet communities that have had an experience of long-term viability and harmony, of a quality similar to that of the OTT. One [4] is even familiar to an OTT member [28]. One could form hypotheses based on which of the OTT's "transitions" have (or do not have) analogues in the formative histories of these other communities.

Examples may be rare and few. I will simply say that any amount of learning we can derive from the experiences of these communities could lead to benefits for Humanity that far outweigh the research costs.

References

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[3] Randall Munroe, *xkcd : A webcomic of romance, sarcasm, math, and language.*, online comic strip ("webcomic"). `http://xkcd.com/`

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[7] Randall Munroe, *Crazy Straws* (web comic), xkcd #1095. `http://xkcd.com/1095`

[8] Randall Munroe, *Time* (web comic in the form of a time-lapse animation), 25th March through 26th July 2013. Originally at `http://xkcd.com/1190`. To experience the comic in real time use `http://mrob.com/time/replay` between the 25th March and the 26th July of any year; at any time the site also allows quick playback and arbitrary browsing.

[9] **xkcd** online forum, *1190 "Time"*, online discussion thread at `http://fora.xkcd.com/viewtopic.php?f=7&t=101043`

[10] explain xkcd, *Talk:1190: Time* (discussion of *Time*) `http://explainxkcd.com/wiki/index.php/Talk:1190:_Time`

[11] Randall Munroe, *Time* (dialogue only) `http://mrob.com/time/dialogue.html`

[12] Randall Munroe, **xkcd** 1190 "Time" frame 0027 (by the mscha numbering), `http://mrob.com/time/replay#0027`

[13] **xkcd** online forum, THE MADNESS COMES (original thread title, later changed to "THE MADNESS GOES") `http://forums.xkcd.com/viewtopic.php?f=54&t=101106`

[14] **xkcd** forum member "**gmalivuk**", Re: THE MADNESS GOES (describing the moderators' special treatment of the "Time" thread, i.e. OTT) `http://fora.xkcd.com/viewtopic.php?p=3315282#p3315282`

[15] OTT forum member "**mscha**", xkcd Timeframes. (A listing of the frames of the *Time* comic, with original post time, 256-bit "hash", and altered frame images where applicable) `http://xkcd.mscha.org/`

[16] xkcd Time Wiki (a wikia site), Time Artwork (202 works of OTT-related fan art, when accessed 2015 Feb 10) 2013-2015 `http://xkcd-time.wikia.com/wiki/Time_Artwork`

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[29] Amy Mitchell, et al., (at Pew Research Center), Political Polarization & Media Habits (web article), 2014 Oct 21. Available at `http://www.journalism.org/2014/10/21/political-polarization-media-habits/`

[30] Justin Davis (writing for IGN), The inside story of the most incredible video game no one has played. `http://www.ign.com/articles/2015/01/07/the-inside-story-of-the-most-incredible-video-ga`

[31] *I know there are specific posts on the* **xkcd** *fora to use as a citation here, but will need a bit more time to locate the specific post(s). If interested, contact the author via links at the bottom of* **mrob.com**.

[32] In early 2020 a Google search for *xkcd Time discussion group* yields five broken links (to the downed fora server itself), a few pages about *Time* in general, and a link to the Wiki (on Fandom formerly known as Wikia), which in turn has a link to the working mirror.