

## Introduction

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Pace Yourself is an online community focused on creating a social fabric to tie together runners of from around world. Central to the community lies a competitive ladder system that is intended to motivate, engage, and inspire member commitment and community participation while nurturing a desire to reach one's goals. However, the beating heart of the Pace Yourself community is interpersonal, social connection. Members can make friends, both on and offline, with others who share similar goals and lifestyles, as well as get informed on and discuss a plethora of topics ranging from but not limited to running technique, gear, and training to real life races and events of all types.

## Community Goals

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Pace Yourself was designed with specific goals in mind because, as Kraut and Resnick claim, "Providing participants with experiences that meet their motivations for participating in the community increases their needs-based commitment to the community" [8]. Each of the following goals will be listed in this section with elaborations to follow.

- Encourage and motivate members to become better, stronger runners and achieve personal running goals by developing community commitment through competition.
- Encourage and motivate members to become better, stronger runners and achieve personal running goals through social community and friendship.
- Foster commitment to the community through a badge-system and tiered-privileges.
- Empower members to make better, more informed decisions on all topics related to, but not limited to, running.
- Establish a safe, trustworthy environment where members feel safe to share and interact with other members.
- Provide a mechanism where users can connect with others outside of the social computing community through local meetups and real-world races.

A community without focus can drive members away, especially in a community where people will have a strong identity-based commitment [8]. Therefore, these goals were intentionally focused on a common theme, running.

## Achieving Goals Through Competition

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Nearly every person who runs consistently does so for some specific reason with some specific goals in mind. Personal goals will vary, but examples could be to increase one's overall health and fitness ability, to lose weight or control one's weight, to perform better in a competition, or something else entirely. The bottom line is running is physically and mentally challenging, and consistent training requires significant commitment. This commitment to training overlaps with the need to keep members committed to the Pace Yourself community. If people are not running, then they will have little need to maintain an active membership in the social network of runners.

In the Pace Yourself community, community commitment is fostered through multiple avenues. One of these paths is competition among members through the competitive ladder which serves to set specific and challenging goals, something that has been shown to increase commitment to a community [8]. This competitive ladder is modeled around a system common to many different genres, like the ELO rating system of Chess, used by Chess.com or Lichess for example. In an analysis of the online community, Stall Catchers, the author found that the addition of a scoreboard helped tap into the members' competitive instincts, which increased not only commitment, but contribution as well for many users [7]. With that same intention, Pace Yourself will use an algorithm to scores the runs, which are confirmed using GPS, based on distance, time, and elevation gained, and a leaderboard will be displayed prominently in the community.

The competitive Pace Yourself leagues are intended to attract community members with various goals. Thus, when members first join the community, they are asked to follow a series of steps to define their running goals. From here, one or more ladder leagues will be recommended. Some may wish to race only other mothers with strollers or wish to race people within a certain age group. Some may wish to race in the open league and others may be interested in the treadmill or teams league. Ultimately, the intent is to align a league with a member's specific goals, as this alignment can lead to enhanced community commitment as well as helping members achieve their personal running goals.

Consider the following use-case scenario:

Steve Wang logs onto Pace Yourself and checks his goals. He has been running for three years and is preparing to run his tenth 10k race in two weeks, but he is feeling tired and short on motivation this morning. He has set running goals for weekly distance and pace, and halfway through the week, he is slightly short of his goals. Steve is a member of the men's league for ages 30-40 and is currently in a weekly challenge with another member, Speedster126. Speedster126 is slightly ahead of Steve in their challenge and Steve knows that if he does not push himself to train today, he will fall even further behind in the competition. He decides to add a post to his timeline, stating that he is feeling exhausted but will be going running anyway. Then, Steve gets his GPS watch and his running shoes and heads out to complete his run, helping him achieve his goals. Later that day, feeling proud of himself for not giving in, he logs back into the community and sees messages from his friends congratulating him for the effort he put forth, further motivating Steve to pursue his goals the next day.

This scenario shows an immersive experience that a competitive ladder can provide, which along with clear goals, feedback and challenges that push people to their limits. Something that has been shown to be intrinsically motivating [8].

### Achieving Goals Through Community Relationships

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For most, running is a solitary experience. People lace up and pound the pavement alone, with or without headphones, sometimes for hours at a time. Then, when they finish their run, they may have little or no support system. This could be because they live alone, know few or no other runners well enough to discuss their goals and progress, or because many people are not interested in hearing about

someone else's run for any number of reasons. Yet, this experience of isolation does not have to be, as Pace Yourself can be the social connection connecting the solitary runners.

Pace Yourself is designed to serve members who self-identify as runners and motivate other who wish to become runners themselves. While this mutual identity will foster some camaraderie among members, it is important to offer pathways for members to connect with others who share additional similarities.

Research has shown that "People are more willing to contribute in an online group when the group is small rather than large" [8]. This makes sense on an intuitive level, as most people feel more comfortable speaking to a small group rather than a large group. Moreover, it will be quite difficult to get to know people when the pool of members is so large, and it is possible to enhance bonds-based commitment through mechanisms that bring the same people together again and again [8]. So, the question that arises is how to divide up the large, overall community into smaller groups to foster these repeated connections and drive contribution.

Pace Yourself will take a cue from the successful design of other online communities such as Reddit, Quora, and Discord, and divide Pace Yourself into named subgroups to increase community commitment both to the subgroups and the community as whole [8]. These subgroups will be divided into two main classes. First, are the groups focused on a specific area, such as running shoe reviews, ultra-runners, or running with strollers. These divisions will keep conversations focused and it will be up to member moderators to enforce the rules within these subgroups which distributes the workload. The second class of groups will be running teams. These teams can be competitive in the ladder system if they choose, which will create rivalries with outgroups, something shown to increase identify-based commitment [8]. It will be up to the members of the teams themselves if they wish to interact within the confines of the online community only, or meet in person for training, relays, or social interaction.

Subgroups alone are not enough to foster the positive experiences, social networks, and sense of community that provide the motivation for members to achieve their goals. Rather, it is a culture within these groups that achieves these goals. For this reason, subgroups are encouraged to moderate trolling and negativity. High ranking members within the community (rank will be discussed later) will serve as ambassadors of the culture of Pace Yourself, setting the example for others. Additionally, Pace Yourself will include a post rating system, of upvote and downvote. This will serve as a "Like" button, akin to Facebook's groundbreaking design, and will be placed on the left side of posts to encourage users to consider it before moving on to the next post [9]. However, Facebook has a "Fake News" problem, exacerbated by the like button being abused [9], which Pace Yourself will attempt to counter with downvoting in a manner akin to Reddit. Additionally, it is important to realize that while a community is small, moderation of all content is possible, but as the size of the community grows, content moderation of all content becomes impossible, even with the help of AI [11]. Thus, an additional tool is necessary to help users self-moderate. In Pace Yourself, highly downvoted posts will be collapsed, forcing members who wish to read them to click and expand them should they choose to do so. This extra step prepares the member for reading something that may be offensive or go against community standards or allows members to avoid them completely. Additionally, these downvotes can trigger moderation for posts that were missed by AI or at minimum, move them up the queue for moderators to address quickly.

Thus, a member's upvotes will serve as positive feedback, and the total of (upvote – downvote) votes will signal the member's helpfulness and quantify their contributions in a way that is likely to encourage positive interactions.

An additional button will be present on a post, the motivation button. When a member finds a post motivational, they will click this button as a thank you to the author. High motivational scores can earn badges and awards for a member.

Consider the following use-case scenario:

Yessenia Diaz is a regular runner who lives in Coral Gables, Florida. She has been running for many years, competes in races, and has been a member of Pace Yourself for a few months while making use of the online tools. She often sees people running together in her neighborhood and has been interested in finding a group of friends to run relays with. One day, after logging her afternoon run, she searches for a running team that meets offline in her area. She finds one called "South Florida Milers". The team's group is locked, and she cannot read or post to the page, however, she reads the instructions posted for gaining access to the group. Since she has a member positivity score above the threshold and lives in the local area (proven by her logged GPS runs), she decides to send a join request to the team's captain. She must wait for the captain to review her request, checking her profile, posts, and declared goals and decide before she can proceed.

In this case, Yessenia was able to find a group near her that she may possibly join, but the group has tools to filter unwanted intrusions. This balance will help maintain the positive experience so that team admins can try to ensure that the goals of prospective members align with their own.

#### Badges, Levels, Awards, and Privileges

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A study on the badge system used by the online community Stack Exchange, found that badges can positively effect member behavior in desired ways [1]. For this reason, Pace Yourself members can earn badges for achieving high positivity scores and high motivational scores with the intention of driving positive interactions. Yet, this is only one of the ways that badges are useful in communities and will be implemented in Pace Yourself.

Badges can also serve as achievement and motivational markers. Pace Yourself encourages all members to log their runs with GPS verified applications or through verified treadmill applications. In fact, new members must log confirmed runs before they are given access to most of the community. Members can achieve badges for participating in any race, logging miles, and competing in the ladder. Research has shown that rewards motivate contributions [8], and for Pace Yourself, it is important to encourage both social contributions, and motivate members to achieve their running goals.

Furthermore, the community will offer running tools, such as data analysis, that can unlock by accomplishing challenges and hitting contribution benchmarks. The GPS tool will be available to everyone, as it can be a useful tool to filter out bots and trolls. Beyond unlocking tools, these challenges and benchmarks will increase a member's level, which will be an outward display of community status. As an example, members can move from level 0 to 1, by completing the following tasks:

1. Log a GPS or verified treadmill run.

2. Create a Profile with specific goals.
3. Add a profile picture.
4. Post a personal introduction in the new members group.

As members progress, they will have options to choose from. Like running a specific distance or improving their weekly pace by a specified percentage. Levels also unlock privileges within the community. For instance, a member must achieve level one to unlock subgroups, and level two to join a running team (unless they are invited by a captain).

Consider the following use case scenario:

Mike Sanders has been a member of Pace Yourself for three years. He is an officer on his running team and an admin of two subgroups, "Raleigh Runners" and "Motivational Memes". Mike is level 10 and only needs seven more motivational points to achieve level 11, his last post earned fourteen motivational points, which was not quite enough. He then heads over to the Raleigh Runners section and starts reading through posts, replying to anyone that he feels might need some motivation. Then, he remembers a meme he saw on another site that he knew some of his friends would enjoy so he posts it in the Motivational Memes group. He then browses the rest of the subgroups he enjoys while he waits excitedly for enough motivational votes to roll in and promote him to level 11.

In this case, Mike was motivated by the level system to contribute to the site in a positive, motivational way that aligns with the intended culture of the community.

## Trust

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In any online community, determining who to trust can be challenging and Pace Yourself is no different. Deceit is pervasive in social computing communities as systems, even ones that seem trustworthy, are often gamed for disingenuous purposes. Take for instance the case of a TripAdvisor restaurant detailed in Oobah Butler's vice article, "I Made My Shed the Top-Rated Restaurant on TripAdvisor". Butler, an investigative reporter was able to generate enough buzz about a fake restaurant that never served a single plate of food to a single customer, that the fake restaurant became the number one TripAdvisor restaurant in all of London [2]. During the design of this community, establishing a trust in the overall community, and between individual members was given a high priority.

Pace Yourself has many low-risk interpersonal interactions. These are mainly the public interactions in the subgroups where members have topical discussions. However, the community will suffer if a member posts deceitful links, trolls, or attempts to scam members through purposefully misleading posts. This behavior is most likely to arise in new members who do not yet identify with the community, as they do not have the interest of the members at heart [8]. However, there are also higher risk interactions in the community. For instance, cheating in the ladder system would be detrimental to the community as it would undermine community trust in a backbone feature. Still even higher risk are interactions between members that go offline.

There are multiple approaches taken to address these issues. The first is to allow community members to signal trustworthiness. Ideally, the site would use assessment signals, which are signals that require the possessions of the indicated quality to perform [5], however these are difficult to achieve in a social computing community. Still, the use of GPS verified runs does serve this purpose in a small way.

Members can see how many verified runs other members have logged. Beyond that, members can choose what other information they wish to make public, including run data like distance, time, pace, and route. Members must be made aware of the risks of making identifying information such as GPS data public, as disclosure of personal user information could lead to a user being personally identified when they expected to be anonymous [10]. The community will also have conventional signals, such as profile information, but this information is far from reliable [5]. Even phone number verifications can be overcome with a \$13 burner phone [2] and generating a new email account is free. Instead, the community will rely heavily on third party reputation information such as vote score and posting history. Of course, these metrics are also open to exploitation so they cannot be solely relied upon [4]. The community will also take action to try to filter new members by using AI to catch bots and limiting damage done by those who sneak through the cracks through progressive access controls. A balance between institutional controls and member self-policing is necessary because over reliance on third-party interventions can hinder the development of mutual trust among community members [4].

Pace Yourself will use progressive access controls as follow.

New members will have limited access within the community until they reach level one. Only once they have logged a GPS verified run, completed the profile requirements, introduced themselves to the community and have passed level one moderation will they be granted additional freedoms.

Subgroups will have varying levels of access control and these can be set by the member admins when these are user generated and moderated subgroups, or they can be set by the design team of Pace Yourself. These subgroups can be private, where a prospective member must request permission to join from the admin team, or they may have preset conditions, that could be none, some, or all of the following: account age, vote score, motivational post store, miles logged, level, or number of runs logged. The admins of these subgroups can assess the trust level they wish to implement.

Teams must have specific access controls in place, regardless of whether they will meet in person or not. Team admins, known as captains and officers, can grant access to prospective members through a direct invite, or when a request is made through the team's request pipeline. If a request is approved, admins can either admit new members directly to the team with full access, or they can implement their own progressive access controls, such as limiting new members to a new members section where the rest of the running team can get to know them first.

There are downsides to progressive access controls. For instance, prospective community members may be turned off by the limited access to the community. Additionally, if someone does take the steps to complete the requirements but does so with the intention of gaming the system, users may be overly trustworthy, as they have relied on the measure set in place by the third-party [4]. Yet despite the trade-offs, in the case of Pace Yourself, the benefits of progressive access controls far outweigh the negatives.

Finally, community members must trust the community to protect their personal data. For this reason, all user data is saved on encrypted servers with adequate security measures in place to prevent breach. Furthermore, it is important that Pace Yourself goes beyond the current lackadaisical approach to privacy followed by most social computing communities and presents members with an opportunity to manage their data based on the implications of such data.

Pace Yourself will implement the Social Inference Management system described by Mayer et al, in the paper, "Towards an Understanding of Social Inference Opportunities in Social Computing." The purpose of such a system is to inform community members that personal information can be easily inferred from data they make public [10]. Members will be provided with a digital impression of the member, generated from their public data. This impression will highlight what data was inferred and what was disclosed, as well as the security and privacy implications of this information. Hopefully, this will serve to inform members of the risks they take when they share information and provide them with the tools they need to set their own limits on data disclosure.

## Rules and standards

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One key to a successful online community is instituting a clear policy regarding rules and norms. In fact, defining the rules explicitly makes it easier for the members to know them [8]. Many of these rules are loosely adapted from Reddit.

1. Everyone has the right to use Pace Yourself without being personally attacked, degraded, or targeted. This includes marginalizing groups of people or targeting people based on physical or non-physical traits.
2. Do not post any content that goes against local, state, or national laws.
3. Post content that is relevant to the group in which you are posting.
4. Privacy is essential at Pace Yourself. Do not share anyone's personal, private information without their consent. Do not abuse the information that is posted on the site. This includes, but is not limited to, harassment, stalking, threatening, or intimidating in any way.
5. Sexually explicit content is not permitted. If you are not sure if the post is sexually explicit, refrain from posting it to err on the safe side.
6. Cheating in any way in the ladder system or attempting to game the system will not be tolerated.
7. This community is not a marketplace. Do not attempt to sell goods or services outside of specifically designated subgroups designed for this practice.
8. Do not use your account to impersonate or deceive other community members.
9. Do not damage, break, or hinder the site or access to the community in any way.
10. Follow all posted guidelines, norms, rules, and standards of the subgroups but remember, these ten rules supersede all others.

The point of these rules is to attempt to create a community where members can feel safe to contribute and know that if someone harasses or threatens them, there is recourse to stop it immediately. A list of these rules will be easily accessible to members, but not overtly displayed, as "prominently displayed guidelines may convey a deceptive norm that the guidelines are not always followed" [8].

One method that will be utilized in the Pace Yourself community to help new members acclimate to the culture of the community is connected to the progressive access controls previously mentioned. New members are confined to a few basic community areas and are required to post to the introductions section before they can reach the first level. This is their first interaction with community members and as such, an introduction to modeled behaviors, as community ambassadors will be asked to communicate with new members in this section. In this way, appropriate behavior is displayed publicly, something that has been shown to increase adherence to the community expectations [8].

## Rulebreakers and Trollish Behavior

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Having rules is an essential practice, but it is just as important to have graduated sanctions that are widely and fairly enforced [8]. There is no one size fits all method for successful content moderation, and as such, policies must be flexible. Still, it is important to explicitly state possible actions that can be taken by community moderators.

Corrective actions can include, but are not limited to:

- Unofficial Warning.
- Official Warning.
- Reduction of Privileges.
- Temporary Ban.
- Permanent Ban.

Conflicts arise within communities of all kinds, a fact that cannot be avoided. However, the best course of action in a community is to take action to limit the damage that these conflicts can do. A study of the Answerbag online community showed that it is possible to identify specific keywords that are central to community conflict [6]. While the author focused on understanding how these words were related to conflict, this same methodology can be applied proactively to identify sources of conflict in a community to examine the health of the community. For instance, Answerbag members often argued over Spam, which could have been anything from an unwanted advertisement to nonsensical or repetitive comments [6]. If issues with spam, or anything else arise on Pace Yourself, it would be in the best interest of the moderators to identify these issues before they escalate and take action to modify rules, source code, or moderation techniques to address the source of the problems.

Monitoring community health is important, but moderators must have help from community members empowered to report violations of community standards. For this reason, Pace Yourself will implement a downvote button, as explained previously that will collapse low voted content, but it will go further to include a "Report Content" button. When a member flags a post, they will have a set of options to choose from that will place the post in the proper queue to be reviewed. It will be important to study the effectiveness of the report button to identify when to remove a post before moderation and when to leave the post in place until after moderation.

If a post is deemed to be in violation of community standards, corrective action will be taken and the option to appeal will be offered.

While in theory, bans and reductions of privileges seem like a simple, effective solution, but bad actors can take the teeth out of the punishment if they can simply use a different account [8]. These secondary accounts, or sockpuppets, have been shown to contribute negative and deceptive behavior within a community, and not only after content moderation [5]. Detecting sockpuppets is difficult, though there are techniques to do so. IP addresses can give a malicious user away, but this can be disguised through a VPN, or even resetting a router, but it can still be a line of defense and may deter some from trying to bypass a ban or gag. Another method is to actively monitor the site for possible sockpuppets ahead of time, and this is one path that Pace Yourself will take, following the three-pronged approach of identifying and analyzing activity features, community features, and post features to identify sockpuppets and their pairs [5].

Consider the following use case scenarios:

A moderator is messaged by a member, claiming that another member made her uncomfortable on a run meetup, and that other members have similar stories about this person. The accused member has never posted anything on the site that would warrant a temporary ban or other disciplinary action.

The case of behaviors occurring outside of the confines of the community during events scheduled within the meeting are of great concern and must be addressed. The above case is a challenging because without evidence, taking action can be difficult. However, the community was designed with the safety of the members in mind, so occurrences such as this one can be addressed.

The first case of action is to remind the member that any event that goes beyond feeling uncomfortable, that could border on stalking or threatening should be directed to the police immediately. Meetups are organized through running teams and any member who can see these events has already been approved by the team's captain. Therefore, all reports of inappropriate behavior will be reported to the captain of the team, though the individual who filed the report will not be identified. If there is only a single report delivered to the moderators without any corroborating evidence, moderators will not act besides recording the incident and monitoring the account for conflict causing behavior, however if the team captain responds with further reports of issues, then the offending user will be banned from teams permanently, as there is no excuse for taking any risks with a person acting maliciously in person.

Furthermore, when meetups are scheduled within the community, members are offered the option of a safety message. This is similar to a method used by Match.com, where users can add an emergency contact. If the emergency contact agrees, they will be notified of the upcoming event with location data and times. Once the meetup begins, the emergency contact can share location information if they choose, but a check in message will be sent to the community member. If everything is fine, they can ignore the message, but if they feel uncomfortable or need assistance they can respond YES to the message and the emergency contact will be notified and can take action.

John Darling is browsing the community and comes across a post about training for a Marathon. He reads through a discussion about training short distances at a faster pace vs training long distances at a slower pace and decides that he will offer his own opinion on the matter by replying to a previous comment, saying that he disagrees with the poster's opinion. The other user in the discussion finds John's post offensive and after looking through John's profile and logged workouts replies that John is a slow, pathetic runner who has never logged more than a ten-mile run who has no business challenging his posts. John is shocked, he has never had such a response from a community member before. He tries to apologize but the other user continues to berate him with insults. Another user sees the discussion between the two members and clicks on the flag post to report the aggressive and insulting behavior.

Aggressive behavior such as that identified in the above scenario is unacceptable in the community. The action taken by the monitor will depend on multiple factors. If this is a first offense and the moderator determines the interaction did not go beyond name calling and playground insults, the offending user will be warned of the violation. If the offender made bigoted, racist, violent, sexist, or perverse statements, or if the member was repeat offender, a temporary or permanent ban will be enacted, depending on the severity.

Finally, it is important to address the issues that arise with possible stalking when GPS or location information is used in the community. The bottom line is that publishing location data does carry some inherent risk. For this reason, any time a member wants to post a run linked to time or location data, they will be shown a warning to which they must confirm that they are aware of these risks.

## Evaluating Community Success

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Pace Yourself will be a successful community if it helps runners achieve their goals, make social connections, and contribute to a healthy community.

If members are achieving their goals, there will be evidence in the usage of the ladder system, the goal tracking system, and the data analysis tools. If members are using the GPS and treadmill systems to record their runs, it will be possible to analyze the data to see if goals are being met.

A successful and healthy social network is more difficult to monitor and assess than one of athletic improvement. Simply looking at number and frequency of posts is not a valid metric, just as the number of words written in a book is not a marker of the quality of the writing. Rather, the community health metrics that Pace Yourself will use are:

1. Member Retention.
2. Team Participation.
3. Levels gained.

Member retention will show that the community is offering something of value to those who are using it. It is also essential for creating an enduring culture. High participation in teams will show that bonds are being made, thus increasing bonds-based commitment to the community. Similarly, levels gained by members will also show a commitment to the community, proving that there is value to members in achieving status within the community, and in doing so they are making contributions that people find motivating and positive.

## Conclusion

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No community is perfect, and Pace Yourself will have its own set of problems that arise due to miscues in the design. For this reason, it is essential to incorporate member feedback as well as monitor the important metrics closely so that these problems can be identified and addressed before the damage to the community's integrity stretches beyond repair. However, in the end, the success of Pace Yourself will not be decided by the design, but rather by the community members themselves.

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