

Training and Professional Development in an IT Community

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Abstract

This paper describes training and professional development activities at a mid-sized IT consulting firm over the last roughly 15 years. These activities have successfully engaged many of the consultants and provided significant career bonuses and advantages for the company. We present the types of activities, their effectiveness and success, and the evolution of professional development efforts over time. Many of these activities proved effective and valuable and are still in use, including annual skill reviews and development recommendations, regular organized training and discussion type events, training and materials reimbursements, and escalation support. Challenges and failures with other training and activities are described. Recommendations are made for other organizations' own professional development programs.

1. The Challenge

Training and professional development activities are a natural part of the IT community. Skills development and professional advancement are necessary for individual system administrator success and for organizational IT success.

Organized and planned professional development in an organization is a major organizational advantage for a number of reasons. It enables development within the organization rather than encouraging or forcing employees to leave to find their next more advanced role, which reduces turnover and hiring requirements. It provides employees with a morale boost, showing them that there is organizational interest in them as individuals. The very existence of an organized program is a discriminating factor which helps recruit high caliber talent in the first place.

In general, IT organizations have largely abandoned the practice of formal organized and funded professional development programs. It has fallen out of standard practice industry-wide. This paper will discuss a reasonably successful example of a program and hopefully encourage further spread of such programs in the field.

1.1. The Basic Setting

The author works for an IT consulting company headquartered in the Silicon Valley region. The company employs well over 200 technical IT staff in two major locations, in three business lines of IT consulting and outsourced services. This report focuses on the longest-standing business line and consultant base, those

providing primarily technical consulting and staff augmentation roles.

These consultants are working by themselves or in small groups at a large number of geographically separate customer sites, the vast majority of which are in the greater San Francisco Bay Area.

The company has been in business for more than 20 years and has always had some level of professional development activity.

Peak consultant employment in the pre-dot-com-bust timeframe was over 800; today it is around 200. Technical job roles employed include UNIX system administration (35-45%), Windows administrator (25%), and lower and varying quantities of desktop administrators, database administrators, network administrators, project managers, IT managers, and IT SOX related experts. Skill levels range from junior to guru/architect level, though it is predominantly the equivalent of senior system administrators by respective industry standards.

This report will focus on efforts from 2001 through the current day. The author has some personal experience with activity before that but was not involved in organizing the professional development activity during those time periods. My internal employment in professional development related roles began in 2004 and continued with brief interruptions until present day.

1.2. Our Community

Our community is more than a workplace – we want to create a shared experience combining professional

work, mutual support, and social experiences. The nature of our day to day work, with consultants embedded in a large number of client workplaces, is divisive. The community has been an intentional response to create a unifying cooperative environment for the consultant workforce. The company has approached this with both social and professional development responses.

Social activities provide personal bonding and outlets, and are a major part of our organizational ethos.

Integrating professional development in the community has helped form a shared sense of professionalism and advancement, set expectations and encourage people to continue to grow and excel beyond learning directly on the job.

2. Early Efforts 1990-2000

Through the 1990s, the professional development efforts were focused in a number of areas:

- Professional development reimbursement (books, classes, certification examinations, etc)
- Industry expert presentations (roughly monthly basis)
- Peer mentoring
- Between-assignment “beach” training
- Staff management relationships
- Technical support network

Of these three efforts, the professional development reimbursement was the most used, industry expert presentations fairly well used, and peer mentoring was inconsistently used. At the time, statistics were not kept on attendance or utilization in an organized manner.

Professional development reimbursement at the time was primarily used to subsidize book purchases, prior to ebook availability and programs such as O’Reilly’s Safari. A secondary contribution was training classes. A separate but related program provided reimbursement for certification exams (Sun system administrator, Cisco CCNA / CCIE, Microsoft MSCE, etc). A budget of approximately \$1,000 per year per consultant was provided, though utilization was much lower.

Industry expert presentations were large, well advertised events at company HQ, which were generally open to the public as well as the internal community. The events were mostly large group, presentation-and-Q&A oriented events.

Peer mentoring was done on an ad-hoc basis.

Consultants “on the beach” between assignments were given pre-prepared learning plan / training curricula for self paced learning in the HQ office’s training lab.

The company also established a clearly defined role known at the time as “Staff Manager”, who were outreach HR staff who engaged with the field consultants (ideally at least once a month) to follow up on both work success and professional development efforts.

Finally, the company established an internal technical support escalation process. This was somewhat ad-hoc initially, but consultants could contact their staff managers or headquarters and be connected rapidly to other consultants who were pre-identified as subject matter experts in various areas. Assistance was made available in case of emergency, or even a consultant who found themselves in over their heads on a particular technology and needed someone to help them through a problem.

2.1. Early results

Professional development reimbursement was widely seen as highly useful. Most consultants were able to fit book purchases of the time within the available budget and occasionally stretch to cover part of a relevant class.

Industry expert presentations were well attended (~ 10-15% of total consultant base) and well liked. Drawbacks were that the events were spaced out significantly (monthly) and not as interactive as attendees might have liked, though Q&A sessions were largely effective.

Peer mentoring was inconsistently effective.

Self-paced beach learning programs were found to be difficult to keep current and relevant, hard to track progress on, and eventually determined to be somewhat ineffective.

Staff manager roles were found to be very effective, both for normal HR and management issues and for encouraging professional development.

The escalation support mechanism was found to be highly effective and useful. Backing up the consultants improved both client success and consultant professionalism and willingness to push their own technical comfort envelope.

3. Shaking things up – 2001-2007

After the dot-com bust, the industry was significantly unsettled. As the consulting company recovered from that downturn, one of its priorities was to rebuild the professional development activity and make it more effective and engaging to the consultant community. The consultant base was smaller than it had been, and the customer interests had moved to more senior level skillsets over time. Several key changes were attempted over time.

One change was that the existing role of senior technical consultants was expanded out from primarily interviewing and consulting to include more involvement in professional development. More engaged contact between the most senior consultants and the rest of the consultant base was seen as an easy and obvious win. This included several approaches, including one-on-one mentoring programs, group lunches where one or two senior consultants had a chance to meet and get feedback on professional development activities from mid-sized (8-12) groups of field consultants, more instructor type training programs, etc.

The roughly monthly expert presentations were changed (largely) to a weekly schedule, more interactive and smaller group activity now known as “Office Hours”. This allowed for more interactive, round table type discussions as well as presentation type meetings with an expert speaker. Many discussions were led by those senior consultants.

Regular organized training classes were begun for more advanced concepts not amenable to short one-night sessions. These were usually 1-2 nights per week, for up to 4-6 weeks in a row, though other schedules (5 nights in the same week, both days in a weekend) were experimented with as well to accommodate instructor and consultant schedules. As noted above, senior consultants were the usual instructors.

Finally, as part of the annual review process, technical re-interviews of the consultants were made more standard and consistent, to establish new snapshots of peo-

ple’s skill development and professional level over time. Additionally, discussing professional development with the consultant and making recommendations (or for more aggressive consultants, validating that their own learning efforts were appropriate) was made a standard part of the process.

Prior programs such as professional development reimbursement, staff management support role, and the escalation support program were continued and reinforced.

3.1. Shakeup results

Strengthening and engaging the senior consultants was generally successful. More active mentoring programs were not as effective; consultant engagement turned out to be inconsistent and generally poor. Intermittent informal meetings to collect feedback worked somewhat well, but were eventually found to be logistically difficult to coordinate on a regular basis.

The shift to weekly more interactive presentations and round table discussions were initially highly successful. At times 20% or more of the total consultant base showed up for the weekly meetings, and the more interactive ones had very good participation from the audience. They helped foster an effective sense of community involvement.

Training classes were found to be highly effective. Though longer classes experience a predictable falloff in attendance, ultimate completion rates were good and knowledge transfer was found to be effective. Drawbacks were time commitment by the instructor and the students, but the classes were found to be valuable anyways.

Annual skills reassessments / reinterviews were found to be both a valuable data collection tool over time and a valuable venue for one-on-one feedback on professional development and training progress from senior technical consultants to the individual consultants. Establishing these as a standard, annual process for each consultant was highly valuable.

Unfortunately, quantitative records from this time period are missing or were insufficient for statistical results analysis.

4. Evolution in action – 2008 to current

In general, successful programs were maintained at that point. However, the world changes and shifts around

us, and success levels evolved for the varying programs.

The 2008-2009 timeframe brought significant turmoil with the major economic downturn. This affected this community and company as well as most other employers, though not as badly as the dot-com bust.

We anecdotally observed that a number of consultants became more interested in professional development during the downturn, focusing on their employability. Lack of detailed training records from 2008 and earlier has prevented statistical analysis of this effect, though we may be seeing some of the return to a more long-term normal level in 2009 to 2010 event attendance trends.

One change was that professional development reimbursement benefits were temporarily suspended during early 2009, along with most of the training budget. The informal office hours were maintained, but much other activity went briefly on hiatus.

During this time period, from 2008 through 2010, the company experimented with a vendor-provided computer-based training e-learning system. Adoption proved problematic and the training was not well maintained as technology and skills evolved.

Another change was that the company headquarters moved approximately 3 miles, from right next to a major freeway interchange to about 3 miles from the next exit up the freeway. This had a subtle but eventually significant negative effect on attendance of in-person training and office hours activity. With consultants spread over a large area (tens of miles) their ability to attend in-person events after work hours, and through evening traffic delays, has been a significant and increasing issue.

Also in this time period was the eventual adoption of real time internet video broadcast of many or most events so that consultants could follow the training or interactive events remotely. Though video conferencing and time-shifting proved somewhat useful, adoption rates have been only moderate, as ease of access to the recordings and broadcasts is impeding users.

One major gap is that the existing web presence for the professional development community has been identified as deficient. This makes it hard for consultants to locate schedules, information, and recordings of classes and events that have already happened.

Another change is that the average age of the consultant employees has been advancing steadily over time. Professional development has been fighting more and more for time with parent and family activities in particular.

A change to offer Safari ebook service subscriptions to any consultants who wanted them also happened during this time period and has been widely used by consultants who are actively pursuing personal professional development.

4.1. Late-breaking developments

In late summer 2012, after initial submission of this paper, review of the lower trending office hours attendance led to a refocusing of the professional development program away from that type of event and towards more distinct training class type events, even if they are shorter classes with only 1-2 class meetings.

This author and others are working to analyze what long-term trends may have affected the attendance and interest in the shorter “office hours” type events. Surveys of the consultant community and other analysis are ongoing.

5. Ultimate results

The professional development program is ongoing and actively engaging a significant percentage of the consulting employees. The engaged consultant base has anecdotally shown a consistently higher rate of professional advancement and learning compared to the unengaged consultant base, though it's not clear if that is a causal result or merely correlated.

6. Lessons learned and analysis

It is possible to build an organized professional development program in a large modern IT environment. It appears to energize at least the employees who are already inclined to learn and promote and advance themselves.

A number of things have failed in the professional development and training programs over time, or have evolved into less useful or non useful states. A willingness to review and examine success of projects and methods, and regularly invent new ones to fill in gaps, has been necessary.

It has been difficult to build an integrated ongoing statistical efforts / results database for the various programs, and quantitative effectiveness of the programs has been difficult to nail down. Efforts to build that are ongoing.

Sufficient anecdotal feedback has been received over time that the programs were felt to be worthwhile and a strong plus for the organization.

6.1. Measure as you go

For many years, performance metrics were not collected in an organized fashion as the program progressed. Though event attendance was often recorded dating back into the pre-2001 timeframe, those records were not organized and reliably tracked until 2009. Spending on total training related costs was available going

back to the advent of the current financial records system, but subcategories of professional development reimbursement, training event logistics, course preparation work were not separated out in the financial records. Introspective research into scattered and inconsistent records has proven impractical.

Data that is not collected is extremely hard to recreate later; data that is not organized may be effectively lost by the time you go looking for it. Measure, and record what you are measuring.

6.2. Tracking and interpreting event attendance

Event attendance data from 2009 to the present day (14 quarters) was reasonably complete, though individuals' personal activity was not analyzed in detail to date. In overall statistical terms, 137 events were held over those 14 quarters, in separate categories of "office hours" type one-session less formal meetings and training classes with more formal lesson plans and usually multiple class sessions. 103 office hours events were held, with 837 total attendees. 34 training class sessions were held with 305 total attendees.

Fig. 1 shows the total of each type of event, per quarter over the time period.

Fig.2 shows the average, minimum, and maximum attendance of each office hours event during the respective quarters, normalized to the total consultant employees during that quarter.

Fig. 1 Training and Office Hours Events

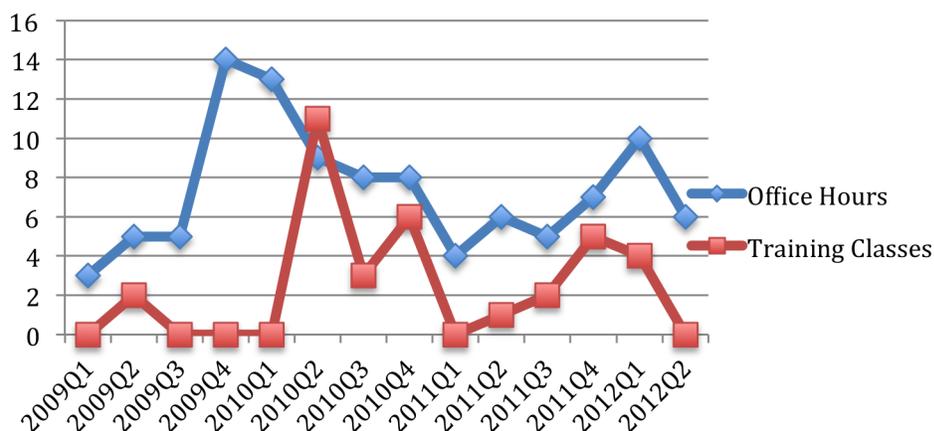


Fig. 2 Office Hours Attendance

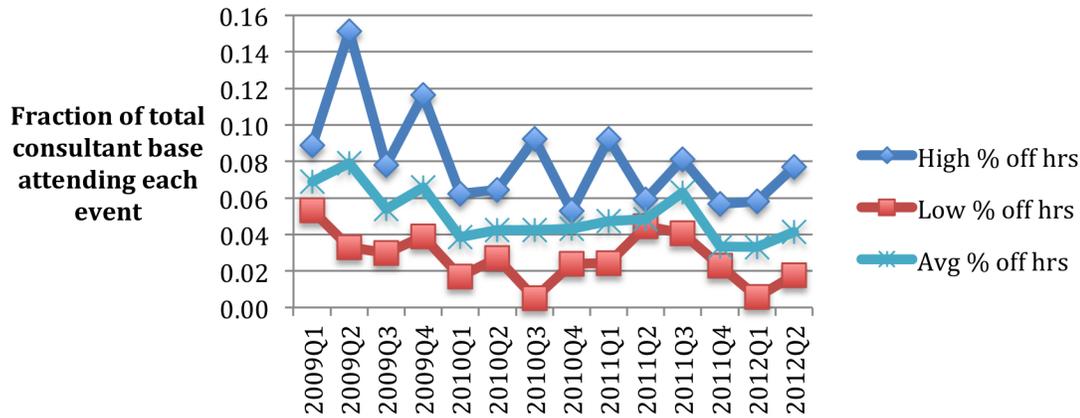


Fig. 3 Training Event Attendance

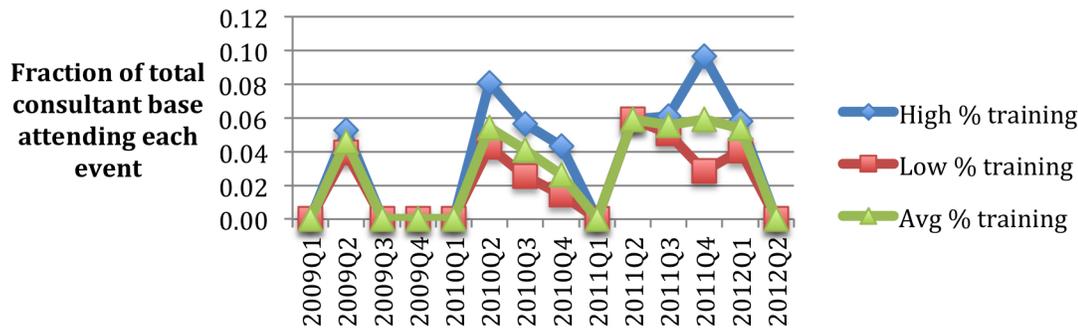


Fig. 3 shows the training event attendance during the respective quarters, again average, minimum, and maximum values normalized to total consultant employees.

The attendance data require some careful review, as they are both noisy and there were quarters in which we did not offer any training classes, either due to conflicts in schedule or due to intentional hiatuses

The beginning of the data overlap with the 2008-2009 economic downturn.

The office move described in section 4 of the paper is evident in the per-event office hours attendance drop-off from the beginning of 2009 (right after the move) through the beginning of 2010. The count of events per quarter was also significantly decreased that year (2008 generally resembled 2010 numbers, though detailed records are not identified at this time).

Due to both the move and the economic downturn, only 2 training class events were held over a 12 month period. The number of office hours events was also depressed during the first 3 quarters of 2009.

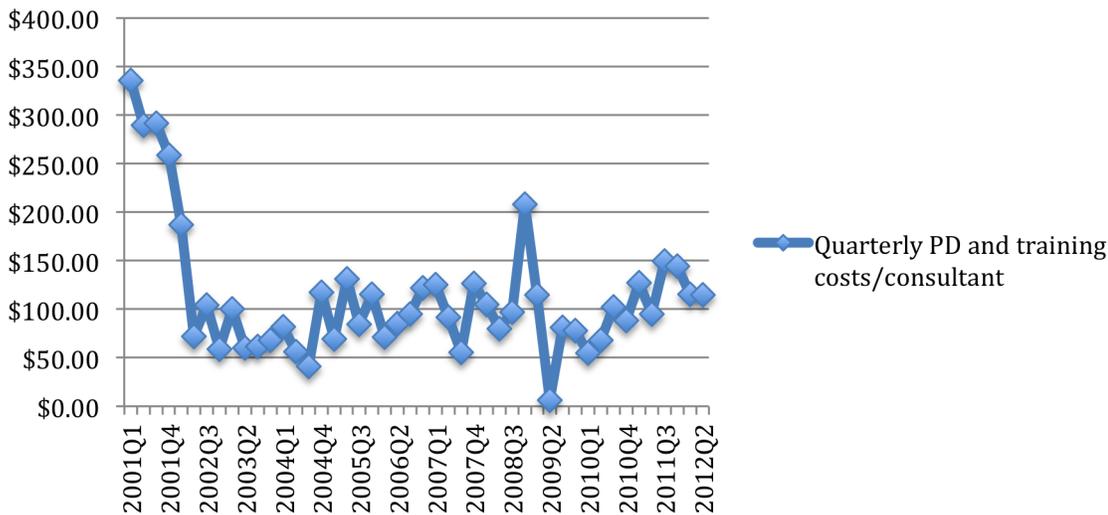
For informational purposes, the list of training and office hours event topics presented during 2010 is provided as Section 9 of this paper. This hopefully will provide ideas for others looking at their own diverse professional development programs.

6.3 Professional Development Budgeting

Fig. 4 shows the total quarterly per-consultant training and professional development spending from 2001 through the present day. Easily visible events include the middle of the dot-com bust, with employees rushing to spend professional development benefits before layoffs, and the temporary training and PD hiatus in early 2009 due to the recent economic downturn.

Visible in the data are a low-active level from 2002 through early 2004, with an average of around \$75/quarter, followed by a more active period from 2004-2008 at an average of around \$100/quarter (and an anomalous quarter whose spike's cause is unclear). Following the pause in 2009, a steady growth now flattening out at around \$125/quarter is evident.

Fig. 4 Total per-consultant PD costs



These costs include both training and professional development. Breakdowns of those were not available within the accounting data easily available.

Total spending per consultant of less than \$500/year has proven to be enough for a functional professional development program.

6.4 Lack of Professional Development reimbursement utilization

The employee base has a base individual professional development reimbursement of \$250 per quarter available for books and training and other professional development expenses. Factoring in other costs and training costs, the average utilization of this reimbursement appears to be a very small fraction of the available benefit.

From the 1990s, per-employee reimbursement was used more actively on book purchases. Now, with the Safari service available to staff on request, this may have reduced the demand for individual PD reimbursement benefits. However, the benefit is still provided for physical book purchases, books not on Safari, or for other training materials or courses.

6.5. Overall benefits of the Professional Development program

It is always desirable to have an easily and clearly measurable result of significant efforts. That has eluded our professional development program; results have always proved difficult to quantify.

Qualitatively, we believe the program has been of significant benefit to large segments of the community.

Approximately half of the consultants show up to one or more training events over the course of a year; over 14 quarters, total training attendance was 7 times the employee headcount, and if half the employees participated at least once then average attendance for active participants was about once per quarter.

Consultants who are active with the professional development programs anecdotally cite those programs as reasons for staying employed with the company, and as advantages for their career development and job satisfaction.

6.6 Gaps in our methodology

Our organization collected this data in the course of normal business operations and did not have a data-analytics driven quantitative approach to program results at the time.

The largest gap we are aware of is that while we measure professional development results in microscale – individual staff skill reviews, annual reviews, and professional and HR interactions – we have not consistently applied good quantitative methods to look at it in wide scale across the consultant base. We have intermittently tried surveys of the consultant base and working with our HR staff to quantitatively feed development results back into the professional development process. None of these have given satisfactory results over the long term.

We have overall professional development records for each consultant associated with our annual technical review interview / skills assessment process. Integrating that data with the participation data for the training and other professional development activities is an obvious next step for us, but has not been accomplished in time for this paper.

6.7 Open Problems

Our largest identified open problem with the program is in engaging the fraction of professional staff who have not yet chosen to participate in a fundamentally optional, personal time commitment required professional development program.

We have intermittently had moderate problems effectively communicating the events to some consultants; some of them tune out or ignore email notifications, and we are not always successful at leveraging face-to-face HR meetings with consultants to encourage attendance, though it is a goal.

Many more consultants, while aware of the program, either find it too inconvenient to participate or do not have enough career and professional development drive to value participating.

Inconvenience climbed as consultant average age has climbed out of the 20s, now in the late 30s. The fraction of consultants with families and in particular small children has noticeably increased over the last 10 years, though we have not quantitatively analyzed that yet.

We are also aware that our office move in 2009 introduced significant perceived additional inconvenience, adding another 10 minutes to travel time for most consultants.

Those staff who are content and not driven to actively learn and promote themselves are an ongoing motivational problem which is beyond the scope of this paper.

7. Applicability and recommendations

Our organization is not yours; our community is not yours.

7.1. Differences with typical organizations

The example organization is a consulting and staff augmentation organization, not a monolithic internal team. A number of approaches were oriented on handling a dispersed, harder to unify team. Many (most) organizations will find internal communications easier.

The example organization has tended towards older, more experienced consultants over time as the client base demands have evolved. Average IT organizations have a more normalized junior/intermediate/senior staff distribution. This both increases target opportunities for internal training and advancement of bright junior and intermediate staff and means that more range of training may be required. More junior and intermediate staff, and staff less highly selected for consulting professional skills, may be somewhat harder to interest and engage in active professional development training programs.

The example organization has more than 150 technical consultants in its main region. Most IT teams have smaller total staff, and larger teams tend to be dispersed in larger organizations. Our organization has a critical mass of senior consultants to sustain active training and professional development over long time periods. Yours may not, and available resources for programs like this may be more limited and precious.

7.2 Annual technical reviews

An annual technical skills review program is likely to prove valuable. The sample company has established a repeatable technical evaluation process for interviews and annual reviews; other organizations without that process may find it somewhat more difficult to assess skill improvements. Even if it is harder to do, talking to people regularly about what they've done and what they've learned, writing it down, and making suggestions for upcoming training and development helps engage the staff in development processes.

Our approach focuses on skill gains, professional capabilities advancement, experience, and recommendations for personal and company-supported professional development activity for the next year. Our skills assess-

ment is based on the same proprietary skills assessment process used in hiring; you will likely want to look at open source IT professional skill assessment and analysis methodologies.

7.3. General recommendations

Our program has been successful at some things and not at others. Understanding what's working and continuing to do it and explore more options work, over long time periods.

It is important to note in starting that well supported professional development programs will not take below-average employees satisfied with their current level and turn them into super-learners. However, they can engage more of the employee base, and provide more successful outcomes for employees who are engaged in the process. Every bit helps.

The first core recommendation is to organizationally value professional development, communicate that, and support it. The rest follows from that core value.

Some aspects of the sample company's practices should translate easily and successfully to any organization. Defining and providing a personally managed professional development reimbursement budget is still useful. Even if average utilization is low, the control and empowerment employees feel with this available have anecdotally been valued.

Programs such as the Safari books program, either as a common team benefit or as an individually purchased benefit from professional development reimbursement funds, are extremely valuable now. The ability to participate in conferences, paid training, and certification programs are significant benefits to actively self-advancing employees.

Identifying above average communications skills senior employees and empowering them and making them responsible to some degree for the learning and success of the rest of the employees is a powerful tool. If they are engaged in the process they can spread that energy and draw other more junior employees along with them. Building a community, publicly identifying and crediting community leaders, and encouraging employees to step up over time are all constructive actions.

Most organizations have an informal technical escalation process, within local peer groups. Establishing a formal one and identifying local or remote escalation resources can help reinforce employees' willingness to

take technical and learning risks and step up more actively.

Establishing a regular seminar, training, or open discussion session time and format is a powerful tool and effectively engages many employees. Making it a lunch-provided midday program once a week has worked effectively in several organizations. An after-hours program will have less attendance but is still valuable.

For any program with activities, be they discussions or formalized training classes, strongly consider recording or webcasting the events, and making the recordings available on a single centralized intranet site. Delayed participation is still very valuable and can easily double the end value to the organization. Make sure that the site is sufficiently user-friendly to be usable and effective, however.

7.4. Measuring your Professional Development success

As an expansion on the annual review point, establishing a program to quantitatively measure engagement in and apparent results of the various programs in your organization is a valuable focus tool. Knowing what is not just popular, but was used most by people compared to their year-over-year advancement, is important to fine-tune your focus and efforts. Every time we measured something statistically or numerically we learned something. Every time we found new ways to poll our community members about the community and professional development, we learned something.

With that said, our organization – with a central staff dedicated over decades to this type of community and consultant base development – has still had problems both figuring out how to measure data and how to quantify and track results. This remains a hard problem.

7.5. Your IT Community

Every community is different.

Communities require critical mass of participants to sustain them. We have more than enough people who are at least socially involved (150) but have the problem that their jobs are spread across a 100-mile-wide area.

Staff at smaller organizations may find open organizations, such as local LISA chapters, Linux User Groups, various new IT group meetups, and other communities are more effective than attempting to create your own

local community. We included professional development and community social activity in our internal organization; you may separate out some professional development activities to internal-only within your smaller organization, while connecting socially and for other professional development with larger public communities.

8. Additional research

Further data mining is in progress into our historical records.

We would like to broaden event attendance data over more of our history of this effort, though records status is currently unclear.

It would clearly be valuable to individually compare personal success at our company and employee happiness with participation in professional development activities. Initial and evolving technical skill / seniority level data is already collected, and our HR / consultant management teams collect significant consultant feedback, but it has never been reviewed or categorized to derive success data for the professional development program. Employee retention and employment duration, client project success, employee happiness can be correlated with seniority and participation in professional development activities.

This is a much more involved statistical and data analysis problem and will hopefully be the subject of a future paper.

9. Sample training / office hours topics

These topics were used for either training courses or office hours presentations and discussions during 2010.

- Facilities Management
- Office Hours Windows Hyper V
- Sun Secure Global Desktop Software Presentation
- Networking
- Networking ASA & PIX
- Disaster Recovery Planning
- Business Systems Analyst Overview
- Windows 2008 AD Synchronizer
- Beyond Basic networking, Subnetting and Other Mysteries

- Project Management for Real World Projects
- Intro to puppet & Config Management
- Windows 2008 R2 ISNS Features
- Intro to MPLS
- Windows Deployment Services
- Linux Kickstart
- Visio
- Database Administration for SysAdmins
- Intro to Linux
- Windows 2008 Foundation Course
- PMP Course Review
- Management Consulting Practice Meet & Greet
- Windows 2008 GPO Class
- Enterprise Storage/SAN/NAS
- GPO Class Day 2
- Book Club
- Practice Leader Networking Event
- Excel for System/Network Administration
- Completing a Domain Rename
- Linux Fundamentals
- VMWorld conference report
- Open Source Systems
- Visual Basic Scripting/Intro to Powershell
- NAC Deployment
- Windows 7 Deployment
- Interview Do's & Don'ts
- Configuration Management
- The Evolution of the Network Engineer Role
- Intro to SQL and Database Design Using MySQL
- Windows Certifications
- Juniper SRX Firewalls
- Drobo Products

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