Building On-line Communities of Practice: An Example and Implications[1]

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When, what, how, and where is an on-line community of practice? Based on a five-year ethnographic study of the activity of an on-line, international academic community of practice supported by ListServer technology, this article covers selective findings pertaining to patterns of communication deemed crucial to community building. It is an examination of some systematic language uses through which community was created, sustained, and nurtured. Naming the community, civility, and conflict resolution are among the selected constitutive patterns of action. Two sets of implications, learning and collegial support, are subsequently discussed. The question of wider applicability of this case is left open to corroboration and further study in varying contexts.

Background

Group communication, as one function available via the World Wide Web (WWW) interface, now flourishes on the Internet. In 1993, Usenet alone, as another example of such network activity in support of group communication, was reported to transmit as much as 40mb of information each day, to more than 4000 newsgroups serving about 3 million people whose interests were as far ranging (and reaching) as there are subject topics in a library catalog (Fraase, 1993; Kehoe 1993). Today, the impact of on-line group communicative activity has found its way back into mainstream written traditions. Communication has crossed modes and media of communication once again, this time back to traditional sources of print found in books and journals. "How to" books flood the bookstore and library shelves to initiate the hitherto unconvinced (e.g., Cummins & Sayers, 1995; Harris, 1995; Heidi & Stillborne, 1996); articles and columns in juried journals are found reconstructing on-line activity (e.g., Thompsen, 1994), summarizing it (e.g., Magoto, 1993–95, 1996/97), or pointing to it as a source of reference (e.g., Hanson-Smith, 1993/94); quotations in text include exchanges gleaned from on-line group communication (e.g., Shank, 1996); the latest (fourth) edition of the APA (American Psychological Association) manual of style includes guidelines for referencing citations gleaned from electronic communication and newsgroups; and bibliographies now include an E-List section. Finally, the style of e-mail exchanges is even pastiched as a new creative narrative genre (e.g., Spooner & Yancey, 1996), just as the WWW interface has created new cognitive possibilities for conversational expression, as in:

and I _still_ haven't told you the full story. But you can consider every sentence as a clickable link: ask me and I'll expand.

While the massive proportions of this phenomenon can no longer be ignored, or dismissed as far out, popular, and folksy, it is perhaps less clear how some such groups of communication are born to develop as strong and vibrant communities of practice whose activity is sustained over time and where members will exclaim, for example:

I miss it savagely if I am cut off for any reason. I don't feel stimulated enough without it

Alternatively:

I personally think of the initiative that so many x-list[2]

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[1] The terms on-line community and on-line community of practice are used in this article without distinction, as it is assumed that one cannot study a community without focusing on the practices that constitute it. The question of how unified these practices are may be posed for the case of the x-lists described herein, where scholars come from different allied disciplines. In this study, however, off-line differences and traditions were to a certain degree factored out of the analytical focus, _unless_ they appeared on-line as significant or pertinent characteristics of activity. Academia, and in particular _electronic_ academia, was considered the overarching practice that needed to be defined and circumscribed in its own right as a function of the workings (i.e., tasks and actions) of the group on-line.

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[2] The term x-list and its plural form x-lists refers generically to the electronic mailing lists where members of this group subscribe, and through which communication is enabled. The particular significance of the prefix "x-" is explained below. Outside of citations, I have also used the term x-lists to preserve the anonymity of the lists.

members take in constituting and reconstituting the x-lists as the most amazing wizardly-like thing about it.

The purpose of this article is to examine the activity of one such on-line group to uncover those "wizardly" factors that were perceived as crucial to its birth and nurturance as an on-line community of practice. Simply put, it is an examination of what works in one case, leaving reservations concerning wider applicability open to corroboration and further investigation.

Problematic Situation

On September 10th, 1997, my computer screen suddenly filled with messages from a professional Northern California association of which I am a member. Amidst messages with long itemized recipient headers, prompting the chaos of reply mode messaging to be forwarded to all recipients, one of the messages indicated that I had been officially enrolled on the association's new electronic list. The series of messages that followed this enlistment message contained increasingly angry outcries. Members were requesting *immediate* deletion from the list; complaints about breach of privacy were voiced, as most members appeared to be genuinely annoyed to have been listed without permission and/or violated in their electronic spaces. The list closed with an apology message two days later, including an invitation to discuss the event.

Beyond speculation cycling around the pitfalls of reply-modes and the well known psychology of the "bystander effect" (i.e., an accident occurs and everyone thinks that someone else will call for help), that is, by analogy, benign neglect to personally contact members and/or otherwise invite personal participation, how does one build and sustain an on-line community? In this article, the activity of an on-line group of academics is examined systematically to precisely highlight what were seen, in a study, as determining factors to create, build, and sustain this group as an on-line community of practice.

Overview of the Study

The data on which this article draws is taken from a five-year ethnographic study of an international on-line group of about 400 academics communicating via ListServer[3] technology. Members of this group were professors, their students, and other professionals in the field of psychology and education located all around the world (Northern Europe, Russia, Australia, New Zealand, Japan, the United States, and South and Central America.)

Members shared a declared interest in participating, which was summarized in the welcoming document to list membership as follows:

The x-lists came into being in 1984 as a medium for discussion of research on learning and development with a general concern for issues of education in modern technological societies and special concern about the ways in which educational systems are a source of socially engendered social inequality.

In addition, though beyond the institutionalized existence of the list, members voiced strong interest in their introductory self-descriptive messages for both the work of the founder of the list and its hosting institution—at the forefront of sociocultural approaches to education and psychology.

Members of the group communicated with each other publicly by posting messages to a list where all members were subscribers and they communicated privately via what was termed side-channeled communication. The flow of on-line communication as it unfolded on my computer screen became the object of this study.

Method

Using standard ethnographic procedures of participant observation, I proceeded slowly, from silent to voiced participation, and from side-channeled communication to public postings to the list. Finally, I also joined a small sub-interest group to write a collaborative article focused on a popular event that had occurred on-line.

To complement participant observations, and as part of a process of analytical induction, I interviewed (in person, by phone, and via e-mail) some of the members, and I posted a small survey on-line.

Altogether, I collected about 200 400K diskettes and one 35MB tape of messages containing a record of on-line communication.

Analyses

Many analyses, using the dual framework of Soviet Activity theory (e.g., Leontiev, 1981; Wertsch, 1981) and Conversation for Action (e.g., Murray, 1991; Winograd & Flores, 1986), were performed on the collected data. At the top level, I defined the activity of the community as an activity system in its own right that I called *Electronic Academia*. Moving to subsumed integrative levels, I separated tasks from action to differentiate computer use from language used to communicate. And I looked for recurrent patterns of

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[3]Listserver technology refers to one kind of hardware and software needed to support group communication. In this study, this technology originally included a reflector list system running on an HP 9000/867 mainframe in Southern California. Following re-structuring, communication was supported by a fully automated LISTSERV system running from a location remotely located from the hosting institution in Southern California.

communication, different kinds of conversations subsumed in messaging by examining the utterances (Bahktin, in Wertsch, 1991) that constituted the messaging. The patterns identified were of three kinds: community-building, academic, and administrative. This article draws selectively on what constitutes one of these patterns of communication, namely, community building, in the effort to highlight how, what, and where communities of practice exist on-line.

Findings: The Birth of the Community

The activity of the community under focus was born of a genuine desire to sustain working relationships and connections among a small group of practitioners and theoreticians who, for economic and other reasons, found themselves geographically dispersed. Over the course of a 12-year history that was marked by such milestones as an increase in membership reaching the hundreds, changes in the number of lists, changes in the supporting technology, and the recent transformation of front-ends brought about by WWW technology, the community always maintained a double-meaning "x" prefix in its name. Originally referring to "ex-members of the hosting institution," which initially referred to those visiting scholars and postdoctoral students who were no longer residing at the hosting institution, the "x-" also became a symbol of the desire to expand the network of participating scholars to people who did not know each other on a face to face basis. From its inception, then, the actions of this on-line community of practice appeared to be fueled by a vital spirit of connection and solidarity to be realized in the promise of extended on-line communication.

Further, when an old-timer member of the lists created a list of his own in the Federal Republic of Germany, the list was named "XCSA" to mark kinship with the parent list in Southern California. The birth of this new list was announced humorously in the following way:

Our local list here in Hamburg is called XCSA—where X stands for affinity with the xfamily and CSA means: Completely Serious Amusement. There is another Deutung of the list, wherein our trust and hope is expressed: Cross Country Social Attraction. Well, well, well; no excuses for a long message and greetings from Hamburg: Arne.

Naming of the Community

While the lists in their nested organization were named officially by their founder (for example: "x-lists referring to the top level list containing all members of the group; x-comp, meaning x-computers for a subgroup of members with an interest in computer related studies," and renamed following structural changes to reflect the connections that existed between list activity and the journal published by the hosting institution, this name was constantly picked up creatively by all members of the group. Participants posted messages to the list where they addressed all members of the group in terms that played on the dual significance of the "x" prefix. Forms of address, for example, included the following:

Hello Xclass-ers....
Dear X-acting colleagues....
Dear ... and other X-listers..
Hello all xorganized...
Dear Friends of the XFAMILY...
Xmcaers....

To the extent that members of the community often addressed the group in terms that creatively played on the prefix "x" and the name of the list group, members appeared to be appropriating this name in nurturance and acceptance of this identity. Participants named the community repeatedly, and re-formulated this name to build community.

Language Used for Growth and Development

To sustain growth and development of the community beyond the robustness of the supporting technology and the availability of continued funding sources, several patterns of language use were identified as markers of community building. Two of these patterns and their realizations are selectively examined: civil language use and conflict resolution.

Civil Language Uses

The desirability of civil behavior in human organizations has been described in considerable detail by Peck (1993), who suggested a one-dimensional prerequisite he termed *consciousness*. On the lists, civility existed in the form of a positive attitude expressed in language use that included warmth and playfulness and significant gratefulness and appreciation, including praise.

Expression of warmth and playfulness could be found in friendly forms of address marking relations of solidarity in contrast to power (Brown & Gilman, 1960). Public postings included such friendly terms as "Dear Friends and Folks." And members addressed each other and signed-off on a first name basis. In sign-offs, for example, the sequence "preferred name/first+last name" was often used, including short comments expressing such feelings as hesitation, frustration, congeniality, timidity, and modesty, all of which may be seen as converging to mark dimensions of relational solidarity to build community. The following are examples of such sign-offs:

Bertram (Chip) Bxxx
Russ- Russell A. Hxxx
joe- Joszef A. Txxx

mike as in MC
Sigh- Margaret
Sigh, who said modern life was easy? :-(Edouard.
Heavy sigh :-(Edouard
Math is fun- Mary Ann
Puzzled -Arne
Grrr... Cindy
Robert (a perplexed and marginal participant in American society)
Hoping I managed to be clearer:Arne
I confess that in order to get a proper handle on this discussion I need to lock myself in the library for a year! mike.

Similarly, participants referenced each other's posts mostly on a first name basis, except for library citations where the tradition of last names was upheld, for example:

Eugene's 'goal as mediated action' gives great examination about Leontiev's scheme.

Positive attitude could be found in rich expressions of gratefulness and genuine appreciation, including praise. The following utterances are examples of such wealth:

"This is a wonderful statement."
"E-U-R-E-K-A! Now that observation is as perfect example of the nature of re-mediation as anyone could hope for."
"Deborah, that was a fantastic summary of the Griffin and Cole article."
"Alfred L. has posted very eloquently on the alternatives to ..."
"The recent postings from Wxxx have been a great help for me in evaluating what sort of direction to follow in working with elementary aged students. Thank you everyone of you."
"Well, that's my 2 cents. As a frequent lurker to this list I am constantly amazed at the thought-provoking discussion and am often so swept away that I am unable to formulate an interjection before the tide has swept away this current wave. Thanks David."

"What a wonderful explosion of intersting ideas!"
"Thanks, Jay I liked your last message -succinct summary with which I wholeheartedly agree!"
"Thanks Eugene for your elegant summary of the 'psychological' issue of the emergence of goal in an individual's psychological field."

Conversely, when on surprisingly rare occasions a message did display negativity, as in:

I find myself reflecting on the character of the game that we are playing here; wondering what the nature is of the task we are all engaged in...Who is scoring points, and how?

the constructive spirit of the community was then clearly explained, as in:

Would you give me some examples of your interpretation that

'zero-sum outcomes... my account wins if yours loses.' I see people working to understand others' viewpoints while seeking to expand their own.

Conflict Resolution

The absence of flaming[4] in the twelve years of existence of the lists, except on one occasion during the Persian Gulf War, was a source of pride and accomplishment for members, who explicitly pointed this out during interviews as a defining characteristic of the lists. During the five years that I observed and participated in the lists' activity, there was only one incident of bad conflict among members of the community. In contrast to misunderstanding and confusion that fueled some of the observed events, and disagreements, which were conducive to an increase in communicative activity, bad conflict existed as a genuine threat to the very existence of the community. The following abstracted reconstruction constitutes this solitary instance:

Conflict occurred over the issue of gendered participation in off-line academia, with one community member posting in exasperation:

Hey David----
If this conference is spossed'a be on "the social world" context and the like how come there are no-not even half of one female invited speaker?
Seems an obvious over/site!
Not my social world- dats for sure.
MxxxBxxx who is sick to death of seeing this kind of thing and NOT going to take it anymore.

This message, posted almost concomitantly to an amended re-post of the conference program, including feminist theory as a theme (though still without female feminist invited speakers), was followed be a terse rebuke which marked the beginning of a round of messaging between protagonists, overlaid by the messaging of a polarized community that included attempts at impartial moderation and diversion.

The rebuke:

No it wasn't over/site. The speakers we invited best represent the areas we wanted covering. I'm sorry that you see this as political incorrectness on our part. By the way, what do you mean exactly by "sick to death of seeing this kind of thing"? I presume that you think that by not inviting any female guest speakers we are somehow silencing female voice, minimizing their importance etc., etc. We envisage a large number of female speakers attending this event who will be as interested to see invited speakers as any male participant. I don't imagine that you will find my response satisfactory. Perhaps

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[4]The term 'flaming' is defined by Thompsen (1994) as "the exchange of emotionally charged, hostile or insulting messages on computer-mediated communication networks."

you could submit a paper to the conference on this theme? All the best.... D.N.

The escalating polarization of the community with attempts to moderate and divert:

It's none of my business, except insofar as we are all each other's business, but I also would not find D.N's reply satisfactory, if only that its apparently defensive tone does not seem sensitive to the original point made, perhaps rather bluntly, by MB. I happen to count the percentage of women contributors to edited volumes I look at, and am neither a radical feminist "fed-up", nor I think particularly sheep-like in my political intelligence... I have the distinct feeling impression that these percentages vary in a statistically significant way by field, by nationality, and by gender of editors. IS the same thing perhaps true regarding conferences, organizers....

What a difficult road this is to tread!

[...] One other point about form not unrelated to the above. The use of irony and sarcasm, often effective rhetorical devices in oral discourse, are extremely vulnerable to misinterpretations on email. They are also devices that one is tempted to use when angry or annoyed. If you use these devices, it is probably best to mark them in some obvious way. :-)) Right?.

I have listened for many days to this on-going, self-ingratiating drivel about a conference's invited guest speakers and what it means, and am disturbed by the ease with which voices are raised to levels people are not generally comfortable with because the screamers are so convinced that they have got it all right, that this is a case of true moral injustice, the issue (they feel and say) is so clear cut......

After reading Brian's screed, I feel as if any **** can leap into this fray, and so do so...

Finally, a warning, functioning as ultimatum for the existence of community:

It is VERY difficult and rare t maino maintain a commu8ninity of discourse with diwidely diversging personal experience, educations anda backgrounds. I value this commujnitnity for that among its many virtues. The process of creating conventions requiers CO-construction, not imposition. But if I had my way, UI would haevf a ve a convention that does not refer to one's fellow discussants as fools, purveyors of drivel....
I am certain that anyone who wants can push me to the point of where my perspective leads to immoral absurdity (what if a hate monger wnatredanted to dstroestroy [the] x-lists--?) I think at that piontoint either the community as whole would reject such behavior or I would find a new cooneseek a new one.
No discourse is forever.[5]

and sadness, retrospectively:

Dreaming about time I'd like to discuss with you the controversy between D.N. and M.B. I feel that I deeply understand both of them. What makes me really sad is that they both seem to be well intended people who miss each other like trains running in opposite directions. Unfortunately, some X-list smart and kind people rushed to take sides and "seats on these trains".... Why I like the positions of these two people is because both seem to be strongly against discrimination. D's solution ...is in focusing on quality, on "matter" of the academic practice disregarding affiliation of participants. M's solution is in equality, in compensation and ensuring that discriminated members of academic community are in... The bottom line is that I agree that 1> dynamic discrimination, that both M and D seem to argue for, sounds better than rigid one, 2> there is no such thing as fair unfairness or fair discrimination, 3> we should be involved in developing anti-discriminatory practices that are based not on quality (D.) or equality (M.) but on mutuality.

The discourse of community-building, usually marked by a harmonic flow of action, was thus threatened on one occasion by bad conflict over gendered participation at a conference occurring off-line. This breakdown was marked by an escalation of tone ranging from exasperation and annoyance to sarcasm and heavy-handedness. Finally, with the ultimatum of a disappearing object of contention, the community chose to resolve the conflict by re-claiming responsibility and ownership of the x-lists.

The Virtual Space

As Scherer (1972) suggested, with surprising insight, communities in modern technological societies need no longer exist within geographical or time boundaries. Instead, they may surprise us, arising where we do not expect them to. The very existence of community on-line was often questioned on the x-lists, prompting participants to debate their own as being a "something or other, different for each participant," be it forum, laboratory, community, telecommunity, discourse, or keyboard community. With no bodies present and no time-space to circumscribe activity on-line, where and when is community? As one participant put it:

assuming that 'real human thought' is rooted in the body. Can we really call ourselves a 'community' if we rarely see each other when we communicate. There is no good way on e-mail to show the many animal displays that help me to communicate in a classroom or with my friends and relatives! Communicating by e-mail therefore feels like listening to abstract music -- or at least instrumental music -- instead of vocal music. It seems once removed (or twice or thrice?) from human signaling ..."

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[5]This message, with its "typos" and "hiccupping" flow,

appeared 'as is' during the reconstructed on-line event in question.

Similarly, in response to a new self-introductory message, the founder of the list recently posted:

Hi Anthony-- Well, you might document the process of your becoming a member of this entity (I hesitate to speak of it as an institution or community 'cause that topic is under discussion with no clear outcome!) Welcome.

Beyond the ambiguity noted by Turkle (1995) that such invisibility creates by promoting the projection of selves, real and imaginary, perhaps that presence in the flesh needs to be separated from an embodied presence found in language use and action. ListServer technology does not afford such actions as hugging, kissing, smiling, or frowning; and when misunderstanding and confusion arose, it seemed that communication was functioning to augment uncertainties rather than to reduce them. But where there were no bodies present, there were voices to create text-based inter- and intra-body communication. Inter- and intra-body communication are mediated by the unfolding text when cognitive activity and physiology have been factored back into the language used to participate. Cognitive activity and physiology take the form of what is required to "brain-storm," to debate, to expand on someone else's point of view, to clarify, to elaborate; and, conversely, to appropriate, to thieve, to loot, to raid, and to take in or receive the other's points. Beyond deconstructing the notion of community, then, there is the necessity to heal the mind/body split; to conceive of the unity of essence and physical matter in a Marxist definition of the material, for example; and, in the case of on-line communities of practice, to perceive of language use as the embodiment of thought and action.

In other words:

Yes, of course we can be a community", and my evidence is that we _are_. [...]. The question is what do we do instead of bodies and proximity? And my view is that we're inventing what we use all the time. My daughter (18) asked me the other day, from the university's computer lab, if I'd print something for her. She phrased it this way: ' I know it's inconvenient, but *whiny kid voice* I don't know hooowww.' Every active list I'm on is in the process of inventing a visible language that'll do the things we need to do to make community. The well where that invention comes from is the same one from which the physical stuff we do in F2F [Face to Face] communities comes, I think: it's our ability to create language to do what we need to do.[...].

[...] The body is absent from none of this. Disembodied minds (if there could be such things) could not write e-mail on any keyboard I've come across, nor read by the emitted or reflected light of any screen I've seen. Bateson's circuit of differences that make a difference [...] loops through organic tissues (eyes, brains, muscles, fingers) and through plastic (keys), magnetic domains (in memory and processor cores), twisted pair and optical fiber, cathode emitters and screen phosphors, and on still through more organic tissues [...] We are already "cyborgs" long since in our cultural evolution, and in our biological evolution, parts of a single system that includes axe, the tree, our prey, the ground beneath our feet, the digging stick, the seedling.

Implications

The findings reported above are selective and far from exhaustive, even if they had been fully inclusive. What they point to are patterns of language use through which community building activity successfully occurred over an extended period of time. The implications of such activity for life off-line, in this case the larger world of academia, are manifold. Two of these are succinctly examined: learning and collegial support or ersatz.

Learning

Responses to a survey posted on-line that was designed to determine the popularity of a particular event yielded some unexpected results that overwhelmingly pointed to learning. Asked what had made the event in question so different from other events; and whether and how this event had been interesting, participants proceeded to explain, without exception, how this event had been a real learning experience. Point blank and straightforward participants responded in the following terms:

• It was relevant to the problems I am working on, I learned a lot.
• The theme is highly relevant to some problems I am working with, I learned a lot.
• It was theoretically interesting.
• I used a great deal of that discussion to clarify my understanding of not only Activity Theory, but also of current philosophical discussions of intentionality.
• It opened up my views on the depth of the issue of goals.

In highlighting how the discussion had been useful, mind expanding, and clarifying, participants were uncovering different dimensions of the learning that was occurring, via on-line participation, both silent and voiced.

Beyond the surprise of defining a popular event as an event that afforded a good learning experience, participants also pointed out that they had sensed participating in, and/or witnessing, the very making of new knowledge. In the participants' words:

It may be also a genuine extension of the body of sociocultural studies -rather than "what did Vygotsky or Luria mean by..." discussions. People were able to participate from several different (expert) standpoints without being just experts in what the big three had said...

It was a 'real' discussion where the expectation that views will be changed is operative.

The implications of community building activity here are clear in that when such efforts come to fruition, they open up the virtual floor to captivating events, in turn leading to learning and teaching experience gleaned in participation—both silent and voiced. Community building makes real the possiblity of intellectual excitement many times over: as horizons expand; as new "half-baked" ideas are risked into words; and as the possibility of witnessing new knowledge in the making is realized.

Ersatz-Collegial Support

As Scherer (1972, p.116) has pointed out, "men do not live alone" and "if not alone, how together?" suggesting that community is one such social structure and, further, that this structure has a strong affective dimension. It is in this sense, perhaps, that community building activity provides what the psychological literature terms "ersatz"—a compensation of sorts after primary (i.e., family) and secondary (i.e., teacher) bonds have been severed. As one participant put it:

I have been raising all of this at length on the x-lists, because it is precisely here that I have found a great deal of companionship in my heresy—and damn little elsewhere!.

As for those to whom the idea of invisible affective ties is too far-fetched, at the very least, community can be a place for collegial support and trusted advice as the following extracted exchange demonstrates:

Introductory self description (sign-off):

I seek opportunities to share information on related topics.

Followed two days later by:

Hi Mxxx, I just had a blow-out in class yesterday. I realize that I am trying to educate a population of anti-bilingual ed. Credential students, who are pro Unz and pro-English only and it is some scary stuff. I am too mad to discuss this right now and will cool off before writing a more coherent piece. Please indulge me.

The off-line ramifications of on-line community building, here, are clear, inasmuch as the virtual space of the x-lists became, on occasion, a place to seek support and to share experiences with like-minded fellow people. This context of communication offered validation, encouragement, or simply collegial conversations that other researchers (e.g., DiMauro & Jacobs, 1995a,b) have found in large part missing or absent in teachers' professional experiences. This, in turn, prompts the careful design of electronic network technology in specific support of such activity.

Conclusion

Each community commands its own way and grounding, but it has been suggested in this article that patterns of communication such as *naming the community, civil uses of language*, and *conflict resolution* are important factors needed to create, build, and sustain community over an extended period of time. And, further, that the degree to which these community building efforts are successful is the degree to which an on-line community of practice becomes both *source* and *outlet* for its own activity, in this case, academia. □

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New Research Journal Articles

The 1997–1998 edition of the *Training Research Journal*, now available, contains the following articles:

- The Effects of Accountability on Performance in Training
  Jacquelyn S. DeMatteo, Kyle M. Lundby, and Gregory H. Dobbins

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