Lying on Software Projects

Robert L. Glass, *Griffith University*

Johann Rost, *University Politehnica of Bucharest*

Matthias S. Matook, *ecetera*

> Most respondents to this survey said they'd encountered lying, most often in project estimation and status reporting. When lying happens, developers often know about it even when management doesn't.

Lying isn't a new phenomenon. People have been doing it as long as there have been people. There is reason to believe, however, that the number of incidents of lying is increasing. For example, in the magazine *Psychology Today*, Allison Kornet noted that "if the 1980s was the decade of greed, then the quintessential sin of the 1990s might just have been lying."[1] She added that "until recently lying was entirely ignored by psychologists, leaving serious discussion of the topic in the hands of ethicists and theologians." (See the sidebar "Related Research on Lying.") And, we might add, given the recent political implications of lying to the public, serious discussion is also left to legal experts.

We need objective research on this subject, and the 2006 study we report on in this article will begin to supply that need. We're specifically interested in the phenomenon of lying in the computing profession, especially in the software field (see the sidebar "Cases of Lying in the Computing Field" on p. 92). To the best of our knowledge, there has been no prior research study of lying in the software profession.

The Survey

For this study's purposes, we defined lying as "intentionally distorting the truth" (this matches the dictionary definition). We specifically didn't consider accidental or inadvertent lying.

To determine the nature and prevalence of lying on software projects, we surveyed active software practitioners and those closely connected with software practice. We used specific, structured questions, but the respondents also had opportunities to provide further details.

We distributed the questionnaire (http://smart-consultant.de/survey.html) to hundreds of potential respondents by emailing it to our personal contact lists, posting it on the Web, and having a professional journal describe the study, publish the questionnaire, and encourage readers to fill it out and email it in. The distribution approach was clearly opportunistic, and not necessarily the best approach.[2] But we felt it was reasonably effective given the study's nature, noting that the most common (and huge) problem in such surveys is a low response rate. (We discuss this approach's advantages and disadvantages in more detail later.)

We used all of the 62 responses we received. Geographically, the responses were nicely distributed across Europe, the US, and Australia. Responses were, of course, about respondents' perceptions of lying. It's difficult, on software projects or elsewhere in life, to distinguish accusations from occurrences of lying.

Findings

To get at the survey's intent, we asked questions about

- who the respondents were,
- what their experience with lying had been,

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- how often they had encountered lying,
- what the motivations for the lying were,
- who (organizationally) had been involved in the lying, and
- what they perceived to be the antidotes to lying.

The study findings focused specifically on what we believed a priori are the most common activities that result in lying: estimation, status reporting, political maneuvering, and hype.

General Results

Most respondents were senior people in the field: 48 percent had more than 15 years of experience, 6 percent had less than two years, and the remainder had experience ranging from 2 to 15 years. Regarding age, 37 percent were 21 to 35 years old, 35 percent were 35 to 50, and 26 percent were older than 50. Job titles varied considerably:

- software engineer, programmer, or application developer (35%);
- software consultant (22%);
- systems analyst or engineer (7%);
- academic faculty (7%);
- project manager (5%);
- software architect (5%); and
- software quality assurance or tester (3%).

Respondents listed several other job titles, including epidemiologist and scrum master. Such other titles represented 16 percent of respondents.

Fully 86 percent of the respondents said they had encountered incidents of lying in the software projects on which they had participated.

We gave participants a structured set of options to describe the type of lying that had occurred. Table 1 (on p. 93) summarizes the data. (We allowed multiple answers, so here and throughout this article, percentages need not add to 100 percent.)

More than one-quarter of the respondents said lying occurred for some other reason—for example, "seeking CMM certification," the results of an unforgiving "can-do" culture, and so on. Grouping these responses, we found such reasons as

- increasing sales (for example, "to get a leg up on the competition and win bids");
- lying being more advantageous than telling the truth (for example, "to generate a feeling of optimism when someone takes over a project that hasn't been going too well");
- looking good in the eyes of bosses or customers (for example, "to be the star or hero");

Related Research on Lying

Researchers in various fields other than computing have studied the more theoretical side of lying. Regarding the increasing incidence of lying, the cognitive psychiatrist Charles V. Ford reported on a poll showing that 54 percent of people say dishonesty is more common now than a decade ago.[1] He claims that lying is "ubiquitous," that "our society is permeated with deceit," and that other studies say 90 percent of people lie. His book even contains a chapter called "Everybody Lies." Similarly, philosopher-psychoanalyst David L. Smith says, "Nature is awash with deceit."[2]

Ford also says that lying is "understudied," not just in psychology but in all academic fields.[1] For example, in an article on trust, the international-relations specialist Aaron M. Hoffman never mentions lying.[3] Hoffman's only relevant observation is that being truthful leads to trustworthiness.

But the most interesting aspect of studies about lying is the issue of whether it's ethically wrong. Ford proposes that "lying … [is] neither inherently moral or immoral," saying that it's the kind of lie told that determines its wrongness.[1] (For example, many authors say that "white lies," whose intention is to help and not harm, aren't morally wrong.) Similarly, human relations specialist Edgar H. Schein says "lying is not per se a moral issue," taking what he calls a "moral relativism" position on the issue.[4] And Smith says that "deceit is normal, natural, and pervasive."[2] However, many philosophers such as Thomas Aquinas and Immanuel Kant condemn lying in all forms, as do many religions. (It's interesting, however, that the Ten Commandments singles out "Thou shalt not bear false witness against thy neighbor" and not other kinds of lying.) And in a practical sense, in the case studies Ford reported, telling lies leads liars into lots of trouble.[1] Finally, philosopher and ethical theorist Sissela Bok comes down firmly on the side that "lying is largely wrong," saying "truth and integrity are precious resources, easily squandered, hard to regain."[5]

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- overconfidence (for example, "dedication to a vision without regard for reality");
- hiding mistakes; and
- trying to get workload decreased.

To determine how often lying occurred, we gave respondents the choice of specifying 0 to 100 percent of their projects in 10 percent increments. The largest subset, 18 percent, said it happened on 50 percent of projects. However, 14 percent encountered it on 100 percent of projects.

We asked three "who" questions regarding each category of lying (Who lied? Who knew? To whom was the lie told?). Table 2 summarizes those re-

Cases of Lying in the Computing Field

Many anecdotal reports point to the prevalence of lying in the field.

Robert L. Sutton relates several incidents of lying to computing managers.[1] In one incident, "many Atari engineers pretended" that things were all right when they weren't. The book also reports on surprising incidents of lying involving Hewlett-Packard, a company better known for its truthful engineering-driven culture.

As a result of a seminar among a dozen practitioners that explored lying, one of us (Robert L. Glass) concluded that "lying to management is a conflagration, one that threatens to consume our field."[2]

Regarding the well-known Confirm airline Reservation System (RS) project failure, *Computerworld* reported that a key contention in the lawsuit was that "some people who have been part of the Confirm RS management did not disclose the true status of the project in a timely manner."[3]

In the investigation following the NASA Challenger space shuttle disaster, miscommunication was found to be the key cause of the infamous O-ring problem. As Dorothy Windsor reported, "Thiokol engineers concluded that the O-ring problems were serious before their management did. However, in their written communication, they varied the extent to which they voiced that seriousness, depending on whether the audience was internal or external."[4]

In an analysis of the level of trust between CEOs and CIOs, *InformationWeek* noted, "IT executives offer up fictitious benefits simply to gain approval for systems. … And the culture gap [between IT and corporate management] grows wider."[5]

Interestingly, support for lying isn't unknown in the computing and software fields. For example, Alan M. Davis identifies as one of his 201 principles of software engineering the recommendation that "minor underestimates (in software project estimation) are not always bad."[6] Also, Glass reported this attitude from some of his seminar attendees.[2] One noted, "I had to check my ethics at the door when I went to work here," and another said, "Lying gets me resources I wouldn't otherwise get."

However, many software practitioners do have ethical and pragmatic concerns about lying. For example, Sutton argues that "Lying is a sleazy thing to do."[1] Grady Booch says, "Every stakeholder, no matter how close or far from the code, deserves the truth."[7] Finally, the IEEE Code of Ethics specifically commits IEEE members to be "honest and realistic" (www.ieee.org/web/membership/ethics/code_ethics.html).

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Estimation

As Table 1 shows, the most predominant form of lying on software projects was (by a tiny margin) estimation (defined as providing cost and schedule estimates early in a project). Sixty-six percent of respondents said they had experienced such lying. Interestingly, 15 percent reported the estimates were "too large," while many more, 34 percent, reported they were "too small." Another 34 percent reported both "too large" and "too small."

How large was the typical estimation lie? Again, we gave respondents the choice of specifying 0 to 100 percent; the largest number, 18 percent, said the lie was off by 50 percent.

Regarding the frequency of estimation lying, 18 percent said it had happened on 50 percent of the projects they were familiar with, whereas 10 percent saw it happening on 100 percent. The remaining percentages were spread fairly evenly among the 0–90 percent range.

Table 2 presents data regarding who made the (deliberately wrong) estimate and who knew the estimate was wrong. Apparently, management makes or modifies estimates but knows less than the people under them about the estimates' validity. Also, the respondents didn't understand or weren't interested in the question about to whom the lie was told; the answers to this question weren't meaningful.

Why were these lies told? The "motivation" answers were particularly interesting:

- 42 percent said the estimates were a cave-in to people with more power; 31 percent (of the total) said this happened on 50 percent of projects.
- 42 percent said it was to win via a low estimate; 28 percent said this happened on 50 percent of projects.
- 40 percent said it was padding with a high estimate to hold back reserves; 23 percent said this happened on 10 percent of projects.

We also asked respondents what could be done to minimize or eliminate such lying. This was an open-ended question, with a huge variety of answers:

- Improve management techniques, such as better time tracking and better control (21%).
- Change who does the estimate, such as involving the developers (18%).
- Improve the estimation process, such as using independent estimators (15%).
- Improve communication, such as not "shooting the messenger" (10%).

sponses. Responses to the "to whom" question were problematic, so we omitted them from the table.

About 10 percent of the answers were pessimistic, varying from "wrong estimates are not always bad" to "it is not possible to fight human nature." The overall response rate to this question indicates that respondents were strongly motivated to reply even when there was no structured question.

Status Reporting

The second most predominant form of lying was in status reporting (defined as providing progress reports as a project proceeds)—65 percent of respondents said they had experienced such lying. Fifty-two percent noted overly optimistic reporting, whereas only 2 percent noted overly pessimistic reporting.

Twenty-one percent said status-report lying happened on 50 percent of projects (no other percentage of projects drew a significant response).

Table 2 shows the data for our "who" questions. We had the same problem reported earlier regarding the question "to whom did they lie," so we didn't get any meaningful answers.

Regarding motivation, 66 percent said they lied to tell management what it wanted to hear; 19 percent said this happened on 100 percent of projects, and 15 percent said it happened on 50 percent. Forty-four percent said it was to hide bad work; 21 percent said this happened on 20 percent of projects, and 16 percent said it happened on 50 percent.

Regarding ways to minimize or eliminate such lying, 31 percent of the responses were about management techniques. For example, managers could change management incentives or have interim retrospectives. Ten percent were about better communication, such as encouraging openness and honesty. Eleven percent were simply pessimistic—for instance, "I don't really have a constructive suggestion" and "punish the guilty."

Political Maneuvering

The third most frequent form of lying was for political maneuvering (defined as any activity in which someone takes a position to improve a political stance). Fifty-eight percent had encountered this form of lying; 24 percent said they had encountered it on 10 percent of projects. This form of lying is apparently infrequent; 10 percent is the lowest figure for any of the reasons we identified.

Regarding the "who" questions, again refer to Table 2. Clearly, lying for political advantage happens at the top, not the bottom, of the management ladder (not a surprise).

As to who knew about the lying, the responses indicate that, although management tends to tell

Table 1
Lying frequency

Lying category	Respondents who experienced lying (%)	Number of projects on which lying occurred (%)*
Cost or schedule estimation	66	50
Status reporting	65	50
Political maneuvering	58	10
Hype	32	30

* The percentage chosen by the most respondents.

Table 2
Who lied and who knew (%)

Lying category	Management	Project lead	Developer	Marketing	Customer or user
Cost or schedule estimation					
Who lied	53	48	45	40	11
Who knew	47	60	66	36	13
Status reporting					
Who lied	49	54	30	20	12
Who knew	43	59	59	23	16
Political maneuvering					
Who lied	44	34	19	26	13
Who knew	42	45	48	29	16
Hype					
Who lied	31	32	29	36	16
Who knew	31	36	44	34	19

lies for political advantage, those lower on the management ladder are pretty aware of those lies.

Twenty-one percent said the lies were told to the manager, 13 percent said to the project lead, 10 percent said to the customer or user, 7 percent said to the developer, and 7 percent said to marketing. In this case, the respondents did answer the question about to whom the lies were told, but the data is suspect because it doesn't come close to adding up to 100 percent.

We didn't ask about the motivation for lying as a form of political maneuvering because we expected fairly obvious explanations.

Regarding ways to minimize or eliminate such lying, 22 percent of the responses were about management approaches, such as focusing on problem solving, avoiding blame, and making reporting verifiable. Ten percent were about communication—for example, keeping reporting data open and transparent. Ten percent were pessimistic—for

About the Authors

Robert L. Glass is president of Computing Trends and an honorary professor of software engineering at Griffith University. He is also editor of the *Software Practitioner* and the Loyal Opposition column editor for *IEEE Software*. Glass received an honorary PhD from Linkoping University and is a fellow of the ACM. Contact him at rlglass@acm.org.

Johann Rost teaches information systems and software engineering at the University Politehnica in Bucharest. He received his PhD in computer science from Paderborn University and is interested in software project management and outsourcing. Contact him at johann_rost@yahoo.com.

Matthias Matook is an architect at ecetera, which consults on e-business solutions specializing in quality control and performance optimization. He has worked in the software industry as a software developer, technical lead, integration manager, and architect. Contact him at matthias.matook@ecetera.com.au.

instance, "it's the same all the time" and "you're asking for a solution to combat human nature."

Hype (hyperbole, exaggeration for effect)

The rarest form of lying was hype. Fifty-seven percent reported they had encountered this; 16 percent said they saw it on 30 percent of projects, with the other percentages of projects fairly evenly spread.

The results about who employed hype and who knew that hype was being employed are in Table 2. They indicate that the best defense against hype is to listen to those at the organization's technical levels (again, this isn't a surprise).

To whom was the hype told? Eighteen percent said management, 18 percent the project lead, 15 percent the customer or user, 13 percent the developer, and 10 percent marketing.

Again, we didn't ask about the motivation for employing hype.

Regarding ways to minimize or eliminate such lying, 13 percent of the responses were about management techniques, such as flattening the management structure and involving the customer. Ten percent were about communication, such as having a tolerant corporate culture, and 8 percent were pessimistic—for instance, "I have absolutely no idea."

Discussion and Limitations

The most serious limitation we encountered in this research was in getting a practitioner audience to respond to our inquiries. This is, of course, a problem with all surveys, especially surveys of practitioners. But it was worse in this case because we were asking our target audience to talk about situations of some delicacy.

It's impossible to present the survey's response rate. We had 62 respondents out of hundreds of contacts (defined in what follows) made. Normal response rates for this kind of study range from 5 to 15 percent, and we believe ours would be in that range. However, as we said earlier, we not only distributed our questionnaire directly to potential respondents but also published it in print and on Web sites, where respondents could opt in. We also invited *IEEE Software*'s editorial board to respond on an opt-in basis, and ACM SIGSOFT published the questionnaire and invited readers to opt in. Thus, overall, response rate was somewhat meaningless.

We also had a problem with answers to questions such as "on what percentage of projects did this kind of lying occur?" Although we gave respondents the full choice of 10 percent increments from 0 percent to 100 percent, most answers came back clustered at 50 percent or (less often) 100 percent. This likely means that the answers were retrospective impressions rather than the reporting of accurate data.

There was also a problem with responses to questions such as "To whom were the lies told?" as we previously mentioned. We're perplexed by this problem and have no reasonable explanation for it.

Finally, because we provided the categories (such as estimation and status reporting) in the questionnaire rather than letting them be derived bottom-up from responses, the results might be biased.

In the view of other disciplines, as we said early in this article and in the "Related Research on Lying" sidebar, lying in the general populace occurs frequently and increasingly. Yet, researchers in those fields tell us that most researchers ignore lying. (Those views were consistent across such disciplines as psychology and psychiatry, human relations, philosophy and ethics, and even international relations.) Perhaps, then, the fact that lying is also prevalent and understudied on software projects isn't a surprise.

In those other disciplines, we also found mixed feelings about whether lying was morally wrong, with most experts agreeing that certain kinds of lies aren't but that others are. In this study, we sought

to study lies that are fairly clearly morally wrong, such as intentionally wrong project estimates and status reports, because those lies will likely most significantly impact software projects. We chose not to address the issue, except in passing, about whether software project lying could under some circumstances be benign.

We believe we chose the proper audience to query about the prevalence of lying in the field: software practitioners, mostly senior technical specialists.

In every case, the developers on a project knew more often than anyone else that a lie was being told. But who told the lie was a bit more varied—estimation and political-maneuvering lies came most often from management, status-report lies came most often from project leads, and hype came most often from marketing.

Respondents were quite willing to share their perceptions about lying. Many questions were open-ended and qualitative; nearly all respondents provided lengthy, insightful responses to those questions, especially those relating to ways to minimize or eliminate lying. (Interestingly, as one reviewer of this article pointed out, most respondents suggested accomplishing this by increasing control, but some experts suggest this can't help,[3] and instead recommend finding ways to increase trust.) The full set of responses is at http://smartconsultant.de/survey.html. ⓢ

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