“ONLY IF I’M FIRST AUTHOR”: CONFLICT OVER CREDIT IN MANAGEMENT SCHOLARSHIP

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From authors' responses to open-ended questions, this theory-building study developed a framework to explain conflict over credit for joint research. Regression analysis of quantitative items provided evidence for the influence of motives and power on attitudes toward the value of author tasks and the criteria for ordering names in publications. The resulting model identifies four collaborative approaches and the sources of conflict appearing in each.

Few things have damaged more research relationships than conflict over how authors' names should appear atop a journal article. Despite the potential for conflict, however, collaborative research is increasingly popular in management scholarship. The proportion of multi-authored articles in the Academy of Management Journal, the Academy of Management Review, and Administrative Science Quarterly increased from 18.3 percent in the 1960s to 47.7 percent in the 1970s and 60.1 percent in the 1980s.

In light of collaboration's increased popularity, several studies have explored norms on assigning credit. Although important, these studies have left open the question of why conflict arises. Thus, the purpose of this research was to explore the attitudes individuals bring to co-authoring and to build a model explaining conflicts over credit.

BACKGROUND

The popularity of research collaboration is easy to understand. It brings complementary backgrounds to a project, results in more publications, and educates graduate students and junior faculty members. Barnett, Ault, & Kaserman, 1986; Strahan, 1982; Zook, 1987). Also, the rapport and friendship involved often make research more enjoyable (Wildavsky, 1986). But although collaboration offers benefits, two questions can cause conflict among collaborators: What type of work need an individual do on a project, and how much, to become a co-author? How is authorship order determined? Spiegel and Keith-Spiegel (1970) found agreement among psychologists that only those making substantial contributions should be credited with authorship and that research design is the most important task. A replication yielded similar results (Bridgewater, Barnstein, & Walkenbach, 1981). Von Glinow and Novelli (1982) found that credit based on prestige was viewed as unfair but that listing authors alphabetically was seen as sometimes appropriate. Recently, the Academy of Management endorsed sharing credit "in correct proportion to the various parties' contributions" (Academy of Management Journal, 1990: 903).

Researchers have, however, found differences of opinion that would affect application of this contribution protocol. For example, Mitchell, Beach, and Smith (1985) reported disagreement on how much credit was deserved for "thinking up and planning the research." Spiegel and Keith-Spiegel (1970) found disagreement over contributions from students and the credit deserved by consultants. Over (1982) observed the need to explain such differences and called for work on the antecedents of conflict as well as the means of its resolution.

This study started with Mitchell and colleagues' (1985) idea that scholars engage in research for a variety of reasons. We subsequently reasoned that an author's motives provided an important set of antecedents to collaboration. Thus, we set out to measure motives for co-authoring as well as attitudes toward various tasks and criteria for ordering names.

RESEARCH METHODS

In our research design, we built on existing work while recognizing the lack of prior theory on conflict over co-author credit. Several elements of the procedure were drawn from the theory-building approach Eisenhardt (1989) described. Variables were specified a priori, and a flexible instrument containing both structured and open-ended items was developed. We explored the qualitative data to develop a tentative framework and examined that framework's consistency with quantitative item data. The result was a model of four collaborative approaches, each connected with different forms of conflict.

Data Sources

We chose to collect data with a questionnaire in order to preserve anonymity and minimize social desirability bias (Wiseman, 1972) within a large, diverse group of experienced co-authors. There were three initial sets of items: (1) motives for collaboration, (2) activities composing authorship,
Analysis of the Qualitative Data

Answers to the open-ended questions were transcribed, then open-coded (Strauss & Corbin, 1990) independently by the first and second authors to allow variables to emerge from the data. A total of 383 discrete data points (statements) from 127 questionnaires were coded into 90 variables. Using the percentage agreement method (Miles & Huberman, 1984), we found initial reliabilities of 59 percent between coders and 76 percent (average) within coders. The coders then worked together to resolve overlap and redundancy, and this process raised both reliabilities to above 90 percent.

One coder then grouped the variables into ten general categories; using these categories, the second coder independently sorted the variables, achieving nearly perfect agreement. Although this categorization added parsimony, some categories contained inconsistent views. For example, the project structure category included "rules are clear from the start" and "flexibility in the plan as the project develops." Consequently, we applied independent axial coding (Strauss & Corbin, 1990), revising codes to clarify the patterns. We thus viewed the data from new perspectives, looking at differences among variables within categories and for common themes across categories. An iterative inductive-deductive approach was then used to develop tentative themes and test them against the data (Glaser & Strauss, 1967).

RESULTS

Justice as the Emerging Framework

Ultimately, three themes emerged from the qualitative data. Two of these contained comments focusing on fundamentally different reasons for scholars to collaborate. The content emphasized task elements, schedules, and division of work on the one hand and friendship, trust, and flexibility on the other. Comments belonging to the first theme implied that co-authoring was essentially an agreement designed to produce a specified output. The second theme indicated co-authoring was a social relationship established to achieve shared learning. The third theme involved power differences. Feelings of exploitation were common, and differences in skills and experience were also mentioned.

The two reasons for co-authoring revealed in the data signify respondents' intentions and can be seen as cognitive representations of motivation (Campbell & Pritchard, 1976; Fishbein & Ajzen, 1975; Locke, 1968). Co-
authoring appears to be motivated by an intention to increase research productivity or by an intention to create a social relationship, or perhaps by a mix of the two. The data also suggested power as an important variable. To examine how motivation and power explained differences over credit, we linked these themes to an existing theory that seemed to incorporate them, distributive justice.

According to Deutsch (1985) and Kabanoff (1991), equity tends to operate as the dominant rule for distributing rewards where productivity is the primary goal: Those who produce more receive more. Where maintaining social relationships is the primary goal, equity is the preferred distributive principle. Rewards are shared equally regardless of merit.8 In addition, more powerful people tend to prefer equity-based distributions. They often discount the contributions of weaker members, attribute much to their own influence, and feel justified in taking a greater share of rewards (Kipnis, 1976). Power may also act as a moderating variable, influencing the strength of the productivity-equity link (Kabanoff, 1991).

**Justice Constructs in the Quantitative Data**

We sought to explore the validity of this framework with item data from the questionnaire. To determine whether the quantitative items captured the relevant constructs, we performed a principal components analysis with varimax rotation within each section of the questionnaire and evaluated scree plots (Cattell, 1965) to determine the appropriate number of factors. Following Kim and Mueller (1978), we concluded that each of the three matrices exhibited a relatively simple structure. Factors were named in accord with the item loadings, and the results were consistent with a distributive justice framework. First, the four motive factors that emerged (productivity, social relationship, learning, and helping) appeared to line up along the productivity and social dimensions of our underlying theory. Two of the factors seemed relatively pure reflections of this distinction, and the other two represented combinations. Second, the four inclusion criteria (providing support, collecting or analyzing data, having the core idea, and doing the writing) indicated respondents' attitudes about the importance of tasks in determining an equitable distribution of credit. Third, the three order factors were also in accord with our theory: contribution can be viewed as an equity-based criterion, arbitrary order as an egalitarian criterion, and order by prestige as a power-based criterion. Taken together, the inclusion and order factors constituted a set of distribution criteria for awarding co-author credit.

Power was measured using academic tenure status as a surrogate. Tenure captures a variety of power-related attributes, including rank, seniority, and prestige, and the job security associated with tenure amplifies influence and creates significant dependencies (Astley & Sachdeva, 1984). A dummy variable indicated each respondent's tenure status, with 1 indicating tenured.

**Justice Relationships in the Quantitative Data**

To examine relationships, we created additive scales weighted by factor loadings of motives and distribution criteria. Table 1 shows reliabilities for these scales, along with means, standard deviations, and Pearson product-moment correlations.9 We anticipated associations between motives and distribution criteria, with power acting either as a predictor or a moderator of the motive-criteria relationship, or as both. Moderated regression analysis (Champoux & Peters, 1987; Sharma, Durand, & Gur-Arie, 1981; Stone & Hollenbeck, 1984) was employed, and Tables 2 and 3 display the results. We evaluated the main effects of motives and tenure on the inclusion and order criteria in the restricted models and tested the moderating effects of power by adding interactions. A significant improvement in $R^2$ between the restricted and full models would demonstrate support for the moderator (Cohen, 1968). We interpreted the results as generally supportive of the distributive justice framework, but, as is also likely in deductive research, the fit was not perfect (Stone & Callahan, 1981).

As Table 2 shows, introducing interaction terms into the equations for providing support, data analysis, and doing the writing increases the explanatory power of the models ($p < .001$) and provides evidence for power's moderating effects. The full models for data analysis and doing the writing become significant ($p < .05$), and providing support approaches significance ($p < .10$). Since interaction terms are often difficult to interpret, we performed a subgroup analysis for the models that evidenced moderating effects. Table 3 shows results, expressed as standardized regression coefficients. The associations in the two groups are markedly different, reversing in several of the cases in which the coefficients are significant.

The restricted model for prestige order is significant ($R^2 = .196$, $p < .001$), with the coefficients for the helping motive ($p < .001$) and tenure status ($p < .01$) respectively positively and negatively associated with prestige order. The restricted model for contribution is almost significant ($R^2 = .001$).

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8 The distinction between egalitarian and equity-oriented distribution principles is really not as sharp as it appears in this particular argument. Egalitarianism can be seen as asserting that humanity is the overriding difference; the only equitable distribution among humans, therefore, is an equal one. Similarly, an equitable distribution may be seen as creating equality: to give more to the high performer balances differences in contribution.

9 The internal consistency of the measures for the learning and helping motives is below what is considered usually acceptable, which may attenuate the relationships reported between these and other variables. Two considerations sustain their use in the present study. First, research purpose is crucial in evaluating reliability, and the goal here was theory building rather than theory testing. Had we set out to measure the four motives in a deductive study, we would have created more items. For example, one additional item assessing the learning motive with a correlation no less than that of the existing items would have increased reliability to .64 (a). Second, the main contribution of this study is its model and associated propositions, which build on the concepts of productivity and social motivation; reliabilities for these variables are at or above the standards for exploratory research.
### TABLE 1
Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>S.D.</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Productivity</td>
<td>2.01</td>
<td>.75</td>
<td>.21</td>
</tr>
<tr>
<td>2. Social relationship</td>
<td>1.68</td>
<td>.69</td>
<td>.20</td>
</tr>
<tr>
<td>3. Moral</td>
<td>1.35</td>
<td>.52</td>
<td>.17</td>
</tr>
<tr>
<td>5. Core idea</td>
<td>3.41</td>
<td>.63</td>
<td>.20</td>
</tr>
<tr>
<td>6. Data analysis</td>
<td>1.75</td>
<td>.53</td>
<td>.21</td>
</tr>
<tr>
<td>7. Writing</td>
<td>1.42</td>
<td>.55</td>
<td>.20</td>
</tr>
</tbody>
</table>

**N:** 133. These figures are in the diagonal. Coefficients of equivalence for two-item scales are shown for the social, moral, and helping motives as well as for the non-supportive. The number of item in the correlation is shown in the column. All other correlations shown as alpha coefficients.

### TABLE 2
Results of Moderated Regression Analyses

<table>
<thead>
<tr>
<th>Models</th>
<th>Providing Support</th>
<th>Data Analysis</th>
<th>Having Core Idea</th>
<th>Writing</th>
<th>Prestige</th>
<th>Arbitrary</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricted</td>
<td>.045</td>
<td>.064</td>
<td>.041</td>
<td>.097*</td>
<td>.195***</td>
<td>.058</td>
<td>.088†</td>
</tr>
<tr>
<td>Full</td>
<td>.142†</td>
<td>.105*</td>
<td>.048</td>
<td>.149*</td>
<td>.205*</td>
<td>.099</td>
<td>.096</td>
</tr>
<tr>
<td>ΔR²</td>
<td>.097***</td>
<td>.101***</td>
<td>.007</td>
<td>.052***</td>
<td>.009</td>
<td>.031***</td>
<td>.008</td>
</tr>
</tbody>
</table>

* R²'s are shown.
† p < .10
* p < .05
** p < .01
*** p < .001

### TABLE 3
Results of Subgroup Regression Analyses

<table>
<thead>
<tr>
<th>Motives</th>
<th>Nontenured</th>
<th>Tenured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing Support</td>
<td>Data Analysis</td>
<td>Writing</td>
</tr>
<tr>
<td>Productivity</td>
<td>-.274</td>
<td>-.340*</td>
</tr>
<tr>
<td>Social relationship</td>
<td>-.075</td>
<td>-.005</td>
</tr>
<tr>
<td>Learning</td>
<td>-.252</td>
<td>-.325†</td>
</tr>
<tr>
<td>Helping</td>
<td>.165</td>
<td>.224</td>
</tr>
<tr>
<td>R²</td>
<td>.167</td>
<td>.271†</td>
</tr>
</tbody>
</table>

* Standardized regression coefficients are shown. N = 43, nontenured; N = 90, tenured.
† p < .10
* p < .05
** p < .01
*** p < .001

.088, p < .10, suggesting negative effects for social motives (p < .10) and positive effects for learning (p < .05) and helping (p < .05) motives.

### DISCUSSION

Justice concerns the fairness and equality of social arrangements (Perozeman, 1967), and many writers have drawn a distinction between distributive and procedural justice. "Distributive justice refers to the perceived fairness of the amounts of compensation; procedural justice refers to the perceived fairness of the means used to determine those amounts" (Folger & Konovsky, 1989: 115). Empirical research suggests that "distributive justice may be a more important predictor of personal outcomes, like satisfaction with pay, than procedural justice" (McFarlin & Sweeney, 1992: 626), which is a better predictor of outcomes related to evaluating an organization, such as organizational commitment (McFarlin & Sweeney, 1992: 626). Publishing
in scholarly journals affects institutional reputation, but both the recognition and financial rewards accrue chiefly to individuals. Gomez-Mejia and Balkin (1992), for example, found that each article published in a leading management journal was worth $84,134 over a 30-year career. Accordingly, distributive justice appears more relevant than procedural justice in the present context.6

Although the results provided support for this framework, three patterns requiring further explanation emerged from the regression analysis. First, moderating effects were found for the activities governing inclusion but not for order criteria. In the case of prestige order, the main effect of tenure was negative. This pattern suggests a “Matthew effect,” in which more powerful, well-known authors are less concerned with order because they automatically tend to be given greater credit (Hunt & Blair, 1997). Although Zuckerman (1998) found this proposition to be true for Nobel laureates in the physical sciences, Over and Smallman (1979) did not confirm the effect among psychologists.

Second, the relatively small explained variance in the contribution order criterion was also attributed to the main effects of motivation. Social relationship motivation appeared to reduce the inclination toward order based on evaluating contribution, and arbitrary (egalitarian) order criteria also received endorsement. These results suggest motivational differences as a basis for conflict over the contribution order protocol.

Third, attitudes toward specific author tasks were much more diverse than toward order criteria, with mean values for three of the four tasks rating “moderately important” to “extremely important” on the questionnaire response scale. These ratings leave considerable room for co-authors to argue over whose work rates highest, and motive-power interactions appear to be grounds for individual differences. In fact, the main effects of motives and power were relatively minor, but moderating effects on three of the three tasks were significant. Thus, in the model proposed in the following section, motivation is seen to influence attitudes toward author order, and motive-power interactions are expected to influence attitudes toward author tasks.

**TOWARD A MODEL OF COLLABORATION AND CONFLICT**

Reducing the four motive factors in Table 3 to the pure forms suggested by theory results in two principal motivations: social relationship and productivity. Varying these and the balance of power between co-authors gives rise to four patterns of collaboration: collegial, meritorious, mentoring, and directing. Figure 1 shows quotes from respondents illustrating the four types, and the propositions in the following section identify attitudes toward name order, sources of conflict over credit, and resolution patterns for each approach.

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6 Distributive and procedural justice may be closely related, particularly in the case of collaborations, in which prior agreements are used to achieve distributive justice.

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<table>
<thead>
<tr>
<th>FIGURE 1</th>
<th>Collaborative Relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Balance</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Equal</strong></td>
<td><strong>Unequal</strong></td>
</tr>
<tr>
<td>Collegial</td>
<td>Mentoring</td>
</tr>
<tr>
<td>&quot; Trusting relationship in which no one person seeks to dominate.&quot;</td>
<td>&quot;... with mentors who appreciated my abilities and efforts and give credit where due.&quot;</td>
</tr>
<tr>
<td>&quot;... not caring about order of authorship.&quot;</td>
<td>&quot;... in a mentoring situation a willingness of the doctoral student to grow, learn, and work hard.&quot;</td>
</tr>
<tr>
<td>Social</td>
<td></td>
</tr>
<tr>
<td>&quot;Friendship... taking turns carrying the load... true collegiality.&quot;</td>
<td></td>
</tr>
<tr>
<td>Meritorious</td>
<td>Directing</td>
</tr>
<tr>
<td>&quot;First author is the person who has contributed the most to the paper.&quot;</td>
<td>&quot;First author has primary responsibility.&quot;</td>
</tr>
<tr>
<td>&quot;Authorship should be decided on who made most contribution.&quot;</td>
<td>&quot;There has always been one lead author.&quot;</td>
</tr>
<tr>
<td>&quot;The rule--most contribution equals first author.&quot;</td>
<td>&quot;When someone takes the lead and others feel OK.&quot;</td>
</tr>
</tbody>
</table>

Collegial collaborations involve co-authors of equal status and, because their primary motivation is social, rewards (name order) are more likely to be distributed equally (Kabanoff, 1991). Egalitarianism reduces the need to assess differences in contribution (Meindl, 1989) and diminishes this source of disputes. Still, the potential for conflict develops as contribution differences become apparent, provoking discussions of equity in author name order. Egalitarianism creates a positive social tone, however, and fosters an atmosphere of mutual concern conducive to voicing disagreements openly (Sampson, 1969). This openness tends to strengthen relationships (Withy & Cooper, 1989). The desire to preserve harmony and friendship is likely to facilitate constructive confrontation leading to conflict resolution.

**Proposition 1:** In collegial collaborations, the order in which authors' names appear is likely to be based on egalitarianism. Conflicts may arise as disparities in contribution grow. Resolution will be facilitated by constructive confrontation in an atmosphere of friendship and social harmony.

Meritorious collaborations involve co-authors of equal power whose motivation favors credit based on degree of contribution. Equity-based sys-
teams sacrifice social harmony to encourage productivity (Deutsch, 1965; Kabanoff, 1991), and the potential for conflict quickly arises in judging relative contribution. Whose efforts are more important can be a matter of individual perspective. Furthermore, there is only one first author, and trailing authors may reduce their input when they perceive themselves as underrewarded (Adams, 1963). As noted, responses with the productivity theme often mentioned prior agreements on schedules, division of work, and credit. These "contracts" may be an effort to reduce conflict in the face of low social motivation.

**Proposition 2:** In meritorious collaborations, the order in which authors’ names appear is likely to be based on degree of contribution. Conflicts are likely to arise over the relative importance of author tasks. Lower levels of conflict will be associated with prior agreements on schedules, division of work, and author order.

Mentoring collaborations have unequal co-authors whose motivation is primarily social. Typically, the senior partner advises and assists in the junior partner's or partners' career development, and the latter return respect. Except where contribution is skewed, these social bonds increase the tendency toward an egalitarian author order. Still, power imbalance raises the potential for exploitation. Mentors tend to be less self-centered than other senior partners (Levinson et al., 1978), however, a characteristic that mitigates the potential for deliberate abuse. Indeed, respondents suggested that inappropriate feelings of exploitation may be likely. For example, individuals receiving mentoring may develop a sense of inequity out of the naive belief that time equals contribution. Although mentorships need not always be friendly, resolving such conflicts relies on maturity and a continuation of positive feeling (Weber, 1980). The benefits of mentorships for junior researchers have been supported empirically (Williams & Blackburn, 1988).

**Proposition 3:** In mentoring collaborations, the order in which authors’ names appear is likely to be based on egalitarianism. Conflicts over credit may arise from a junior member's feelings of exploitation, which may or may not have a basis in fact. When conflicts arise, resolution will be associated with trust and the maintenance of positive feeling.

Directing collaborations involve unequal partners and productivity as a motivation. A common version consists of graduate students directed by faculty members. The productivity motivation reinforces an equitable distribution of rewards, but power differences complicate matters. More powerful parties may overestimate their contributions and take a disproportionate share of the credit (Kipnis, 1976) and, as in mentorships, the less experienced members may not understand the real value of scholarly tasks. Unlike mentorships, however, directing collaborations rely little on social bonds, and disputes are more likely to be resolved on the basis of power. The weaker members often come to perceive the stronger members as justified in taking disproportionate amounts of credit (Kipnis, 1976). Rather than confronting the issue, the former are likely to respond with decreased involvement, complying without enthusiasm (Kabanoff, 1991; Organ & Konovsky, 1989).

**Proposition 4:** In directing collaborations, the order in which authors’ names appear is likely to be based on degree of contribution. Conflicts based on feelings of exploitation will likely be suppressed by junior members and result in some form of withdrawal.

The four types of collaboration represent pure forms. In reality, projects can include collaborators with different motives, combinations of social and productivity concerns, such as learning and helping, and motives that change over time. Nevertheless, the approaches described above should prove useful for understanding conflicts over credit.

Finally, in this theory-building study we were not in a position to examine empirically the frequency or success of the forms of collaboration described in Figure 1. Indeed, since the sampled journals are highly selective, the respondents had all experienced some degree of success. There may be other collaborative approaches that are unsuccessful. Future research could measure the four approaches directly to examine those issues. Such measures of success would need to include a variety of outcomes. In addition to publication, for example, new friendships and personal development may be valued outcomes of collegial and mentoring collaborations.

**CONCLUSION**

Prior research has centered on professional consensus toward assigning credit in scholarly research projects resulting in publication. In contrast, our purpose here was to examine how conflict among researchers develops. Although consistent with the principle of equity, results of the study suggest that the meaning of contribution differs among individuals and that egalitarians may tend to overlook the issue altogether. Thus, readers of scholarly journals and those making academic personnel decisions should use caution in estimating degree of contribution from the list of names heading an article. Just as important, collaborators should be alert to the diversity within their ranks and the possibility of conflict over credit. We hope the information provided here will reduce animosity among co-authors and contribute to successful working relationships.

**REFERENCES**


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