Dynamics of Trust in Group Peer Mentorship

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Abstract. Group peer mentorship is a collaborative learning venture where peers are both mentors and mentees. Existing work had shown that trust is vital in building a strong mentoring relationship. In this research, we implemented a modified peer review process with a group of professional accountants, to support them in group peer mentorship. Our goal was to find out how peers' interpersonal trust scores affect their rating behavior both as mentors and as mentees. Our results show that the interpersonal trust score influences rating behavior and it depends on the roles assumed by peers in the mentoring relationship.

Keywords: Interpersonal trust, mentorship, collaborative learning

1 Introduction

Group peer mentorship, according to [19], is an ideal form of collaborative venture where peers are both mentors and mentees. It is believed that peer mentoring is cost effective and that feedback from peers is more welcome (or at least less intimidating) than the feedback from an instructor [2]. Existing work on mentorship [10] discussed different factors that can influence the success of a mentoring relationship: communication, differing expectations between the mentor and mentee, appreciation of circumstances that affect each party, and trust. This study focuses on the effect of trust on peers' behavior in group peer mentorship. Other authors have studied factors that influence the development of trust in a relationship: for example, [15] discussed three factors – ability, benevolence, and integrity; and [14] proposed some hypotheses based on these factors. However, we are not aware of any existing work that explores the effect of interpersonal trust on peers' rating behavior in group peer mentorship. This is the problem addressed in this work.

We implemented a peer review framework proposed originally by us in [1] using an available peer-review tool, called PeerCeptiv [21], to help a group of students in a *Master of Professional Accounting* program improve their audit and analysis skills. The main objective was to see if there is a correlation between each mentor-mentee's interpersonal trust score and the ratings the mentor and mentee gave to each other after each mentorship session. Thus, the research question in this paper is:

- "*How do peers' interpersonal trust scores affect their rating behavior both as mentors and as mentees?*"

The rest of this paper is organized as follows. Section 2 presents related work in the areas of mentorship, peer review and interpersonal trust; section 3 describes the study method. Section 4 discusses the results of our study, and section 5 concludes the paper.

2 Related work

Mentorship is a relationship between a more knowledgeable person and a less knowledgeable person for the purpose of career or psychosocial development [23]. In traditional mentorship, it is believed that mentors have to be older and more experienced than their mentees. However, this is costly because it depends on the availability of the experienced mentors. One solution to this problem is to engage participants in peer mentorship, which brings together peers, close in age / career achievement. Research had shown that peer mentorship is the strongest source of students' cognitive and affective development [4]. Peer mentorship is not a new concept and it has been used in workplace environments as well as academic environments where knowledgeable students mentor less knowledgeable ones, e.g. [9]. Group peer mentorship brings peers together for support and learning in groups, to achieve their academic, career or psychosocial goals [23]. This model of mentorship is believed to save time and cost, but its success relies on factors, such as the group cohesion and reciprocity [1], and trust in each other's ability to perform [11]. There are different types of trust described in the literature [27, 34]. In this study, we focus on interpersonal trust.

Mayer, Davis and Schoorman (1995) defined interpersonal trust as the "*willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that party*". There are three parts to this definition of trust – willingness to be vulnerable, expectation and risk-taking because of the uncertainty of the ability to monitor or control [17]. With this definition, it is easy to think that people that are high in interpersonal trust can be gullible. However, research had debunked this assumed relationship between trust and gullibility [26, 35]. [26] described trust as "*believing others in the absence of clear-cut reasons to disbelieve*". Also, [35] discovered that trustful people are more vigilant and detailed on the information they receive and process about other people's trustworthiness. Therefore, they have the tendency to have a high expectation of other people's trustworthiness.

In this study, online group peer mentorship is implemented with the use of peer review system, which is an example of an online collaborative tool. In scientific community, peer-reviewed articles are considered as trusted scientific communications that have gone through the quality control process of peer review [11]. Peer review has been trusted to deliver quality and novel research articles since its inception in the 18th century [31]. Although research had shown that peer review is susceptible to issues like bias, incorrect reviews that may arise due to misinterpretation of

the authors' intentions and inconsistencies [31, 28], some improvements to the peer review process had been proposed [33, 32, 13, 1]. For example, double blind review minimizes the chance for bias and thus supports better the summative evaluation purpose (selection of quality papers) [29]. To support its formative objective, which is essential to support group peer mentorship, back-evaluation of reviews was proposed by [13, 1]. With back-evaluation, authors are required to evaluate their reviewers. Our previous work had shown that back-evaluation of reviews is preferred by peers and has encouraged them to give thorough and helpful feedback [2]. Also, in the peer review study by [3], it was confirmed that with back-evaluation, peers were not reciprocating their review ratings, but were being honest and helpful in their feedback to their peer reviewers; although peers used pseudonyms to mask their identities in this study. However, no work has been done to investigate the relationship between peers' interpersonal trust and their ratings tendency, both as mentors and mentees. [15] defined three factors that contribute to the development of trust: ability, benevolence and integrity. Ability is defined as the set of skills that give a party influence in a given domain, benevolence refers to the trustee's propensity to do good, help or show positive attitude towards their trustor, while integrity refers to the perception of the trustor that the trustee would keep to certain acceptable principles [15]. Based on this model of trust building by [15], [14] proposed some hypotheses to link interpersonal trust of mentees and mentors to ability, benevolence and integrity. We extend their work by exploring how interpersonal trust influences peers ratings of each other as mentors and mentees in the context of an online peer-review system supporting accounting professionals to improve their audit and analysis skills.

3 Study Method

We used a modified peer review framework we designed in our previous work [1, 2]. It comprises five stages: writing, feedback by reviewers, rewriting/revising, publishing and back-evaluation of reviews by the authors. In our case, authors are the mentees while reviewers are the mentors. However in this study, our participants are both authors and reviewers. Peers are assigned into review groups of at most four peers based on their competence, measured using an initial calibration task. Each subsequent grouping is based on their competence, as adjudged by their peers, from the preceding peer review session. Because the participants for this study were employed in a full-time work term, they had limited time for completing an initial calibration task. In its place, we used their past course average to measure their competence for the first peer review session. To classify them as strong or weak peers, we calculated the average competence score (i.e., average of their course averages) for all the participants, and every participant with a competence score (course average) less than this value is classified as weak peer, while every participant with a competence score (course average) greater than or equal to the group average is classified as a strong peer.

To frame our analyses, we proposed two null hypotheses:

1. **H_{01}:** *Mentees with high trust scores will be generous in their ratings and offer high ratings in the back-evaluation of their peer mentors.*
2. **H_{02}:** *Mentors with high trust scores will be generous in their ratings and offer high ratings in their review feedback.*

4 Experimental results and discussion

We conducted a study with professional accountants, who are also registered students of the Master's of Professional Accounting Program at the Edwards School of Business at the University of Saskatchewan. Thirty-seven (37) students consented to take part in the study. However, only seventeen of them completed the study. The goal was to support them in group peer mentorship to improve their audit, analysis and peer review skills. The study comprised an initial survey to measure the trust score of each participant, using Rotter's interpersonal trust / distrust scale, and two peer review sessions using an existing online peer assessment system, called Peerceptiv [21], during which the participants analyzed two audit cases and also reviewed each other's analyses. For both peer review sessions, the peer mentors provided feedback based on three criteria: 1) consideration of engagement issues and risks (*Qn1*), 2) evaluation of accounting choices (*Qn2*), and 3) consideration of materiality, audit approach and audit procedures (*Qn3*).

Participants were assigned into groups of at most four peers for each session. The first assignment was based on the students' course average, instead of an initial calibration task, because due to their working full time, they did not have time to complete three tasks. In the second peer review session, the participants were re-grouped using their peer ratings from the first peer review session. At the end of each of the two peer review sessions, participants were asked to evaluate their experiences both as authors (mentees) and reviewers (mentors).

As mentioned earlier, we asked the participants to complete an initial short survey by Julian Rotter [12, 25] to measure their interpersonal trust score (see Fig. 1). We found that the average trust scores of the 17 participants that completed the study is 75.76, which Rotter defined as a mild level of interpersonal score, and the standard deviation is 6.52. This trust score is consistent with other research involving financial statement auditors, where the participants were also found to have, on the average, a mild level of interpersonal trust score [22].

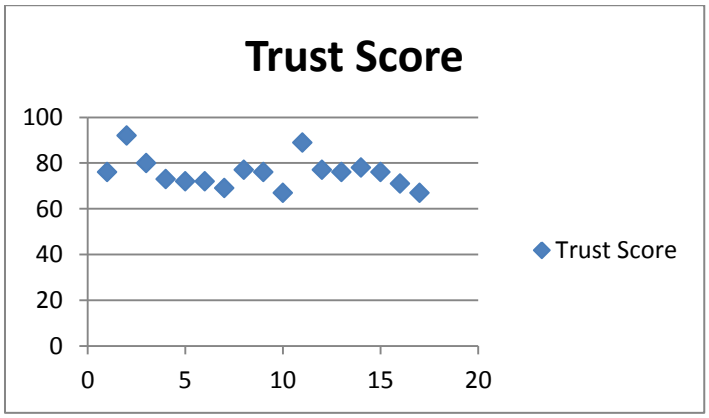

Fig. 1. Participants' interpersonal trust score from Rotter's scale

To answer our research question, we collected both the individual and average peer review ratings that participants as mentors gave their peers and the back-evaluation ratings that the participants as mentees gave their mentors, all in a series. These values were each compared with their trust scores.

1. **H_{01}:** *Mentees with high trust scores will be generous in their ratings and offer high ratings in the back-evaluation of their peer mentors.*

We calculated the correlation between mentees' (authors') trust scores and the back-evaluation ratings that they gave their peer mentors (reviewers) (see Table 1). Our results showed that there is a moderate negative correlation (-0.2047) between their trust scores and the back-evaluation ratings that they gave their peer mentors. That is, the higher their tendency to trust, the lower the ratings they give their peer mentors. Although, this result looks contrary to the definition of trust by Mayer, Davis and Schoorman (1995) that a trustor would be willing to be vulnerable and expect to take risk due to the uncertainty and inability to control the other party; it further reinforces the findings of [26, 35] that trustworthiness is not synonymous to gullibility. That is, high trustors tend to have high expectation of other people. In our case, the more trusting mentees have high expectations of the performances from their peer mentors, therefore, they penalized their mentors more when their expectations of their feedback was not met. It further explains why, despite the fact that our participants have on the average a mild level of interpersonal trust (75.06), the average rating that they gave their peers for their reviews was 1.6 out of the total possible rating of 7. We also split the sample into quartiles based on participants' trust scores. Table 2 shows the mean and standard deviation of the review and back-evaluation ratings for each quartile of the sample.

Table 1. Correlation: trust scores vs. back-evaluation & trust scores vs. review ratings

	Trust score vs. Back-evaluation	*Trust score vs. average reviews ratings*
Correlation	-0.2047	0.0208

Table 2. Mean and Standard deviation of trust scores, peer review and back-evaluation ratings for each quartile of the trust scores

Quartiles	*Trust Scores*		*Review Ratings*		*Back-evaluation*	
	Mean	St. Dev	Mean	St. Dev	Mean	St. Dev
Q1(72)	70.54	1.82	4.00	2.15	2.08	2.16
Q2(76)	73.00	3.35	5.15	1.17	2.23	1.89
Q3(78)	76.92	0.73	5.23	1.12	1.08	1.54
Q4(92)	84.15	6.02	4.92	1.44	1.31	1.94

These results do not support the hypothesis that mentees with high interpersonal trust scores will be generous and give high ratings in the back-evaluation of their peer mentors.

2. **H_{02}**: *Mentors with high trust scores will be generous in their ratings and offer high ratings in the review feedback that they give their mentees.*

We calculated the correlation between the average reviews feedback and the reviewers' trust scores. Our result showed that there is a very weak positive correlation between their interpersonal trust scores and review ratings (see Table 1). That is, a highly trusting reviewer (mentor) will most likely offer high ratings to their author (mentee). We see this as a benevolent act, which [15] described as one of the factors that contribute to the development of trust in a trustee. However, the correlation is weak, which is an indication that more trusting people tend to give slightly positive ratings as mentors to the work of their mentees. We also calculated the correlation between their trust scores and the individual review ratings for each criterion, *Qn1*, *Qn2* and *Qn3* that was used in the peer review (Table 3). The results show that *Qn1* (0.0344) and *Qn2* (0.0186) have weak positive correlation with their trust scores. *Qn3* and trust score show a very weak negative correlation (-0.0023). We also computed the R-squared values, which show that for each criterion used in the peer review, the trust score is a weak predictor of the ratings that they give their peers as mentors (see Table 3).

Table 3. Correlation: trust scores vs. individual review ratings

	Trust score vs. Qn1	*Trust score vs. Qn2*	*Trust score vs. Qn3*
Correlation	0.0344	0.0186	-0.0023
R-Squared(R^2)	0.0012	0.0003	5.194×10^{-6}

These findings, therefore, do not support the hypothesis that mentors with high trust scores will always be generous in their ratings and therefore, offer high ratings to their mentees.

5 Conclusion and Recommendation

Group peer mentorship relies on interpersonal relationships that can go wrong and deviate from its objective if not properly managed. Research had identified communication, differing expectations and circumstances, appreciation of how different circumstances affect each person and trust, as some of the factors that can contribute to the success of mentorship [10]. In this study, we investigated the relationship between peers' interpersonal trust, computed from Julian Rotter's trust / distrust scale [12], and their rating behavior both as mentors and mentees. The 17 participants that completed this study have an intermediate trust score average (75.06). Our results showed that their interpersonal trust score, which is an indicator of their tendency to trust their peers, is a very weak predictor of their rating behavior as peer mentors, as shown in their R-Squared values. This is a good result, since it shows that even trusting people show no significant positive bias in their rating behavior. However, when the participants were in the role of mentees, they gave to their mentors (reviewers) lower ratings the more trusting they were, i.e., more trusting mentees had a moderate negative bias in the back-evaluations of their peers. These findings show that peers' rating behavior is influenced by their trust score and it depends on the roles that they assume in the mentoring relationship. The results from this study are preliminary. With further experiment in a large scale, these findings can be useful in explaining the differences in the feedback that peers give themselves in mentorship and collaborative learning.

There are a few limitations to this study. First, we had relatively few participants who gave consent and only a percentage of the consented participants completed the experiment. In the future we will try to run in a larger-scale experiment. Also, due to the small size of the study, it was impossible to run a controlled experiment, which could have helped in testing how other factors, such as group composition and duration of the study, could have affected the results.

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