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# Understanding Trust Transference Among Social Network Friends In Social Commerce

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## ABSTRACT

This study aims to examine the trust transference among social network friends in social commerce through a randomised experimental design. A total of 558 respondents participated in the experimental study. The findings of this study suggest that trust propagates from one to another in a transitive network path structure (i.e. between a direct-friend relationship, to one of friend-of-friend, friend-of-friend-of-friend or virtual friend relationship) in the social commerce context. Trust is also positively transfers between strong-tie friends when it is examined in the context of message framing with positive and negative attributes.

*Keywords:* Trust transference, social commerce, social ties, message framing.

## INTRODUCTION

The growth of e-commerce has shifted onto online social network (OSN) platforms (e.g. Facebook), which provide a more interactive environment for e-commerce retailers as compared to a traditional e-commerce setting that has no interaction with OSN platforms [15] [13] in the last six years. Many e-retailers have attempted to take advantage of the economic potential and interactive features of OSN websites to fully exploit their social commerce capability. However, making a decision to trust a social commerce retailer is generally more complex than for an offline bricks and mortar physical store [22] as well as for a traditional e-commerce retailer. This is because more than one party (e.g. social commerce retailer and social commerce provider) is involved in any social commerce transaction. Concerns such as social commerce providers (e.g. Facebook) disclosing too much and/or abusing their users' personal information, the accuracy of the content featured on social commerce websites [29], and user vulnerability to social security attacks [7] have also escalated the question on how one perceives trust within the social commerce environment. This suggests that trust is a crucial factor in the success of social commerce.

In the literature, there are three major streams of trust (psychology, sociology and technology) derived from relational theory [2] and trust transference theory [25]. For example, trust from a psychology perceptible focuses on individual's interpersonal trust [16]. Social trust focuses on social relationships from other group members in a social group [23] either in a transitive network path structure or composability network path structure. The technological elements within the e-commerce and social commerce contexts play an important role in institutional or system aspect of trust [23]. Trust is relational, propagative [23] and transferable [6] [18] in both offline and online settings. This is because the frequency of an individual's interactions with another party strengthens the relationship between these two parties and trust evolves based on their experiences [23]. Past research suggests that the basis of online trust starts from offline relational trust (offline trust) [27]. Many Information Systems (IS) researchers adapt trust characteristics from the offline environment into the social commerce context [6] [13] [28]. In addition, the message presentation from different social ties plays an important role to influence another party especially in the social commerce setting when one party has very little knowledge on the online retailer that they want to purchase from [28].

A number of research (i.e. [18], [12], [8]) suggests that trust transference between members of the network in the social commerce context plays an important role in predicting consumer behaviour intention. For example, Ng [18] and Gefen et al. [8] have extended the relational and trust transference theories from Bourdieu [2], Kim [12] and Stewart [25] respectively to investigate how trust is transferred from one member of the network to another via recommendations. However, the studies by Gefen et al. [8] and Nielsen [19] did not take into account tie-strengths (strong-tie and weak-tie) and the different social trust chains (also known as social distances) between members of the network when examining trust transference between members of the network. For instance, how trust transfers transitively via the OSN path structures was not investigated. Additionally, the importance of social trust chains (social distance between friends) on different types of message presentations (such as combinations of aligned and contradicted messages) was not taken into consideration in the previous studies. To address this research gap, this study aims to examine the trust transference on different types of the tie-strengths (strong-tie [direct friend] and weak-tie [friend-of-friend, friend-of-friend-of-friend, virtual friend]), and the different social trust chains via different message presentations (message framings) through a randomised experimental design [3]. The social trust chains included in this research study are: direct friend, friend-of-friend, friend-of-friend-of-friend and virtual friend. The different message framings are: aligned and contradicted positive and negative messages.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Social ties

A social tie is defined as "the set of social interactions between two or more individuals" [25, p.338]. Previous studies have found that social ties, especially the aspect of different types of tie strengths (strong and weak ties), are important in the consumer decision-making process [28], particularly in the social commerce context. Specifically, the closeness of the relationship

between one another (social distance) plays an important part in influencing one's decision-making. This is because different types of social ties have different impacts on purchasing decision [28]. For example, strong ties exert more influence over a recommendation receiver's decision-making than weak ties [4] [21]. Consumers also generally perceive strong ties to be more influential than weak ties in their decision-making processes [4], and they are more likely to share all types of information with their strong-tie contacts.

Past literature has also indicated that a strong-tie is not limited to only being influential; information that is derived from strong-tie friends is perceived to carry less risk [21]. In other words, information from strong-tie relationships is likely to have a higher economic value, is more credible, and considered more useful than that from weak-tie acquaintances [28]. Therefore, based on the stated arguments, consumers can more easily evaluate the quality of products and place their trust on them if their strong-tie friends are the ones who provide the information about these products. In contrast, if weak-tie friends were to provide product reviews, consumers may deem the reviews as risky, less credible, and less useful. In this regard, when the social distance between two parties increases in a social trust chain, such as from a direct friend relationship to one of the virtual friend, friend-of-friend or friend-of-friend-of-friend, then trust between the two parties would be weaker. Hence, the following hypothesis is proposed:

H1. Social distance is negatively related to the level of trust in the social commerce environment.

### **Message framing**

Message framing refers to the presentation of a message [24]. The way a message is framed can have a significant effect on the result of its communication. For example, Prospect Theory [11] explains that when a message is presented in two different ways (i.e. with positive versus negative attribute labels, or the benefits of gain versus loss of a product), the message can change an individual's perspective, preferences and actions.

Besides message framing, persuasive messages derived from social ties are more likely to influence consumer decision-making [19]. For example, if a consumer were to plan a visit to another city and needed to book a hotel, he or she, being not familiar with the destination, would likely ponder to make a decision on where to stay. Frequent internet and OSN users would do a search on the Internet and/or seek advice from their social network friends [18] [28]. What all these information-seeking strategies have in common is that people often seek the advice of others (i.e. social ties), which are either positively or negatively framed as part of their decision-making [28].

Past research results have shown that the framing effect to be rather mixed and contradictory. Smith [24] suggests that positive-framed messages are superior to negative-framed messages. This is supported by Jaworski and MacInnis [10] and Muehling [17], who put forward that positive-framed messages generally result in a positive-effect reaction.

In this study, the positive and negative messages are framed into match and mismatched messages, with the expectations that such attributes may encourage an individual to follow advice from their social ties. The matched (or aligned message) refers to messages derived from a recommender which are aligned with the feedback from other consumers who have consumed and experienced the products or services on the social commerce retailer website (such as TripAdvisor). Mismatched (or contradicted message) refers to the messages derived from a recommender which are not aligned with the feedback from other consumers who have had consumed and experienced the products or services on the social commerce retailer website. As such, recommenders can articulate their personal perception or consumption-related advice, which is either matched with or mismatched with the feedback from other consumers in the virtual platform.

Based on the message framing arguments, it can be posited that individuals often seek the advice of others (social ties) as part of their decision-making, and the advice by recommenders can be positively or negatively framed. In addition, there may be differences on the framed messages when positively (matched) framed messages are derived from closer social ties in the social commerce context. As noted earlier, this is because strong-tie friends are not only more influential, the messages derived from them are also perceived to have higher economic value, more credibility and more useful than that from weak-tie friends [21] [28]. In this regard, the level of trust between strong-tie relationships is greater than weak-tie acquaintances. Together with the message framing, the motives for an individual to engage in a positively framed (matched) message may differ from the motives of other types of framed message. Thus, both strong-tie and positively framed (matched) message can potentially influence the purchase decisions of individuals. Hence, the following hypothesis is proposed:

H2. A positively framed message (matched) has a stronger impact than any other types of framed messages within the same strength of tie between individuals.

H2a. A positively framed message (matched) has a stronger impact than a negatively framed message (matched) within the same strength of tie between individuals.

H2b. A positively framed message (matched) has a stronger impact than a positively framed message (mismatched) within the same strength of tie between individuals.

H2c. A positively framed message (matched) has a stronger impact than a negatively framed message (mismatched) within the same strength of tie between individuals.

### Social ties and message framing towards willing to follow advice from social friends

In addition, following a similar conceptual idea from Roger [21], this research conceptualises that messages derived from a strong-tie social friend and which are aligned with the source of other consumers' feedback are likely to be perceived to carry less risk. Aligned messages that are derived from a strong-tie may promote an individual's willingness to follow their advice. On the other hand, contradicted messages may be perceived to carry a higher risk and such messages may demotivate an individual's willingness to follow advice from their social friends. To further explore such message framing activities on decision-making in the social commerce context, this study expects that messages (either aligned or contradicted) provided by a strong-tie are more likely to be viewed as informative, and such messages increase the individual's willingness to follow advice within the same framing. Thus, this research study proposes the following hypothesis:

H3. Strong-tie has a greater impact to intending to follow advice within the same framing.

H3a. Strong-tie has a greater impact to intending to follow advice that is positively (matched) framed than a weak-tie.

H3b. Strong-tie has a greater impact to intending to follow advice that is negatively (matched) framed than a weak-tie.

H3c. Strong-tie has a greater impact to intending to follow advice that is positively (mismatched) framed than a weak-tie.

H3d. Strong-tie has a greater impact to intending to follow advice that is negatively (mismatched) framed than a weak-tie.

## RESEARCH METHODOLOGY

This study obtained approval from the university's Human Research Ethics Committee. The target sample for this study was undergraduate students (18 to 24 years old) from universities in Malaysia. The use of students as a generalizable sample for research projects has been supported by previous research [5] [8] [22]. Therefore, the use of undergraduate students as respondents in this study is appropriate as they are representative of active internet and social media users [20]. Since internet users and online shoppers are usually young [8], educated, current college and university students [14], and undergraduate students (18 to 24 years old) were chosen as sample in this study. According to a recent study by Arbitron and Edison Research [1], 86 percent of people aged 18 to 24 participate in OSNs and more than half of the active OSN users between the age of 18 and 24 participate in social commerce. A number of studies in OSN and social commerce have used undergraduate students as their sample due to their appropriateness to the context studies [5] [8] [22]. The demographic details of participants in this study are shown in Table 1.

Table 1: Demographic characteristic and TripAdvisor experiences of the respondents

Measure	Item	Total, n=558	Percentage, %
Gender	Male	335	60.0
	Female	223	40.0
Have you visited TripAdvisor (www.tripadvisor.com.my) before?	Yes	181	67.6
	No	377	32.4
How long have you been using TripAdvisor? *	Less than 6 months	96	53.0
	6 to < 12 months	31	17.1
	1 to < 2 years	34	18.9
	2 to < 3 years	12	6.6
	3 to < 4 years	8	4.4

\* Note: The total number is 181 instead of 558.

Before the experiment session, the respondents were briefed on the research objectives, the experimental tasks and precautions. Respondent was voluntary and prior consent was obtained. All respondents were assured of anonymity. During the experiment session, the respondents were required to provide their demographic information before they were introduced to the TripAdvisor website. A Solomon four-group experimental design [26] that involved two experimental and two control groups (refer to Table 2) was adopted in this research to examine the 4x4 factorial design (i.e. four social relations with four types of recommendation) of this study. The framing of these four different recommendations are shown in Table 3. The four different types of recommendations were formed using opinion keywords extracted from genuine reviewers who shared their accommodation renting experiences on the TripAdvisor website. Made-up recommendations refer to the fictional recommendations used in the

experiment treatment. Extracted positive and negative opinion keywords from the genuine TripAdvisor recommendations were used to draw up the made-up fictional recommendations. There were a total of four types of different recommendations that this study used to measure the impact of trust transference: two matched (aligned) and two mismatched (contradicted) scenarios. Extracted positive or negative opinion keywords from the TripAdvisor website were used to form the made-up recommendations in the matched scenarios, whereas extracted positive or negative opinion keywords were manipulated for the mismatched scenarios. As such, 16 treatment conditions were formed.

The 16 different treatment conditions were included in the respective Group 1 and Group 3 experimental groups. The treatment condition is represented as  $X_n$  in Table 2. The control groups are: Group 2 – the control group with pretest and posttest observations; and Group 4 – the control group with posttest observation only. Respondents were randomly assigned to one of the four different groups between Group 1 and Group 4. In order not to exhaust the respondents during the data collection process [9], between-subjects design was employed as part of this experimental study strategy, i.e. each respondent participated only in one treatment during this study.

Respondents that have been randomly assigned into Group 1 will receive two sets of questionnaire (one for pretest and another for posttest observations) with a treatment condition (scenario with tasks to review and book a hotel room). Each respondent in Group 1 received a scenario that required the respondent to navigate the TripAdvisor website and book a hotel room respectively after they have completed the pretest questionnaire. Once they complete the tasks in the scenario, respondent will received the posttest questionnaire. Unlike Group 1 respondents, those respondents who were randomly assigned to Group 3 received the scenario and perform the required tasks. Following this, they only need to respond to only posttest questionnaire. Control groups respondents only received the questionnaire.

Table 2: Number of respondents corresponding to Solomon four-group design

Pretest	Treatment	Posttest	Group	Sample size, $n$
$O_1$	$X_n$	$O_2$	1	268
$O_3$		$O_4$	2	17
	$X_n$	$O_5$	3	256
		$O_6$	4	17
Total				558

Note:  $X$  = treatment;  $n$  = number of treatment, where  $n = 1 \dots 16$ ; Group 1 = experimental group with pretest and posttest observations; Group 2 = control group with pretest and posttest observations; Group 3 = experimental group with posttest only observation; Group 4 = control group with posttest only observation.

Table 3: Four types of message framings

Made-up recommendation, $M$	Recommendations from TripAdvisor website, $W$	
	Positive-framed, $W+$	Negative-framed, $W-$
Positive-framed, $(M+)$	Made-up recommendation matched with the web positive opinion keyword $(M+, W+)$	The negative opinion keyword from TripAdvisor is manipulated and becomes positive $(M+, W-)$
Negative-framed, $(M-)$	The positive opinion keyword from the TripAdvisor is manipulated and becomes negative $(M-, W+)$	Made-up recommendation matched with the web negative keyword $(M-, W-)$

Note: + sign = positive recommendation; – sign = negative recommendation.

## RESULTS

After the initial scrutiny for the data, 558 samples (refer to Table 2) were retained and no sign of pretest sensitisation was found in all the treatments via the Braver and Braver's [3] meta-analytic approach. With this, this study further examines the results with mean scores, standard deviations, effect size and variance via hypotheses testing.

Cases with only posttest observation were used to evaluate the social distances relating to the level of trust in the social commerce context. This is because such evaluation gives a better understanding on how trust transfers when the participant's online social friends introduce the participant to navigate a social commerce website (in this case TripAdvisor) and their decision-making process – to follow the recommendation from their social friends.

A one-way between-groups analysis of variance (ANOVA) was used to explore the social distances relating to the level of trust in the social commerce context. The results showed that there was a statistically significant difference at  $p < .001$  in the trust level scores for the four levels of social relations:  $F(3, 264) = 46.776$ , with  $\bar{x} = 4.970$ ,  $S.D = 1.000$  for direct friend relationship,  $\bar{x} = 3.689$ ,  $S.D = .939$  for friend-of-friend,  $\bar{x} = 2.927$ ,  $S.D = 1.411$  for friend-of-friend-of-friend, and  $\bar{x} = 2.754$ ,  $S.D = 1.398$  for virtual friend. The effect size was .347. This indicated that the actual difference in mean scores between the social relation

groups was high. Therefore, there was significant difference among the mean scores of trust level over the four levels of social relations. Hence, there is an evidence to support H1.

Two-way ANOVA tests were used to compare the matched and mismatched message framings within the same strength of tie between individuals. There was a statistically significant main effect for the level of social relations at  $p < .001$  across the four scenarios. Overall, the results showed that there was no significant interaction between the effects of message framings and the levels of social relations. The results only showed a significant main effect for social relations in all the sub-hypotheses of H2. Given this, H2a, H2b and H2c are only partially supported.

A one-way between-groups analysis of variance was conducted to explore the impact of social tie within a message framing on the level of trust. Participants were divided into two groups according to their social tie (Strong-tie: direct friend; Weak-tie: friend-of-friend, friend-of-friend-of-friend, and virtual friend). ANOVA results showed that there was a statistically significant difference at the  $p < .05$  level in following positively matched advice (scenario 1) for the two social tie groups (strong-tie versus weak-tie):  $F(1, 64) = 44.248$ . The mean score for strong-tie ( $\bar{x} = 4.891$ ,  $S.D = .949$ ) was significantly different from that of weak-tie ( $\bar{x} = 2.980$ ,  $S.D = 1.301$ ). Effect size = .314 indicated that the actual difference in mean scores between strong-tie and weak-tie was big. Therefore, H3a is supported. Similarly, the results of scenario 2 (negatively matched advice), scenario 3 (positively mismatched advice) and scenario 4 (negatively mismatched advice) also showed that there is a statistically significant difference at the  $p < .05$  level for the two social tie groups:  $F(1, 64) = 36.512$ ,  $F(1, 65) = 30.982$ ,  $F(1, 66) = 63.306$ , respectively. Therefore, H3b, H3c and H3d are supported.

### DISCUSSIONS AND CONCLUSION

The primary goal of this study is to explore trust transference among social network friends in the context of social commerce through a randomised experimental design. This study shows that trust can be transferred in a transitive network path structure in the social commerce context. Immediate social friend relationships play a stronger role in influencing an individual's decision-making. This finding supports existing thought, but the strength of its impact is more fully elucidated when it is examined in the context of message framing. The findings of this study highlights that regardless whether a web posting is positive or negative, the effect is about the same, i.e. there is no difference in the strength of influence toward an individual's decision-making process. However, when the tie-strength is tied with recommendation, there is a strong swing towards strong-tie recommendation.

The empirical evidence of this study confirms the existing understanding that individuals are more likely to pay attention to their social relations (especially strong-tie friend) when they give advice and recommend a product or service. The results of this study further highlight that this effect is particularly pronounced in cases where there is a negatively framed advice from a strong-tie that contradicts the feedback from TripAdvisor's consumer comment, in that the former strongly changes an individual's belief towards a retailer. For a practical aspect, this study provides a new insight for social commerce retailer as individuals in the social commerce setting still believe in their close friends whom they perceive as trustworthy in recommending products and services. This suggests that viral marketing may not be as effective as it seems to be in the social commerce context. For social commerce retailers to take advantage of the social commerce platform, they would need to focus on improving their referral mechanism, such as providing incentives to encourage consumers to share their purchase and/or product/service experiences with their strong-tie friends.

This study has two limitations. First, the current study of trust transference focuses on one social commerce retailer (TripAdvisor) that specializes in hotel room booking and recommendations of places of attraction. Future research study could consider comparing other similar room booking settings (such as Airbnb.com and Homestay.com), where the effects of recommendation and social ties may differ. Second, the current sample examined on transitivity network path structure within a single social trust chain but was limited to only one network path. In future research, trust transference may consider comparing different composability network path structures (i.e. more than one social trust chain), where the effects of trust transference may differ.

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