Virtual First Impressions Matter: The Effect of Enterprise Social Networking Sites on Impression Formation in Virtual Teams

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Appendix A

Description of Treatments and Manipulations

Table A1 provides a detailed description of the treatments including how the character's information will vary as well as the processing type. This is followed by a further discussion in the manipulation for processing route and argument strength.

Table A1. Experimental Treatments			Systematic Processing	Heuristic Processing
Self- & Co-Generated		Claim Only	Character A – Relational Claim Character B – Cognitive Claim Character C – Structural Claim	Character A – Relational Claim Character B – Cognitive Claim Character C – Structural Claim
		Claim + Data (CD)	Character A – Relational (CD) Character B – Cognitive (CD) Character C – Structural (CD)	Character A – Relational (CD) Character B – Cognitive (CD) Character C – Structural (CD)
Connection Generated		Claim + Data + Backing (CDB)	Character A – Relational (CDB) Character B – Cognitive (CDB) Character C – Structural (CDB)	Character A – Relational (CDB) Character B – Cognitive (CDB) Character C – Structural (CDB)

Previous research has found both gender and photos may impact a person's interpretation of SNS profiles (Walther et al. 2001; Walther et al. 2008). Therefore, one gender was chosen for all fictitious team members (male) and their pictures were chosen to provide similar appearances (e.g., age, race, dress). A pilot test was conducted in which a separate set of participants drawn from the same subject pool reviewed a number of pictures and rated them based on similarity, attractiveness, and social capital features (e.g. trustworthiness, shared understanding, connectedness, etc.). To minimize any bias based on the individuals used for the profile picture, pictures with similar feature ratings were

chosen for testing argument strength. For example, to ensure the profile picture would not influence relational capital, every picture for this part of the experiment had the same rating for trustworthiness.

Processing Route

To induce systematic processing, a manipulation of outcome dependency (i.e. a participant's performance on the task is dependent upon team members' performance) was used. According to expectancy theory, motivation to evaluate information in more detail increases when expected outcome is tied to group performance (Leon and Wahba 1975). Therefore, with motivation being a primary driver of increased elaboration likelihood (Cacioppo et al. 1985), the outcome dependency manipulation drives increased attention to the detailed examination of individual information (Erber and Fiske 1984; Flink and Park 1991; Kaplan et al. 2009). For heuristic processing, any language referencing team member dependence was removed from the vignette with emphasis being placed on performance being evaluated independently of fellow team members. Both vignettes can be found at the end of this appendix under the title "Experiment Materials."

Argument Type and Information Source

Argument type was varied to include a focus on the strength of the argument (conducive to systematic processing). To limit any potential confounds from profile presentation order (Saris and Gallhofer 2014), the ordering varied randomly across the manipulations so that one individual saw the structural profile (Character A) first followed by relational (Character B) and so on, while another participant may have seen the relational profile (Character B) first followed by the cognitive profile (Character C), etc.

For strength of argument, Toulmin's (2003) model of argumentation was used in which a claim and data are represented through self- and system-created profile information while backing is represented through connection-created profile information. Each profile was built with specific elements and information related to the dimension of social capital being assessed. For example, a profile for relational capital included a claim under profile summary. Data is represented by information provided by the user that may elicit similarities between the user and the profile owner. There is a variety of information that could be used for data in our context, including hobbies, interests, employment background (same company), or education background (such as attending the same college or a college in the same state). Given the participant pool in the current study, hometown and education were used for data. Finally, backing is presented in the form "recommendations" on the profile. Presentation of information that may elicit perceptions of a different dimension of social capital not being assessed was controlled for. Because the model of argumentation is primarily used to provide support for a given argument, all of the content included in the above components is positive to elicit agreement that the profile owners are high in their respective social capital dimension. A complete list of the profile information manipulated is provided in Table A2.

Table A2. Profile Information Manipulated across Social Capital Dimensions			
Dimension	**Claim**	**Data**	**Backing**
Relational	Profile Summary Statement	Education; Hometown	Recommendations (trust specific)
Cognitive	Profile Summary Statement	Prior Experience; Current Tenure	Recommendations (tenure/experience specific)
Structural	Profile Summary Statement	# of Connections	Wall Posts linking connections with owner (e.g., previous working with or interacting with employee in the profile)

Experiment Materials

Sample Vignette for Systematic Processing

For the current study, you have just joined a website design company. One of your first projects is to design a website with a team of fellow colleagues. Imagine you are in the following situation:

Company XYZ is a multinational technology and consulting firm with over 50,000 employees worldwide. They offer a variety of services including designing, coding, and hosting websites for multiple companies worldwide. You have just joined the company and been assigned to your first project for a large retail store (e.g., a company similar to Target or WalMart).

Because of the size and complexity of the project, you will be working within a virtual team, with members spread throughout the company. Your team will consist of Joe, Greg, and Jim, who are located at various offices around the country. This will require you to communicate virtually (i.e., by e-mail, etc.). You will be working closely with your team members to complete the project.

The project requires your team to design, build, and implement a website to promote the products available for sale at your client's retail store. The goal is to have this website available to online users within 3 months. Your career and future compensation are both tied to the successful completion of the project on time. Because you will be working with a team, the success of this project will be judged by the final product the team creates (i.e., your success is tied to how your team does as a whole).

Because the successful completion of this project is tied closely with the performance of your team as a whole, Company XYZ wants you to get to know your team members better. Recently, XYZ has created a social networking site called XYZ Connections, allowing employees to create profiles and connections with other employees. This site is limited to the use of current XYZ employees so only those who are part of the company will be able to view this information. Currently, there are over 10,000 users of the system with more joining every day. Since this is new for the company, member profiles may not be completely filled out so you may see some members with only general information contained in their profile (e.g., name, title, and general information kept by the company).

Sample Vignette for Heuristic Processing

For the current study, you have just joined a website design company. One of your first projects is to design a website with a team of fellow colleagues. Imagine you are in the following situation:

Company XYZ is a multinational technology and consulting firm with over 50,000 employees worldwide. They offer a variety of services including designing, coding, and hosting websites for multiple companies worldwide. You have just joined the company and been assigned to your first project for a large retail store (e.g., a company similar to Target or WalMart).

Because of the size and complexity of the project, you will be working within a virtual team, with members spread throughout the company. Your team will consist of Joe, Greg, and Jim, who are located at various offices around the country. This will require you to communicate virtually (i.e., by e-mail, etc.). You will be working closely with your team members to complete the project.

The project requires your team to design, build, and implement a website to promote the products available for sale at your client's retail store. The goal is to have this website available to online users within 3 months. Both your career and future compensation are tied to the successful completion of the project on time. You will be judged on your contribution to the team while the other team members will be judged separately (i.e., your success on the project is **not** tied to how your team does as a whole).

Company XYZ wants you to get to know your team members better. Recently, XYZ has created a social networking site called XYZ Connections, allowing employees to create profiles and connections with other employees. This site is limited to the use of current XYZ employees, so only those who are part of the company will be able to view this information. Currently, there are over 10,000 users of the system with more joining every day. Since this is new for the company, member profiles may not be completely filled out so you may see some members with only general information contained in their profile (e.g., name, title, and general information kept by the company).

Appendix B

Precision of Treatments Manipulation Check ▮▮▮▮▮▮▮▮▮▮

For each profile presented to participants, measures of all social capital dimensions were taken. These measures were then analyzed to see if the changes to the profiles had residual effects on other social capital dimensions. For example, the profile manipulating structural capital asked participants to rate this person on not only the structural scale items, but the relational and cognitive items as well. This was done for each argument type treatment (claim, claim/data, and claim/data/backing).

The results provided from this analysis would ensure all treatments accurately impacted their targeted dimension. For example, if the argument included in the backing for relational capital caused a significant increase in cognitive social capital, it would suggest that the backing meant to increase perceptions of relational social capital impacted cognitive as well.

A series of between-subjects MANOVAs were performed to understand if components intended to elicit greater perceptions of one social capital dimension unintentionally altered perceptions of the other dimensions (i.e., did the relational treatments cause changes in the perceptions of structural and/or cognitive capital). Only the social capital dimensions not being manipulated (in the above example, this would be the structural and cognitive capital measures) were included in the MANOVA. Table B1 shows the MANOVA results across the three dimensions of social capital (e.g., "Relational Manipulation" in the table had only the cognitive and structural dimensions in the MANOVA). These results show that, for argument strength, there was no unintended impact to the other social capital dimensions.

Table B1. MANOVA Results for Non-manipulated Dimensions (Argument Strength)	
Relational Manipulation	Wilks' λ = 0.95 $F(2,178) = 1.21$, $p = 0.31$
Cognitive Manipulation	Wilks' λ = 0.99 $F(2,178) = 0.34$, $p = 0.87$
Structural Manipulation	Wilks' λ = 0.95 $F(2,178) = 1.10$, $p = 0.36$

Type of Processing (Systematic and Heuristic)

A manipulation check was included to ensure participants recognized how their performance on the task presented in the vignette would be measured (either as a whole group for systematic processing or individually for heuristic processing). As previously described, a vignette was used describing a scenario in which performance would be based on overall team performance to trigger detailed evaluation of information (systematic processing) or performance based on individual contribution, which triggers higher level, less detailed processing of available information (heuristic processing). This was based on prior research suggesting outcome dependency (i.e., team or individual) can drive individuals to process information in greater detail (Flink and Park 1991; Kaplan et al. 2009).

Overall, results suggest that the manipulations were 81% effective across both processing types (see Table B2 for complete details). This check is critical to the current study as the hypotheses being tested are concerned with how individuals process information, either heuristically or systematically. If participants did not correctly recognize how they were being assessed, then it is unclear whether they used heuristic or systematic processing. Therefore, participants who did not accurately recognize how performance was assessed were discarded. While this did result in excluding a number of participants, a number of studies using motivation and outcome dependency manipulation have found similar effectiveness from 85% to 92% (Devine et al. 1989; Meffert et al. 2006; Neuberg and Fiske 1987) Thus, the sample for the current study is 168 participants.

Table B2. Processing Type Manipulation Check	Project Success (based on Performance)	
	Assessed Individually (Heuristic Processing)	**Assessed as a Team (Systematic Processing)**
Systematic Manipulation[1]	3	**93**
Heuristic Manipulation[2]	**75**	36

[1]Participants in this manipulation should recognize they are assessed as a team.
[2]Participants in this manipulation should recognize they are assessed individually.

Profile Components and Argument Strength

The argument strength must be assessed to ensure participants recognized (at a minimum) the presence of the additional information related to the argument. This involved examining the post-experiment questions which asked participants to say whether or not they saw the profile elements that were being included for the different treatments. The post-experiment questionnaire asked participants if they "did not notice," "noticed," or "noticed and read" the additional information presented in the profile (see Appendix A). For example, the *data* treatment for relational social capital included information about education that was not present in the *claim only*. The questions would then ask participants to mark if this information was presented in the profiles based on the aforementioned scale. This procedure is similar to prior research examining argument strength in an online environment (Kim and Benbasat 2006, 2009).

For each social capital dimension treatment, results show that participants either noticed or noticed and read at least one of the SNS profile components that corresponds to the argument for that profile. This indicates that every participant, at a minimum, recognized the inclusion of the additional profile components that were meant to change argument strength. Thus, participants placed across the various treatments recognized the presence of the appropriate argument information.

Verification Questions to Assess Argument Use

Please recall the previous profiles you reviewed in the experiment. Read through the list below to see if you read this piece of information or not. Try to answer all questions below. If you are unsure of an answer, please give your best opinion.

Example: If you did not notice John had been employed by Indiana University, you would respond to the question by checking the "Did Not Notice" column below.

At least one profile had information in the:

Information (Argument)	Did Not Notice	Noticed	Noticed and Read
Hometown Information	○	○	○
"Profile Summary" Section	○	○	○
"Education" Section	○	○	○
……..	…	…	…

Meanings of Available Choices:

Did Not Notice: I did not notice the additional information included in these profiles.
Noticed: I noticed the presence of additional information in these profiles.
Noticed and Read: I read the additional information in these profiles.

Appendix C

Measurement Items ▪▬▬▬▬▬▬

Model Variables

Trust (Jarvenpaa et al.1998; McAllister 1995)	
Trust1	Given this person's track record, I see no reason to doubt his/her competence and preparation for the job
Trust2	I feel I can rely on this person not to make my job more difficult by careless work.
Trust3	This person appears to approach his/her job with professionalism and dedication.
Trust4	I would be comfortable giving this person complete responsibility for completion of this project.
Trust5	I would trust this person while working on this project.
Scale of items: 1 = strongly disagree to 7 = strongly agree	
Identification (Brown et al. 1986; Henry et al. 1999; Hogg and Hains 1996)	
ID1	In general, I share similar attitudes and beliefs with this person.
ID2	I feel I would fit well into a team with this person.
ID3	I identify myself as being similar to this person.
ID4	I would be glad to be on a team with this person.
Scale of items: 1 = strongly disagree to 7 = strongly agree	
Structural SC (Nahapiet and Ghoshal 1998; van den Hooff and Huysman 2009)	
SC1	This person appears to be well connected within the organization.
SC2	If needed, I believe this person can use his relationships for help with the current project.
SC3	This person has a large network of connections.
SC4	This person appears to have a working relationship with his/her network of relationships.
SC5	This person appears to be good at building relationships with others.
SC6	This person has a well-developed network through which support can be leveraged.
Scale of items: 1 = strongly disagree to 7 = strongly agree	
Cognitive SC (Nahapiet and Ghoshal 1998; van den Hooff and Huysman 2009)	
CC1	It would be easy to discuss the problem at hand with this person.
CC2	I feel this person and me would "speak" the same language.
CC3	It would be easy to discuss the project because I feel we would share an understanding about the project.
CC4	Given the current project, it would be easy to form a similar understanding with this person of what needs to be done.
CC5	This person and I would share an understanding of how the project should be handled.
Scale of items: 1 = strongly disagree to 7 = strongly agree	
Preference (Dierdorff et al. 2011; Jackson et al. 2006)	
PREF1	I would prefer to work with this person on the project.
PREF2	Working with this person would be beneficial for the project.
PREF3	I want to work with this person on the project.
PREF4	I would enjoy working with this person on the project.
Scale of items: 1 = strongly disagree to 7 = strongly agree	

Demographics and Control Variables

General Demographic and Usage Questions	
Gender	Male/Female
Age	*1-99*
Duration of SNS Use	*(in years)*
Frequency of SNS Use	Text Entry
SNS Intensity (Ellison et al. 2007)	
Intensity1	Using a social networking site is part of my everyday activity.
Intensity2	I am proud to tell people I'm on a social networking site.
Intensity3	Using a social networking site has become part of my daily routine.
Intensity4	I feel out of touch when I haven't logged onto my social networking site for a while.
Intensity5	I feel I am part of my social networking site community.
Intensity6	I would be sorry if my social networking site shut down.
Scale of items: 1 = strongly disagree to 7 = strongly agree	
Likeability (Wayne and Ferris 1990)	
Like1	I think this employee would make a good friend.
Like2	I would get along well with this employee.
Like3	I feel I would like this employee very much.
Scale of items: 1 = strongly disagree to 7 = strongly agree	
Disposition to Trust (Jarvenpaa et al. 1998; Robert et al. 2009)	
Disposition1	Most people are honest in describing their experience and abilities.
Disposition2	Most people tell the truth about the limits of their knowledge.
Disposition3	Most people can be counted on to do what they say they will do.
Disposition4	Most people answer personal questions honestly.
Scale of items: 1 = strongly disagree to 7 = strongly agree	

Appendix D

Instrument Validity

A confirmatory factor analysis was conducted using AMOS 16 to further validate the measures used in the model. Results from the analysis (see Table D1) indicate both validity and reliability for the constructs evaluated. Factor loadings for all constructs were strong and significant with composite reliability (CR) greater than the average variance extracted (AVE) as well as an AVE above the recommended minimum of 0.50 suggesting convergent validity in the current model (Hair et al. 2010). To evaluate discriminant validity, the square roots of the shared variance between constructs were found to be greater than the correlation across constructs providing support for discriminant validity (Hair et al. 2010). Additionally, maximum shared squared variance (MSV) and average shared squared variance (ASV) were both less than the AVE for each construct further suggesting discriminant validity for the current model (Hair et al. 2010).

Table D1. Correlations, Reliability, and Validity Measures								
					Correlation Matrix[1]			
	CR	AVE	MSV	ASV	Preference	Structural	Cognitive	Relational
Preference	0.94	0.79	0.10	0.05	0.89			
Structural	0.92	0.65	0.19	0.13	0.32	0.80		
Cognitive	0.93	0.72	0.35	0.16	0.05	0.34	0.85	
Relational	0.93	0.60	0.35	0.20	0.23	0.43	0.59	0.78

[1]Square root of the average variance shared are across diagonal with the off-diagonal elements being correlations between constructs. Diagonal elements should be larger than off-diagonal elements for discriminant validity.

As suggested by Hair et al (2010) and Bagozzi (1988), an analysis of the factor loading was conducted and found that the loadings were all greater than .70 for all constructs, with all other cross-loadings being lower than .30 (see Table D2). This suggests overall discriminant validity for the constructs used within our model. Finally, the goodness of fit indices (comparative fit index (CFI), root-mean-square error of approximation (RMSEA) and standardized root-mean residual (SRMR)) suggested a relatively good fit of the model with data (Hu and Bentler 1999). Item loadings and model fit can be found in Table D2.

Table D2. Summary of CFA (Item Loadings and Model Fit)	
Construct and Items	**Standardized Estimates**
Relational Social Capital	**0.93**
Trust1	0.78
Trust2	0.72
Trust3	0.73
Trust5	0.67
Trust7	0.86
ID1	0.78
ID2	0.84
ID3	0.74
ID4	0.85
Cognitive Social Capital	**0.93**
CC3	0.81
CC4	0.79
CC5	0.91
CC6	0.90
CC7	0.84
Structural Social Capital	**0.92**
SC1	0.73
SC2	0.77
SC3	0.77
SC4	0.80
SC6	0.87
SC7	0.87
Preference	**0.94**
PREF1	0.91
PREF2	0.88
PREF3	0.95
PREF4	0.80
Chi-Square & Model Fit Indices	
X^2	252.60
CFI	0.96
RMSEA	0.06
SRMR	0.04

Note: Numbers in bold above represent the average variance extracted for each construct.

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