Evaluating the Effect of Facebook Usage on Social Capital

Jane Coughlan & Stephen Swift
Department of Information Systems and Computing
Brunel University
Uxbridge, Middlesex, UK
Jane-Lisa.Coughlan@brunel.ac.uk
Stephen.Swift@brunel.ac.uk

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Abstract
This study examines the relationship between Facebook, social capital and dimensions relating to employability within the context of alumni engagement. We survey computing and business undergraduate students (N=232) and validated a series of 15 hypotheses by fitting a non-linear regression model. Our initial hypotheses were rejected; however discovery of a new set of relationships revealed that Facebook usage had a weak effect on the creation of social capital.

Author Keywords
Social networking; social capital; Facebook.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
The proliferation of social networking reinvigorates the social capital debate, where the use of technology is vital for young adults to create opportunities for participating via connections online [4]. Harnessing established social networks and the role of social capital, for example, to engage alumni as a resource to promote student support, particularly post-graduation

Research Instrument: A 22-Question likert rating survey adapted from existing scales [1, 3] measuring Facebook intensity use (FBI), self-esteem (SEST), satisfaction with university life (BRUSAT), bridging (BRID), bonding (BOND) and maintaining (MAIN) social capital, self-perceived employability (EMP), ambition (AMB) and university commitment (UCOM).

Participants: 232 students- a response rate of 11.8%.

Hypotheses: We formulated 15 hypotheses (five for each of the three forms of social capital). E.g. the relationship between *Facebook intensity use* and *bridging social capital* will vary depending on the degree of a person's *self-perceived employability*.

Modelling hypotheses: We used a non-linear model: $y = a_1 x_1 x_2 + a_2 x_1 + a_3$ where y is the question we are predicting, and x_1 and x_2 are the questions that y depends on. Least squares regression is used to fit the parameters.

is understudied [e.g., 2]. Previous work operationalized social capital [1], but not causality - whether Facebook usage *preceded* the use, maintenance, and creation of social capital.

Results & Conclusions

The quality of each of the models associated with the 15 hypotheses was measured as the difference between the model residuals and a null model (composing of the mean of the dependent variable observations y). A cutoff point of 30% improvement above the null model was used as the quality threshold, which resulted in rejection of all hypotheses. To test if the type of model was at fault, we further modelled all possible combinations of the nine variables giving 504 (9×8×7) potential hypotheses (and models). Applying our quality threshold resulted in a total of 42 hypotheses, the best being 45% better than the null model.

y	#y	x_1	#x_1	x_2	#x_2
UCOM	23	UCOM	7	BRID	11
BRUSAT	18	BRUSAT	7	UCOM	8
BRID	1	BRID	6	BRUSAT	7
		MAIN	5	EMP	4
		EMP	4	BOND	3
		AMB	4	AMB	3
		SEST	3	SEST	2
		FBI	3	MAIN	2
		BOND	3	FBI	2

Table 1. Frequency of variables in the top 42 models for the dependent and two independent variables.

As shown in Table 1, FBI only occurs in 5/42 sets of results, BRUSAT and UNICOM appear in nearly all of the models, especially as the dependent variable. Thus, these two variables can be predicted easily from the others and their appearance as independent variables suggests that there is a highly complex underlying set of relationships between all of the variables the model captures. Social capital variables (BRID, BOND, MAIN) appear as independent variables in 26/42 models, which means that they are a strong influence on UCOM and BRUSAT. FBI does not appear in the top 42 models as the dependent variable and is only 7% better than the null model; thus FBI cannot be predicted accurately from the other variables.

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