Information Systems Research

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

Research Spotlights

To cite this article:
(2021) Research Spotlights. Information Systems Research 32(2):iii-vii. https://doi.org/10.1287/isre.2021.1037

http://pubsonline.informs.org/journal/isre

INFORMATION SYSTEMS RESEARCH
Vol. 32, No. 2, June 2021, pp. iii–vii
ISSN 1047-7047 (print), ISSN 1526-5536 (online)

Research Spotlights

https://doi.org/10.1287/isre.2021.1037

Combating Procrastination on Massive Online Open Courses via Optimal Calls to Action (p. 301)
Ni Huang, Jiayin Zhang, Gordon Burtch, Xitong Li, Peiyu Chen

Massive online open courses (MOOCs) are a booming phenomenon in the digital era. However, the online nature of educational delivery via MOOCs creates every opportunity for digital distraction and procrastination, resulting in difficulties for students and instructors. The authors report a randomized field experiment on a large MOOC platform to examine several calls to action (CTAs) pertaining to the completion and submission of course assignments with an eye toward combating student procrastination on MOOCs. Their results show that descriptive norms (i.e., informing the completion rates of the assignments) lead to higher probabilities of assignment completion and a shorter time to completion. In contrast, a deadline reminder in the form of a planning prompt (i.e., informing the target deadline for assignment submission and the importance of planning ahead) has a surprisingly counterproductive effect, in particular, if students' active course load is low. One possible explanation is that the students with low course loads may perceive the deadline to be distant, which reduces their sense of urgency and leads to complacency.

The Impact of Executives' IT Expertise on Reported Data Security Breaches (p. 318)
Jacob Haislip, Jee-Hae Lim, Robert Pinsker

Data security breaches (DSBs) are increasing investor and regulator pressure on firms to improve their IT governance (ITG) in an effort to mitigate the related risk. We argue that DSB risk cannot be mitigated by one executive alone, but, rather, is a shared leadership responsibility of the top management team (TMT) (i.e., Chief Executive Officer (CEO), Chief Financial Officer (CFO), and Chief Information Officer (CIO)). Our results suggest that IT-savvy CEOs see technologies related to mitigating DSBs as a top-three most important type of digital methodology for their firm. Similarly, the results related to CFOs with IT expertise single out the critical investment in controls designed to prevent DSBs. Our strong findings for CIOs on the TMT add to the related guidance from COBIT 5 for information security and consistently suggest that they are the key executive for securing IT systems. Finally, our granular explanation of each executive's DSB-related responsibility could potentially provide firms the start of a governance-led roadmap for compliance to the Securities and Exchange Commission's and Justice Department's cyber regulations.

How to Assign Scarce Resources Without Money: Designing Information Systems that Are Efficient, Truthful, and (Pretty) Fair (p. 335)
Martin Bichler, Alexander Hammerl, Thayer Morrill, Stefan Waldherr

Matching with preferences has great potential to coordinate the efficient allocation of scarce resources in organizations when monetary transfers are not available. It is well-known that it is impossible to combine all three properties of truthfulness, efficiency, and fairness (i.e., envy-freeness) in matching with preferences. Established mechanisms are either efficient or envy-free, and the efficiency loss in envy-free mechanisms is substantial. We focus on a widespread representative of a matching problem: course assignment where students have preferences for courses and organizers have priorities over students. An important feature in course assignment is that a course has a maximum capacity and a minimum required quota. This is also a requirement in many other matching applications, such as school choice, hospital-residents matching, or the assignment of workers to jobs. We introduce RESPCT, a mechanism that respects minimum quotas and is truthful, efficient, and has low levels of envy. The reduction in envy is significant and is due to two remarkably effective heuristics. We provide analytical and experimental results based on field data from a large-scale course assignment application. These results have led to a policy change and the proposed assignment system is now being used to match hundreds of students every semester.

News-Induced Dynamic Networks for Market Signaling: Understanding the Impact of News on Firm Equity Value (p. 356)
Kun Chen, Xin Li, Peng Luo, J. Leon Zhao

Public news provides rich information about firm operations and market dynamics. Learning about firm

interactions from news is commonly done by human investors but has not been realized by automatic methods, leading to a research opportunity in market signaling via dynamic firm relations. This study proposes a new text-mining approach to extract cobenefit/counter-benefit networks based on firms' mutual or conflicting interests in business events. It reveals that the extracted dynamic networks provide additional value in predicting firm equity value over current adopted supply chain and coindustry networks, after controlling for market activities and other traditional indicators from news, such as volume, sentiment, and comentions. In practice, such cobenefit/counter-benefit networks provide good buy and sell signals, which enrich known indicators and support more complex trading strategies in investment and portfolio management. The analysis and visualization of the extracted cobenefit/counter-benefit networks are also useful in understanding the structure of the economy and assessing firm/industry changes in a timelier fashion.

Welfare Implications in Intermediary Networks (p. 378)
Thành Nguyen, Karthik Kannan

Competitive pressures have forced many traditional companies to evolve into a platform-based business model. Trade commissions and even supreme courts recognize the need for economic analysis as the nature of competition changes in the market. There have been many mergers and acquisitions across platform-based businesses. In the ride-sharing sector, Lyft and Didi Chuxing were initially in a partnership to thwart Uber, but Uber ultimately merged its operation with Didi Chuxing. Amazon and Walmart competed fiercely to buy the Indian online retailer Flipkart, which Walmart eventually won. Traditional antitrust models studying the implications of mergers do not consider the underlying network structure of these intermediary markets. This is the main focus of our model and analysis. We provide a network measurement to evaluate the effect of mergers on welfare. Our analysis shows that, because of the underlying networks, mergers can sometimes improve welfare.

Does Money Talk? The Impact of Monetary Incentives on User-Generated Content Contributions (p. 394)
Yuewen Liu, Juan Feng

Many platforms use monetary incentives to encourage user-generated content (UGC) contributions. The empirical evidence, however, is contradictory: monetary incentives are shown to either increase or decrease contribution. We make the first attempt to build a unified theoretical model to understand the complex nature of the impact of monetary incentives. We consider contributors differentiated not only by their attitudes toward monetary incentives but also by their effectiveness to attract audience. We identify two scenarios where contributors can be crowded out when monetary incentives are present: (1) when a small amount of monetary incentive is introduced, the non–money-driven contributors reduce or even stop contributing (motivation crowding out); or (2) when the monetary incentive is relatively large, the high-effectiveness contributors crowd out the low-effectiveness ones (competition crowding out). As a result, an increase in the monetary incentive can either increase or decrease contributors' participation and the total content volume contributed. Our results offer guidelines for different UGC platforms to design monetary incentive mechanisms.

The Phishing Funnel Model: A Design Artifact to Predict User Susceptibility to Phishing Websites (p. 410)
Ahmed Abbasi, David Dobolyi, Anthony Vance, Fatemeh Mariam Zahedi

Phishing is a significant security concern for organizations, threatening employees and members of the public. Phishing threats against employees can lead to severe security incidents, whereas those against the public can undermine trust, satisfaction, and brand equity. At the root of the problem is the inability of Internet users to identify phishing attacks even when using anti-phishing tools. We propose the phishing funnel model (PFM), a framework for predicting user susceptibility to phishing websites. PFM incorporates user, threat, and tool-related factors to predict actions during four key stages of the phishing process: visit, browse, consider legitimate, and intention to transact. We evaluated the efficacy of PFM in a 12-month longitudinal field experiment in two organizations involving 1,278 employees and 49,373 phishing interactions. PFM significantly outperformed competing models in terms of its ability to predict user susceptibility to phishing attacks. A follow-up three-month field study revealed that employees using PFM were significantly less likely to interact with phishing threats relative to comparison models and baseline warnings. Results of a cost-benefit analysis suggest that interventions guided by PFM could reduce annual phishing-related costs by nearly $1,900 per employee relative to comparison prediction methods.

Information Technology Skills and Labor Market Outcomes for Workers (p. 437)
Hilal Atasoy, Rajiv D. Banker, Paul A. Pavlou

Job erosion is a major concern globally, especially given the COVID-19 pandemic. Unemployment and low wages remain pressing societal challenges in the wake of increased automation, more so for traditionally disadvantaged groups in the labor market, such as women, minorities, and the elderly. However, workers who possess relevant information technology (IT)

skills may have an edge in an increasingly digital economy. In this study, we examine the role of IT skills in labor market outcomes for workers, using a household IT use survey from an emerging economy that captures detailed, individual-level data on IT skills, which are also integrated with data on workers' wages, occupations, and industries between 2007 and 2015. The results indicate that basic IT skills increase individuals' employment probability, which is driven by both higher labor force participation and a higher probability of transitioning from unemployment to employment, after accounting for the decision to participate in the workforce. Advanced IT skills do not provide a significant incremental effect on employment probability on top of basic IT skills. However, having advanced IT skills helps workers to earn higher wages while incrementally increasing the probability that they are employed in higher-paid jobs. Interestingly, the effect of basic IT skills on employment is significantly larger for the female and older workforce that typically has a higher preference for flexible work options. These results emphasize the importance of providing necessary IT access and offering basic IT training to traditionally disadvantaged groups to close the IT skills gap and the digital divide. We offer implications for the future of work, education, and public policy for designing IT training policies for workers, students, and organizations to stimulate employment with higher wages, particularly in developing economies and for traditionally disadvantaged segments of the workforce, such as women and the elderly, particularly after the COVID-19 pandemic.

Correcting Misclassification Bias in Regression Models with Variables Generated via Data Mining (p. 462)
Mengke Qiao, Ke-Wei Huang

There is a surge of interest in social science studies in applying data mining methods to construct variables for regression analysis. For example, text classification was applied to classify whether the review is subjective or objective. The derived review subjectivity was used as an independent variable in the regression to examine its impact on review helpfulness. In the classification phase of these studies, researchers need to subjectively choose a classification performance metric for optimization. No matter which performance metric is chosen, the constructed variable still includes classification error because the variable cannot be classified perfectly. The misclassification of constructed variables will lead to inconsistent estimators of regression coefficients in the following phase. To correct the estimation inconsistency, we summarize and modify existing proofs in econometrics to derive theoretical formulas of consistent estimators in generalized linear models. The main implication of our theoretical result is that the inconsistency can be corrected by theoretical formulas, even when the classification accuracy is poor. Therefore, we propose that a classification algorithm should be tuned to minimize the standard error of the focal coefficient derived based on the corrected formula. As a result, researchers derive a consistent and most precise estimator in generalized linear models.

Freemium Pricing in Digital Games with Virtual Currency (p. 481)
Zixuan Meng, Lin Hao, Yong Tan

Providers of free-to-play games often gain revenue by monetizing players' playtime, e.g., through in-game advertising, and by selling premium module of the game. One emerging strategy to sell the premium module, known as the virtual selling strategy, is to set the module price based on an amount of virtual currency which players can either spend playtime to earn or use real currency to buy. We examine how the virtual selling strategy leads to different market outcomes than the traditional real selling strategy where players can purchase using real currency only. We show that when the provider is efficient to monetize playtime, the virtual selling strategy will benefit the provider and hurt the players compared to the real selling strategy, even though players in the virtual selling strategy have one additional way, i.e., using their playtime, to pay for the module. We identify an undocumented overcompensation effect which causes this phenomenon. The overcompensation effect also results in a U-shaped relationship between the module price and efficiency to monetize playtime in the virtual selling strategy, contradicting the traditional result from the real selling strategy that the provider shall reduce the module price when she becomes more efficient in monetizing playtime.

The Deterrent Effect of Ride-Sharing on Sexual Assault and Investigation of Situational Contingencies (p. 497)
Jiyong Park, Min-Seok Pang, Junetae Kim, Byungtae Lee

This paper investigates the relationship between ride-sharing and sexual assault, which has been a controversial but unanswered topic in public debates on the sharing economy and ride-sharing. In particular, this research focuses on the potential of ride-sharing platforms to provide a suitable target of sexual assault with a more reliable and timely transportation option for traveling to a safer place, which is a largely neglected aspect in research and practice. By exploiting the nationwide quasi-experimental setting of Uber's city-by-city rollouts in the United States during 2005–2017, we demonstrate that Uber's entry into a city is negatively associated with the number of rape incidents. Furthermore, using precinct-hour–level data on Uber pickups and rape occurrences in New

York City in 2015, we find that ride-sharing contributes to a more significant reduction in the likelihood of rape occurrences in neighborhoods with limited transportation accessibility, and ride-sharing is more effective in deterring sexual crime in riskier circumstances, such as around alcohol-serving places on weekend nights or when the probability of crime occurrences increases. This study sheds new light on the potential of IT-enabled platforms to improve social well-being beyond their economic contributions.

Are Traditional Performance Reviews Outdated? An Empirical Analysis on Continuous, Real-Time Feedback in the Workplace (p. 517)
Michael Rivera, Liangfei Qiu, Subodha Kumar, Tony Petrucci

In order to deliver real-time feedback to support employee development and rapid innovation, many companies are replacing formal review-based performance management with systems that enable frequent and continuous employee evaluation. Real-time feedback applications enable supervisors and employees to give, seek, and receive competency-based feedback using their computers, smart phones, or other devices. In this study, we examine the role of one such real-time feedback application to understand its effects on employee performance appraisals. First, we seek better understanding of how workplace relationships affect employee feedback across managers, colleagues, and direct reports and find that feedback tends to be more critical when given by managers. What is even more important from an industry perspective is the role of preferential treatment and retaliation. Managers can be more transactional, but colleagues are not. We also highlight a series of gender observations: men rate women higher than men, and women rate men and women similar to how men rate men. We conclude by finding that positive real-time feedback has a stronger effect on an employee's future ratings than negative feedback. Our findings have direct implications for the design and implementation of performance management systems and highlight how companies can use information systems to create an innovative human resource operation that delivers flexibility and agility.

Mining Bilateral Reviews for Online Transaction Prediction: A Relational Topic Modeling Approach (p. 541)
Jiawei Chen, Yinghui (Catherine) Yang, Hongyan Liu

In recent years, more and more platforms where both buyers and sellers can write reviews for each other have emerged. These bilateral reviews are important information sources in the decision-making process of both buyers and sellers. In this study, we develop a comprehensive relational topic modeling approach to analyze bilateral reviews for better online transaction prediction. The prediction results will enable the platform to increase the chance that the buyer and seller reach a transaction by presenting buyers with offerings that are more likely to lead to a transaction. Within the framework of the relational topic model, we embed a topic structure with both shared and corpus-specific topics to better handle text corpora generated from different sources. Our model facilitates the extraction of the appropriate topic structure from different document collections that helps enhance the transaction prediction performance. Comprehensive experiments conducted on real-world datasets collected from sharing economy platforms demonstrate that our new model significantly outperforms other alternatives. The robust results obtained from multiple sets of comparisons demonstrate the value of bilateral reviews if they are processed properly. Our approach can be applied to many platforms where bilateral reviews are available.

Standing Up or Standing By: Understanding Bystanders' Proactive Reporting Responses to Social Media Harassment (p. 561)
Randy Yee Man Wong, Christy M. K. Cheung, Bo Xiao, Jason Bennett Thatcher

Social media harassment, a cyber bullying behavior, poses a serious threat to users and platform owners of social media. In this paper, we contextualize the bystander intervention framework and reporting literature to social media in order to understand why bystanders report social media harassment. Our contextualized intervention framework focuses on three socio technical aspects—the online social environment, characteristics of the technology platform, and their interplay—that explain bystander reporting on social media platforms. We tested the model using data gathered from active Facebook users. Our findings direct practitioners' attention to the role of the platform in encouraging bystanders to help stop social media harassment. For policymakers, our findings direct attention to supporting programs that encourage social media users to feel responsible for reporting harassment and making transparent the outcomes of reporting social media harassment using anonymous reporting tools. For platform owners, our findings direct attention to investing in tools that enable anonymous reporting, to fostering a climate that encourages reporting, and to ensuring that all users understand that reporting social media harassment results in swift, effective responses from platform owners. Our research offers insight into how to build safer and secure social media platforms.

Online to Offline: The Impact of Social Media on Offline Sales in the Automobile Industry (p. 582)
Yen-Yao Wang, Chenhui Guo, Anjana Susarla, Vallabh Sambamurthy

This study examines the dynamic relationships between firm-generated content (FGC), user-generated content (UGC), traditional media, and offline light vehicle sales. Data were collected from the official Facebook and Twitter pages of 30 U.S. car brands from 2009 to 2015. Our results suggest that Facebook and Twitter are heterogeneous in terms of their effect on offline vehicle sales; FGC is more effective than UGC for influencing offline light vehicle sales; viral impressions from Facebook and Twitter are essential, although effects vary for the various social media platforms, FGC, and UGC; and a firm's marketing efforts and UGC both have a long-term effect on sales, with the long-term effect of a firm's marketing efforts outlasting that of UGC. We also documented the within-Twitter synergistic effect between FGC and UGC for offline car sales and cross-channel substitution relationships between FGC and both Facebook and traditional media and Twitter and traditional media. Our study implies that managers who attempt to maximize multichannel marketing for offline sales of durable goods should consider (1) the nature of each platform, (2) the number of potential audiences each platform can reach, and (3) the user basis of each platform.

Examining the Impact of Television-Program-Induced Emotions on Online Word-of-Mouth Toward Television Advertising (p. 605)
Tingting Nian, Yuheng Hu, Cheng Chen

In this paper, we exploit a large-scale TV program, the 2016 Super Bowl, to investigate the impact of television program–induced emotions on viewers' online word-of-mouth (WOM) behavior on Twitter toward the Super Bowl ads aired during the game. The results obtained from a difference-in-differences analysis support our hypotheses on the direct and congruence effects of television program–induced emotions. Findings on the direct effect suggest that television program–induced emotional shocks (e.g., frustration after a fumble or joy after a touchdown) have a significant effect on the arousal and valence of viewers' online WOM toward ads subsequently. We additionally find that a match between television program–induced emotional shocks and the emotional content of ads leads to a more significant increase in the arousal and more favorable valence of online WOM responses to ads subsequently. Our findings suggest that advertisers should pay attention to the emotional context of ads in which the ads are placed and the content of ads. It would be more optimal to allocate ads into different programs or different positions in a certain program such that the context of ads and the content of ads are carefully matched or contrasted, especially when ads are likely to stimulate positive feedback from the audience.

Coupons or Free Shipping? Effects of Price Promotion Strategies on Online Review Ratings (p. 633)
Ji Wu, Haichuan Zhao, Haipeng (Allan) Chen

This study examines how two prevalent price promotion strategies (coupons and free shipping) affect online review ratings differently as a function of the temporal distance between purchase and review. Our analysis of online consumer reviews from an e-commerce website matched with actual transactional data finds that coupons have a positive effect on review ratings in the short run but a negative effect in the long run. In contrast, free shipping has a consistently positive effect on review ratings over time. We then conduct two laboratory experiments to provide convergent evidence for the differential effects of coupon versus free shipping on review ratings over time and additionally demonstrate the underlying processes due to perceptions of monetary savings and perceived product quality. Our findings hold a number of important implications for firms. For example, our results suggest that when using coupons to promote product sales, managers should develop strategies that are inductive of consumer reviews immediately after purchase. However, managers may want to rely more on free or reduced shipping to more consistently drive positive review ratings over time.

Support Forums and Software Vendor's Pricing Strategy (p. 653)
Debabrata Dey, Abhijeet Ghoshal, Atanu Lahiri

Forums such as Quora, Stack Exchange, Yahoo! Answers, Office Forum, and Photoshop Guru provide a free alternative to the paid support services offered by various software vendors; it is not obvious how a vendor should react to this competition. Specifically, should the vendor sell the product and support separately or should it offer them as a bundle? In practice, we observe both strategies in play, suggesting that there may be merits to each. This paper develops a microeconomic model to uncover how the presence of a forum may shape a vendor's pricing strategy. Our analysis reveals that a forum actually plays a dual role. On the one hand, the forum generates a shadow competition for the vendor-provided support by offering an imperfect substitute. On the other, the forum elevates the appeal of the software product by complementing it with free support. This dual role has interesting implications. When the forum is either weak or strong, in terms of its reach among consumers or its effectiveness in addressing their needs, the vendor's best strategy is to sell the product and support separately. When the strength is moderate, however, it becomes optimal for the vendor to just sell a bundle. The paper describes the reasons behind this surprising non-monotonicity in the vendor's strategy.