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Conducting field experiments using eLancing's natural environment ☆

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ABSTRACT

We propose the use of eLancing as a natural environment to conduct field experiments in entrepreneurship research. eLancing, or Internet freelancing, involves millions of people around the world and consists of websites that link individuals and organizations interested in purchasing services or commissioning people to complete some type of work with individuals and organizations interested in providing such services or performing such work. We provide a description of how to conduct practically feasible field experiments using eLancing's natural environment to investigate important substantive areas such as entrepreneurial team efficacy and how execution differs from opportunity recognition, among other areas. Using eLancing to conduct field experiments allows researchers to overcome pervasive methodological challenges as revealed by a content analysis of the 175 empirical articles published in the *Journal of Business Venturing* from January 2005 to November 2010. Specifically, eLancing allows researchers to improve generalizability, address the omitted variables problem, improve the operationalization of constructs, improve confidence regarding the nature of causal relationships, and address other challenges such as participant bias and selective survival. Thus, using eLancing as a methodological tool has the potential to lead to important theoretical advancements and subsequent practical applications.

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1. Executive summary

Theoretical contributions in the field of entrepreneurship are more likely to occur if we improve our methodological tools. We conducted a content analysis of the 175 empirical articles published in *Journal of Business Venturing* (JBV) in the five-year period between January 2005 to November 2010 and uncovered that authors report that the most pervasive methodological challenges are lack of generalizability (30.49%), omitting measurement of an important variable (19.76%), less than ideal operationalization of constructs (16.52%), and lack of confidence regarding causality (10.62%). In other words, taken together, these four issues account for about 77% of all methodological challenges reported by JBV authors in the past five years.

We propose the use of eLancing as a natural environment to conduct field experiments that overcome each of the most pervasive methodological challenges. eLancing, or Internet freelancing, is a rapidly growing work arrangement worldwide. The eLancing work environment is called a "marketplace," which is a website that connects individuals interested in purchasing services or commissioning people to complete some type of work with individuals and organizations interested in providing such services or performing such work. Thus, eLancing allows individuals from anywhere in the world to sign up and complete work using the Internet for a client who may also be anywhere in the world. Entrepreneurs buy and sell services using eLancing, and this turns eLancing into an ideal but as of yet undiscovered methodological tool for conducting field (i.e., natural) experimental

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research. We provide an overview of eLancing, including its origins and use worldwide. Also, we describe how to use eLancing as a natural environment to conduct experiments that allow entrepreneurship scholars to overcome each of the most frequently encountered methodological challenges in the field as reported by JBV authors and also as uncovered by our independent third-party coding of articles. We also provide a step-by-step description of the practical and logistical steps involved in conducting a field experiment using eLancing to study entrepreneurial team efficacy. In addition, we describe how to use eLancing to conduct experiments addressing other substantive domains and questions including how execution differs from opportunity recognition, how information asymmetry affects creativity and innovation, what are the internal processes in entrepreneurial teams (including cross-cultural teams), and how these processes unfold over time. Using eLancing's natural environment allows researchers to take advantage of all of the benefits that field experiments have to offer and also to conduct such experiments in a practical and cost-effective manner. Thus, conducting field experiments using eLancing allows researchers to improve both internal and external validity. Consequently, we hope our article will serve as a catalyst for the use of eLancing to conduct field experiments that will lead to theoretical advancements that will also translate into important practical applications.

2. Introduction

There is a documented need for methodological approaches that allow for the investigation of increasingly sophisticated causal processes involving actual entrepreneurs in natural environments (Gregoire et al., 2010b; Short et al., 2010b; Uy et al., 2010). Accordingly, the purpose of our article is to offer an innovative and novel methodological approach for conducting field experimental research using eLancing as a natural environment. eLancing, or Internet freelancing, involves millions of people around the world and consists of websites that link individuals and organizations interested in purchasing services or commissioning people to complete some type of work with individuals and organizations interested in providing such services or performing such work (Aguinis and Lawal, in press).

The remainder of our article is organized as follows. First, we describe an empirical study aimed at uncovering the most pervasive methodological challenges faced by entrepreneurship researchers. Second, we provide an overview of eLancing. Third, we describe how to use eLancing as a methodological tool. This section also provides a description of how using eLancing as a research tool allows entrepreneurship scholars to overcome each of the six most frequently reported methodological challenges (as uncovered through our content analysis). Fourth, we provide a step-by-step description of how to conduct a study using eLancing to investigate substantive domains. Finally, we close with a description of potential limitations and challenges of using eLancing to conduct field experimental research.

3. Methodological challenges faced by entrepreneurship researchers

We conducted a content analysis of self-reported methodological challenges as acknowledged by authors themselves in the "Discussion" sections of published articles. The goal of our empirical study was to identify the relative frequency with which researchers refer to various methodological challenges (cf. Brutus et al., 2010). In addition, we also coded each article from a "third-party" perspective in terms of the type of research design used in each study and then assessed discrepancies between self-reported versus third-party coded methodological challenges.

3.1. Criteria for inclusion

We examined articles published in *Journal of Business Venturing* (JBV) from January 2005 through November 2010. Our review focused on empirical contributions and excluded literature reviews, theoretical articles, editorial comments, and all other non-empirical articles. A total of 175 articles met these criteria.

3.2. Methods

Content analysis is primarily a qualitative methodology, but it also includes a quantitative component, which provides an advantage over other more purely qualitative methods such as literary interpretation and hermeneutics (Duriau et al., 2007; García-Izquierdo et al., 2010). We used a taxonomy of methodological challenges based on the threats to validity as defined by Cook and Campbell (1979), Shadish et al. (2002), and Scandura and Williams (2000). This taxonomy includes four types of issues that threaten the accuracy and veracity of conclusions derived from empirical research: (1) threats to statistical conclusion validity (i.e., whether there is a relationship between two variables), (2) threats to internal validity (i.e., whether there is a causal effect from one operational – as measured – variable to another), (3) threats to construct validity of putative causes and effects (i.e., whether there is a causal effect from one construct to another), and (4) threats to external validity (i.e., whether the relationship between constructs generalizes across persons, settings, and time). We compiled a list including 28 different methodological challenges. Although we classified each challenge within one type of validity threat only, some of the challenges can affect more than one type of validity evidence.

3.3. Results and discussion

The second author conducted the coding of all methodological challenges reported in each of the 175 articles. This process involved classifying each challenge into one of the 28 categories included in Table 1. The first author randomly selected 10 articles

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Table 1
Methodological challenges as reported in 175 empirical articles published in *Journal of Business Venturing* (2005–2010).

Methodological challenge	Definition	Frequency (%)
Statistical conclusion validity		13 (3.83)
• Small sample size	Irregular variability on the outcome variable increases error variance, making detection of an effect more difficult.	10 (2.95)
• Low statistical power (not related to reliability or sample size)	An insufficiently powered experiment may incorrectly conclude that the relationship between treatment and outcome is not statistically significant.	1 (0.59)
• Other threats to statistical conclusion validity	This includes other issues not included elsewhere such as violated assumptions of statistical tests or random irrelevancies in the research setting.	2 (0.59)
Internal validity		125 (36.87)
• Omitting measurement of an important variable	A study does not include factors such as moderators or control variables that would help improve the confidence in the results.	67 (19.76)
• Lack of confidence regarding causality	Results are about covariation only and it is difficult to infer the nature of causal relationships.	36 (10.62)
• Selective survival	Systematic differences in survival over conditions in respondent characteristics that could cause the observed effect.	22 (6.49)
Construct validity		88 (25.96)
• Less than ideal operationalization of constructs	The measures used to assess key constructs may be contaminated or deficient.	56 (16.52)
• Participant bias (reactivity to the experimental situation)	Participants' responses reflect not just treatments and measures but also participants' perceptions of the experimental situation, and those perceptions are part of the treatment construct actually tested.	27 (7.96)
• Common method variance (mono-method bias)	When all operationalizations use the same method (e.g., self-reports), that method is part of the construct actually studied.	2 (0.59)
• Rater bias (experimenter expectancies)	The experimenter can influence participant responses by conveying expectations about desirable responses, and those expectations are part of the treatment construct as actually tested.	1 (0.29)
• Placebo effect (novelty and disruption effects)	Participants may respond unusually well to a novel innovation or unusually poorly tone that disrupts the routine, a response that must then be included as part of the treatment constructs description.	1 (0.29)
• Variance issues (too much or too little)	The measure of the spread of scores in a distribution is too high or too low.	1 (0.29)
External validity		113 (33.33)
• Lack of generalizability	Results may not generalize to other settings and/or populations.	102 (30.49)
• Other/selective sample	An effect found with certain kinds of units (e.g. gender, students) might not hold if other kinds of units had been studied.	7 (1.96)
• Missing data	Information not available for large number of respondents about whom other information is available – as when a respondent fails to answer one of the questions in a survey.	2 (0.59)
• Low response	The percentage or proportion of members of a sample who respond to a questionnaire is too small to generalize to the population.	2 (0.59)
Total		339 (100)

Although some of the definitions refer to "experiments" and "treatments," they also apply to any type of research design (i.e., not just experiments) as well as predictors (and not just manipulated independent variables). The following methodological challenges had a frequency of zero and are not included in this table: *Statistical conclusion validity*: low internal consistency/reliability; *internal validity*: interference between testing conditions, the cohort effect, counterbalancing issues/presentation order, change in measurement tools between pretest and posttest conditions, and coding problems; *construct validity*: no control group, confederate bias, resentment of treatment condition (resentful demoralization), inferences made on individuals based on group data (levels of analysis) (confounding constructs with levels of constructs), and other threats to construct validity.

and conducted the coding independently. A comparison of the separate coding sheets showed a few minor discrepancies that did not alter any of the substantive conclusions, confirming the reliability of the coding process. As a second type of reliability analysis, we re-coded 20 randomly selected articles six months after the initial coding. A comparison of the separate coding sheets showed very few discrepancies and a more formal analysis resulted in a test–retest reliability coefficient of .98, providing additional evidence regarding reliability of the coding process.

Of the total of 175 articles, 145 (i.e., 82.86%) reported at least one methodological challenge. The remaining 30 articles did not report any methodological challenges. Given a total of 339 methodological challenges, we found an average of 1.94 per article, which is similar to the average of 1.6 reported by Brutus et al. (2010) based on a review of articles published in *Academy of Management Journal*, *Journal of Applied Psychology*, and *Personnel Psychology*. As shown in Table 1, the most frequent methodological challenges are related to internal validity (36.87%), external validity (33.33%), and construct validity (25.96%) issues.

Table 1 shows a clear commonality across articles regarding methodological challenges. Specifically, the four most frequently mentioned methodological challenges accounted for 77.39% of the total, indicating that about 3 out of 4 articles published in JBV over the past five years was unable to overcome at least one of the following methodological challenges: (1) lack of generalizability (30.49%), (2) omitting measurement of an important variable (19.76%), (3) less than ideal operationalization of construct (16.52%), and (4) lack of confidence regarding causality (10.62%). Consider the following selective illustrations of how authors have referred to each of these four methodological challenges. Regarding lack of generalizability, Grandi and Grimaldi (2005) noted that "it would also be interesting to replicate the study in countries that do not have these characteristics" (p. 842). Regarding omitting measurement of an important variable, McVea (2009) asserted that "A number of possibly confounding factors could explain differences between these groups, most notably experience in entrepreneurial situations, life experience, domain expertise, training and education"

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(p. 494). As an example of less than ideal operationalization of constructs, Hmieleski and Corbett (2008) noted that "The use of sales growth may be a less appropriate measure of performance when considering the performance of entrepreneurs leading their firms through more nascent stages of development" (p. 493). Finally, as an example of lack of confidence regarding causality, Markman et al. (2005) acknowledged that "Our research design cannot ascertain causality. For example, we cannot tell if licensing strategies or UTTO [university technology transfer office] structures are driven by past UTTO performance, institutional shift towards applied research with strong commercial appeal, or by an increase in demand for university contracts because of cutbacks in industry RandD" (p. 260).

In many cases, an article's limitations section may serve a legitimating function and it may be that obvious challenges are not stated explicitly. Thus, we conducted additional analyses to understand potential differences between challenges reported by authors versus challenges identified through our own, third-party, examination of each study. To do so, we coded each of the 175 articles using Scandura and Williams' (2000) broad research design taxonomy: (a) longitudinal design, (b) experimental design, (c) quasi-experimental design, (d) non-experimental design, and (e) qualitative design. As defined by Campbell and Stanley (1963), a study was classified as an experiment if it included randomization (i.e., assignment of various treatments of interest by chance), experimenter control (i.e., the ability to manipulate the independent variables), and the ability to measure the effect of the independent variable. Accordingly, for the purposes of our classification, studies using conjoint analysis were not considered true experiments because conjoint analysis is a decision-making task in which the "observation" and "treatment" are completed simultaneously and cannot be separated (e.g., Mitchell and Shepherd, 2010). Similarly, for the purposes of our classification, we did not count hazard function studies as true experiments because this is a type of data-analytic approach and not a type of research design.

As noted by Scandura and Williams (2000), the biggest challenge for longitudinal and experimental designs involve external validity, the biggest challenge for quasi-experimental design involve construct validity, the biggest challenge for non-experimental design involve internal validity, and the biggest challenge for qualitative research involve internal, construct, and statistical conclusion validity. Our review revealed that 74.9% of JBV articles used non-experimental designs, 10.3% were based on qualitative research, 8.6% used longitudinal designs, 4.6% used quasi-experimental designs, and only 1.7% used experimental designs. Consequently, because non-experimental designs are the most frequently used, internal validity issues should be the most pervasive challenges reported by authors. Consistent with this expectation, self-reported limitations summarized in Table 1 show that internal validity issues are at the forefront of the challenges acknowledged by researchers themselves. However, while about 75% of studies face internal validity threats given the use of non-experimental designs, only about 37% of self-reported challenges address this issue. External validity, which is the second most popular type of challenge based on authors' self-reports, is mostly associated with longitudinal and experimental designs. However, our review revealed that these types of designs are not nearly as popular as non-experimental designs. Nevertheless, Table 1 shows that about 33% of self-reported limitations address external validity issues.

Our results suggest that researchers do acknowledge methodological challenges and limitations, but there seems to be an underreporting of such challenges. A comparison of challenges as reported by authors with our own assessment reveals that differences are mostly about quantity rather than quality. In other words, the discrepancy is not in the type of limitations and challenges but, rather, in the pervasiveness of such limitations and challenges. In addition, as noted by an anonymous reviewer, action editors and reviewers of high-quality journals like JBV are likely to prod authors to at least acknowledge limitations that could not be overcome and were not originally mentioned by the authors themselves. So, our results are probably underestimating the degree to which authors underreport methodological challenges given that our content analysis focused on JBV articles exclusively.

The main implication of our results is that any proposed solution for overcoming the most pervasive methodological challenges in entrepreneurship research, as reported by authors and as revealed by our third-party assessment, would have to involve research design and measurement innovations. Our conclusion is reinforced by results of a content analysis of each of the 193 articles published in the first 10 volumes (1998 to 2007) of *Organizational Research Methods* which suggested that "more attention is needed regarding the development of new as well as the improvement of existing research designs" (Aguinis et al., 2009, p. 106). Similarly, Davidsson (2007, 2008) noted the need for more experimental studies, better operationalization of variables, and better sampling. Next, we provide a description of eLancing and then we describe how to use eLancing's natural environment to conduct experiments.

4. eLancing

eLancing, or Internet freelancing, is a rapidly growing type of work arrangement fueled by the proliferation of technology around the world (Aguinis and Lawal, in press). The eLancing work environment is called a "marketplace," which is a website where individuals interested in being hired and clients looking for individuals to perform some type of work meet. Examples of eLancing marketplaces include eLance.com, freelancer.com, guru.com, Amazon Mechanical Turk (mturk.com), oDesk.com, and microworkers.com, among many others. Numerous tasks contracted out through eLancing are entrepreneurial in nature. For example, programmers are available through freelancer.com to develop applications for both websites and mobile phones. Moreover, a potential client can commission work to teams that are entrepreneurial in nature. For example, a website designer, a marketing professional, and a writer can all be hired to form a team to develop a weblog or website specifically targeted at a niche market. A potential client may be a large corporation, a small firm, a consulting company, or any type of client organization in any industry in need of having some type of work performed. A potential worker may be an individual or a group of individuals, including a small or medium-size business, interested in being hired by a potential client to perform a certain type of work.

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eLancing boasts millions of users and billions of dollars in transactions. The assumption may be that most eLancers are from developing and populous countries such as China or India where there is abundant labor supply. However, approximately 47% of the workers are from the United States (Ipeirotis, 2008). In addition, among U.S. individuals, more than 60% of eLancers at Amazon Mechanical Turk are women, about 45% are 29 years old or younger, and more than 50% have at least some college education. Moreover, more than 20% of eLancers at Amazon's Mechanical Turk have an annual household income of between $40,000 and $60,000, and more than 50% have an annual household income of at least $40,000 (Ipeirotis, 2008). Given a median household income in the U.S. of $50,233 for 2007 (U.S. Census Bureau, 2008), these figures suggest that eLancing is not at all a phenomenon relegated to the poorest and least educated segments of the world's population.

eLancing is producing a revolution in how work is done and regarding entrepreneurial activities around the world. Individuals from literally anywhere in the world can sign up and complete work using the Internet for a client who literally can also be anywhere in the world. There are entrepreneurs who are turning to eLancing marketplaces to acquire resources that they may not be able to access otherwise. There are also entrepreneurs and aspiring entrepreneurs who offer their services in a number of different arenas – eLancing being one of them – and use eLancing to raise funds. As we describe next, this makes eLancing an ideal natural environment to conduct experiments because researchers are able to use real people and real tasks in a controlled environment.

5. Using eLancing as a methodological tool

Field experimental studies provide important advantages compared to passive observational designs including those using self-reported questionnaires and secondary data sources (e.g., databases in the public domain) (Gregoire et al., 2010b). However, implementing experimental research includes challenges such as threats to external validity as well as logistical and practical issues regarding implementation (Grant and Wall, 2009; Highhouse, 2009). For example, experimental designs are often criticized for removing participants from their natural settings and conducting the study in a laboratory setting. Such change of context puts into question the validity of results because it is not possible to know whether participants would behave in the same way in a natural as compared to a laboratory setting. Accordingly, researchers face a difficult dilemma: experimental designs yield high levels of confidence regarding internal validity but are challenged by difficulties regarding external validity (i.e., uncertainty regarding generalizability of results). Moreover, other impediments to conducting field experiments refer to their feasibility because they are often too expensive, it is often difficult to recruit study participants, and such experimental studies are often difficult, if not impossible, to implement in real-work contexts. Using eLancing as a natural environment to conduct experimental studies has several advantages compared to more traditional methods such as surveys and existing data sets. These advantages are related to eLancing's superiority regarding the control and manipulation of independent variables, the degree of realism involved in the study, the cost of conducting the study, and other issues. A summary of these advantages is included in Table 2.

Next, we discuss how conducting field experiments using eLancing as a natural environment overcomes each of the most pervasive methodological challenges we uncovered in our content analysis. We also discuss how using eLancing overcomes additional challenges included in Table 1.

5.1. Using eLancing to overcome the lack of generalizability challenge

Lack of generalizability is the most pervasive methodological challenge in entrepreneurship research, likely due to difficulties associated with researchers' access to data. eLancing allows researchers to overcome the lack of generalizability challenge because of the availability of highly heterogeneous participants from around the world. This availability of study participants is consistent with Davidsson's (2007) recommendation that researchers adopt a research conception of entrepreneurship as a role rather than individual entrepreneurship. In terms of research design, this recommendation implies that researchers focus on the creative,

Table 2
Comparison of field experiments using eLancing, longitudinal surveys, and existing datasets.

	Control and manipulation of independent variables	Realism	Operationalization of variables/internal validity	Randomization	Ability to measure the effect of independent variable
Field experiment using eLancing as a natural environment	Allows for control and manipulation	Very realistic situation and context	Control in operationalization of variables	Allows for randomization	Great ability
Longitudinal surveys	No control or manipulation	Potentially realistic situation and context	Some control in operationalization of dataset, but difficult to modify after first wave of data collection	No randomization	Partial ability
Existing datasets	No control or manipulation	Realistic situation and context	Little control in operationalization of variables	No randomization	Partial ability

Existing datasets refer to secondary data collected not through means of surveys but instead by garnering publicly available data. For example, public companies (companies listed on the stock exchange) are obligated to provide accounting and governance statements to the Securities and Exchange Commission and these data are publicly available for shareholders to make decisions. Websites such as Hoover's or Market Line provide access to such datasets. Longitudinal surveys refer to primary data sets collected by having individuals answer multiple surveys over set time intervals (e.g., 6 months, 12 months, 18 months). The Panel Study of Entrepreneurial Dynamics (PSED) collected by the University of Michigan or much of the census data provided on self-employed individuals are two examples of longitudinal surveys. Realism refers to the believability of the research context as perceived by study participants.

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opportunity-oriented nature of the entrepreneurship process and sample study participants from a general population, not just a population of entrepreneurs. With eLancing, a researcher can issue a call for work (i.e., which actually is an experiment) and require, for example, that study participants be from a certain region, industry, and with specific experience and educational characteristics (including demographic characteristics). eLancing allows researchers to recruit study participants 24/7 from around the world. Moreover, the cost of recruiting and compensating study participants can be as low as a few cents of a U.S. dollar per task. For example, based on jobs posted on elance.com on July 14, 2011, there were 1200 audio recording tasks available for a pay ranging from $0.01 to $20 per task. Note that eLancing is usually not the only source of income for eLancers — and this explains what may be seen as a possible inconsistency between eLancing pay rates and eLancers' household income as described earlier in our article.

Generalizability is a matter of degree and there can always be an additional setting to which a researcher would like to extrapolate a set of results. eLancing allows researchers to do just that. For example, on August 18, 2011, there were 24,517 jobs posted on elance.com — these included tasks related to web development, writing, translation, sales, design, programming, marketing, finance, multimedia, consulting, engineering, and manufacturing, among many others.

5.2. Using eLancing to overcome the omitted measurement of an important variable challenge

The second most frequently mentioned methodological challenge is that there are important variables that should have been included in the study but were not. This methodological challenge is likely due to the use of secondary and/or archival data sources that were not specifically collected to accomplish a particular study's goals, but for other purposes. eLancing can overcome this methodological challenge because by conducting experiments researchers have control over the research design and the variables included in their study. In other words, a researcher collects all the necessary data to test a specific theory and set of hypotheses, including the addition of control (Atinc et al., 2012), moderator (Aguinis, 2004), and mediator (Stone-Romero and Rosopa, 2011) variables.

Entrepreneurship is a multidimensional and multivariate endeavor and it is not possible for any particular study to include all relevant variables. However, eLancing provides researchers with the ability to include more variables compared to other types of field studies in which data collection efforts are more contextually-determined by resources constraints (e.g., time, access to study participants) and the use of data collected by third parties which may not include all variables of theoretical interest.

5.3. Using eLancing to overcome the less than ideal operationalization of construct challenge

The third most pervasive methodological challenge uncovered by our content analysis is that constructs are operationalized (i.e., measured) in a way that may be deficient (i.e., part of the construct domain is not measured) or contaminated (i.e., a measure includes a domain outside of the construct). The less than ideal construct operationalization challenge is closely related to the omitted variable challenge because it is also often caused primarily by the use of secondary data: When a study includes variables defined and measured by others, such measures may not capture the targeted construct accurately. For example, when using data from the Global Entrepreneurship Monitor (GEM), the Panel Study of Entrepreneurial Dynamics (PSED), or the United States Census Bureau (e.g., self-employment data), researchers are unable to improve the way that constructs were defined and measured and have no choice but to use the data as collected by others. In many cases, such measures may not include items that assess the intended construct and, consequently, may have less than ideal reliability and validity properties. Consequently, if a particular hypothesis is not supported, it is not clear whether the hypothesis is false or whether the poor quality of the measures is the culprit for the lack of supporting evidence.

eLancing allows researchers to collect their own data using their own measures. That is, researchers can choose to use the best available instruments for each construct. Although other methods allow researchers to use their own measures, and it is difficult to think of an “ideal” measure in an absolute sense, eLancing reduces the practical burden and cost on researchers and also it provides access to a very large number of highly diverse participants working in many different functions and industries.

5.4. Using Elancing to overcome the lack of confidence regarding causality challenge

The frequent inability to make strong statements about causal relationships is due to the infrequent use of experimental research designs. The only way to truly determine causal relationships is to utilize experiments (Cook and Campbell, 1979). With eLancing, experiments can be designed that walk entrepreneurs through a number of steps in the entrepreneurial process. Thus, eLancing allows researchers to manipulate independent variables (e.g., number and type of team members) and then measure the effect of that precise manipulation on key outcome variables (e.g., team performance). Moreover, by implementing random assignment of individuals to conditions (e.g., small versus large entrepreneurial teams, entrepreneurial teams with varying numbers of marketing experts), researchers can draw conclusions about the direction and strength of causal relationships.

5.5. Using eLancing to overcome additional challenges: participant bias and selective survival

In addition to the aforementioned four methodological challenges, which together account for about 77% of the total, Table 1 documents the need to overcome additional challenges including participant bias (7.96%) and selective survival (6.49%). Taken

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together, the four most popular challenges described earlier and these two additional challenges account for about 92% of all challenges listed in Table 1.

Participant bias can occur as a consequence of processes and beliefs such as social desirability. eLancing can help mitigate this type of bias because participants are asked to do things as opposed to report their beliefs, perceptions, or hypothetical behaviors that might occur in hypothetical situations. Also, participants are asked to behave in ways that they are quite familiar, and in situations with which they are very familiar. Moreover, eLancers provide their consent to work on a particular set of tasks, which for them is actually a real job, and in many cases are not aware they are part of a research study until the conclusion of the experiment (we provide a more detailed discussion of issues about deception and ethics in the section "Potential Limitations and Challenges of Using eLancing as a Research Tool").

Selective survival bias relates to selection issues due to firm failure or similar non-desirable, non-random study participant selection. eLancing helps mitigate issues of selective survival bias because longitudinal experiments allow for more researcher control. By using eLancing, researchers have the ability to follow entrepreneurs as well as entrepreneurial teams from creation and formation to new venture failure or success.

6. Illustrations of how to use eLancing in entrepreneurship research

In this section, we provide a more detailed description of how to design a study using eLancing in an important research domain: entrepreneurial team efficacy. We also illustrate how to use eLancing to conduct experiments in other research domains (e.g., how execution differs from opportunity recognition, how information asymmetry affects creativity and innovation, what are the internal processes in entrepreneurial teams – including cross-cultural teams – and how these processes unfold over time). The examples we provide do not serve the purpose of testing specific issues. Rather, the goal of these illustrations is to provide an overview of design, measurement, and practical as well as logistical issues to demonstrate the feasibility of conducting field experiments using eLancing's natural environment.

Learning a new methodological tool or statistical technique requires hands-on experience. So, although the description we provide next is fairly detailed, it will be difficult to fully understand how to use eLancing as a research tool without actually trying it. Similar to any other innovative methodological approach, implementation is a key issue (Grant and Wall, 2009; Uy et al., 2010). So, we encourage readers to engage in the following process. First, sign up for a simple job using any of the eLancing marketplaces to experience eLancing from the perspective of a potential research participant. Doing this will allow researchers to understand how a participant signs up for a job (i.e., potential experiment), what are the documents involved (e.g., agreement to conduct certain work by a certain time), and how performance measurement and compensation systems are implemented. Second, this time from the perspective of an eLancing client (i.e., experimenter), conduct a simple experiment that replicates a study that has already been done in the past. This second step will allow researchers to become familiar with the eLancing environment, to post a call for work (i.e., experiment), to manipulate variables (e.g., change the nature of the task, change the composition of teams, change the amount and type of information and knowledge given to various entrepreneurial teams or team members), and how to collect data (e.g., how to gather data using online surveys, chat rooms, and other online data collection tools available). After completing these two initial steps, most researchers will be in a position to design and conduct an original experiment addressing substantive hypotheses and questions, as we illustrate next.

6.1. Illustration: using eLancing to study entrepreneurial teams

Researchers are not likely to adopt a new methodological approach without practical guidelines regarding implementation (Uy et al., 2010). Therefore, we provide an illustration as a context-rich way to discuss the practical and logistical details and issues involved in implementing an experiment using eLancing as a natural environment.

Consider the research domain of entrepreneurial teams. Entrepreneurship is a social phenomenon and entrepreneurial teams are often discussed in corporate entrepreneurship contexts (Corbett and Hmieleski, 2007; Shepherd and Krueger, 2002) as well as new venture contexts (West, 2007). While entrepreneurship scholars understand that "the entrepreneur in entrepreneurship is more likely to be plural" (Gartner et al., 1994, p. 6) and that entrepreneurial cognition is important to understanding the entrepreneurial process (Corbett and Hmieleski, 2007; Gartner et al., 1994; Shepherd and Krueger, 2002; West, 2007), there is need for empirical work to test theories of entrepreneurial team cognition because such research faces a number of methodological challenges (Shepherd and Krueger, 2002).

As the first step in the process, we determine our study's hypotheses and research questions. In our illustration, we investigate a research question posed by Shepherd and Krueger (2002): is a team's collective efficacy toward entrepreneurial behaviors higher for teams with more entrepreneurial experience compared to teams with less experience?

The second step involves creating the research design. That is, setting up an eLancing experimental task, which includes which variables will be manipulated (i.e., independent variables) and which will be measured (i.e., dependent variables). Regarding practical and implementation issues, the amount of time required in this step can vary from a few hours to a few days, and the only cost involves the time involved in setting up the experimental task. Our study includes experimental conditions through which we manipulate previous entrepreneurial experience (i.e., our independent variable). The dependent variable, entrepreneurial efficacy, can be measured in numerous ways, but we focus on two operationalizations to highlight some of the benefits of eLancing: (1) self-reported efficacy (Chen et al., 2001) and (2) a content analysis of the interactions among group members in the Workroom of an eLancing environment (Short et al., 2010a). The Workrooms of eLancing websites allow team members

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to discuss issues and is a repository of data regarding these exchanges. So, in addition to collecting data regarding individuals' reports about their efficacy, we actually measure exchanges among team members as well as behaviors (e.g., some teams may choose to take on more challenging tasks compared to other teams) that serve as indicators of their level of efficacy. So, eLancing allows for the measurement of additional variables and, hence, can help mitigate a potential omitted variables problem. Regarding study participants, we chose entrepreneurial teams of three that consist of a marketing, a financial, and a programming eLancer (as mentioned earlier, there are hundreds of functions, occupations, and industries available). The major reason for our choice is that these teams include the various functions necessary to cover the major aspects of a business plan.

The independent variable in our study is previous entrepreneurial experience. One possibility is to expose study participants to various levels of experience. For example, some teams can be randomly assigned to entrepreneurial tasks, whereas other teams can be assigned to tasks that are not entrepreneurial in nature. Alternatively, we can measure individuals' prior entrepreneurial experience and then assign them to teams such that some teams include members with more experience and others include members with less experience. Note that the potential threat of selective survival is minimized because we have the ability to follow the teams from their very formation.

The third step involves choosing an eLancing website and the measurement tools. There are several eLancing websites and each has a different focus. The different eLancing websites self-organize by task, and not necessarily by industry and classifying a website as better than another for a specific industry is a difficult task. A useful categorization to decide which website to use is the taxonomy offered by Aguinis and Lawal (in press) of (1) microtask, (2) survey, (3) business task, and (4) information technology websites. Business task websites offer the largest variety in task and industry categories, so we recommend them for research across industry types. For example, eLance (www.elance.com) focuses on a variety of business-oriented tasks in numerous industries and has a large marketplace in terms of eLancers and clients (see Aguinis and Lawal, in press, for a more detailed description of several eLancing websites).

Regarding types of measurement tools, there are many options available. Surveys, Workrooms that team members use to exchange information, Skype or Google chat rooms, and the text content in deliverables can be used, both qualitatively and quantitatively, as sources of data. Certain websites such as Survey Monkey (www.surveymonkey.com) provide researchers with tools to conduct surveys, add question randomization, and provide participants with consent forms as well as debriefing documentation once the study is completed. Computer-administered surveys have lower levels of response distortion than surveys in other modes of transmission (Cascio and Aguinis, 2011, Chapter 12), which is an additional benefit of using eLancing. oDesk (www.oDesk.com) takes screenshots of eLancers' computer screens and this information can be used as data as well. The feedback rating score that is assigned to eLancers by these websites is a data point in itself. In short, using eLancing offers numerous options to researchers in terms of collecting quantitative data and qualitative information that can be exported into software programs to conduct subsequent analyses (e.g., computer-aided text analysis; Short et al., 2010a,b).

The fourth step involves recruiting study participants. The ease of recruitment of participants will vary based on the match between the amount of work and the corresponding pay the eLancers will receive for completion of the work. The process is quite straightforward. However, the work necessary to post numerous jobs as well as other information may prove tedious. It may take anywhere from three minutes to 30 min to post a job or task, but once a job is posted it can be used as a template for other postings. For our study, we would need 60 marketing, 60 financial, and 60 programming eLancers, for a total of 180 participants. The only way to know precisely how much an eLancer would charge for a task is to have them submit a bid. Accordingly, we posted the announcements for each of the three tasks on oDesk.com for 7 days and on eLance.com for 10 days in December 2011. We received bids from a very diverse set of individuals residing in Romania, India, the Philippines, Bangladesh, India, Eastern Europe, and the U.S — this result confirms eLancing's ability to overcome potential generalizability problems. Many had experience working on their own ventures as well as new ventures for other contractors on the respective marketplace sites. So, participant bias is minimized given that participants are asked to behave in ways that they are quite familiar given their background and experience. The average bid price was to $12 per hour for marketing, $14 per hour for financial, and $6 per hour for programming eLancers. Given these bid prices, an average of six hours of work for the 60 marketing, one hour for the 60 programming, and one hour for the 60 financial eLancers, the total estimated cost for recruiting participants for this experiment would be around $4,800. Please note that we have not included the factor of negotiation, which is a realistic factor in most eLancing jobs. Accordingly, the total cost of $4800 should be considered an upper limit.

In our study of entrepreneurial team efficacy, we inform our 60 teams that their feasibility plan will be used by the founder to pitch potential investors. Posting jobs online is not difficult given that the marketplaces include user-friendly interfaces. Researchers are able to request knowledge and skills they require in a participant, the type of work participants will engage in, and the compensation participants will receive. Participants are given the posting and subsequent information in a portfolio that can be uploaded as an attachment. This provides experimental control over the amount of information distributed to study participants.

Before the experiment can be conducted, researchers must make participants aware of their rights (e.g., protection against harm, privacy, confidentiality; Aguinis and Henle, 2002). These rights must be conveyed to participants before any information is collected or manipulations implemented. In our study, we disguise the true nature of the task as it could possibly bias participants. That is, we use the eLancing task as a natural environment in which we conduct our experiment and participants are not aware we are interested in assessing the effect of experience on efficacy rather than the quality of their business plan. Because the type of deception that may be needed in some eLancing studies is similar to that used in many other experimental settings in other fields (e.g., psychology, organizational behavior), we use well-established protocols regarding the use of deception (Aguinis and Henle, 2002; American Psychological Association, APA, 2002). We discuss this issue in more detail in the section titled "Potential Limitations and Challenges of Using eLancing as a Research Tool").

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The fifth step involves data collection. As noted earlier, there are numerous methods of data collection that make collecting information extremely efficient as data can be downloaded directly into any software package (e.g., SPSS, Excel, etc.). In our study, participants first complete a survey through Survey Monkey where they provide filler items and detail previous entrepreneurial experience. Participants answer the survey questions, and are assigned to teams based on their previous entrepreneurial experience. Participants are presented with the same idea and the biography of their team members. Team members are then asked to write a section of a feasibility plan that is relevant to their expertise in marketing, finance, or programming.

The data collection process occurs after business plans are compiled and the teammates have a conversation using the eLancing Workroom. Participants are asked to respond to a survey assessing the efficacy of the group in receiving funding for their idea.

The last step involves debriefing and compensation. The debriefing form is administered online and includes the usual information such as the purpose of the study, which in our case is to understand how entrepreneurial experience affects team efficacy and contact information for the researcher. eLancing sites include different payment systems and some involve third-party vendors such as Paypal. Also, while there is no physical exchange of currency, some eLancing sites such as e-rewards.com offer the choice to compensate participants in the form of gifts and rewards. Other sites such as Guru offer SafePay Escrow, an escrow account that allows researchers and study participants to agree on an amount and have both parties know that the money is in a safe place.

The description of our study only taps into the potential power of conducting experiments in eLancing environments; there are many more possibilities for researchers in terms of testing substantive hypotheses. Once the teams are formed, the experimenter can implement additional independent variable manipulations. For example, after the initial draft of the business plan is created, the experimenter can provide positive feedback to some teams and negative feedback to others. Subsequently, the same teams can be given an opportunity to create another business plan. Additional manipulations can include (a) amount and quality of information the experimenter gives to each team, (b) team size, and (c) team composition in terms of geographic and cultural diversity, among others. In terms of additional dependent variables, researchers can assess the impact of the various manipulations on subsequent attitudes (e.g., satisfaction with other team members), emotions (e.g., affective reactions), and behaviors (e.g., willingness to create another business plan). In other words, experimenters can assess the impact of the manipulated variables on outcomes at the individual and team level.

6.2. Additional illustrations

We used our previous illustration to describe how eLancing allows researchers the possibility to conduct true field experiments including actual entrepreneurs in actual work situations. There are numerous additional research domains that would benefit from the use of eLancing as a methodological tool. In fact, any area in entrepreneurship that would benefit from improving generalizability; including all relevant variables in the research design (e.g., controls, moderators, and mediators); improving the operationalization of constructs; and improving knowledge about the nature and direction of causal relationships among constructs would benefit from conducting field experiments using eLancing. In other words, it would be difficult to think of a research domain in entrepreneurship that would not benefit from conducting field experiments using eLancing. Consider the following selective set of research questions.

First, eLancing can be used to answer the question “How is execution distinct from opportunity recognition?” Numerous researchers have discussed the issue of parsing the role of opportunity recognition from that of solid entrepreneurial execution (Dimov, 2007; Gregoire et al., 2010a,b; Shane and Venkataraman, 2000). Thus far it has been difficult to separate the two variables because of their relatedness. eLancing allows researchers to separate these variables by using matching techniques and confederates (i.e., experimenters posing as eLancers) to have a glimpse at execution variables that separate firms that survive from firms that do not. eLancing would also allow researchers to capture the richness of data that truly occurs in startup situations.

As another example, consider the question “How does information asymmetry affect creativity and innovation?” Some have posited a curvilinear relationship between information and creativity (Barron and Harrington, 1981; Simonton, 1983), which is consistent with the pervasiveness of such non-linear effects in many other research domains (Pierce and Aguinis, in press). However, this hypothesis has not been tested in entrepreneurial settings but can be tested in an experimental fashion using eLancing's natural environment. It is quite feasible to assign eLancers to tasks and provide more or less information about the task at hand.

As a third illustration, consider the question “What are the factors that influence entrepreneurial team effectiveness?” eLancing environments allow researchers to test many aspects of entrepreneurial teams processes including team formation, operation, and termination. The websites allow for a number of possible contextual moderating variables to be tested and controlled. As we described in the earlier illustration addressing entrepreneurial team efficacy, eLancing has great potential as a tool to conduct field experiments allowing researchers to understand the internal dynamics of entrepreneurial teams. Experimenters can implement various interventions while the team is continuously operating and then measure the causal consequences of such interventions real-time as they unfold over time.

7. Potential limitations and challenges of using eLancing as a research tool

While eLancing has great potential to help advance entrepreneurship theory, we do not believe that any study using eLancing will be free from methodological limitations and will necessarily make an important contribution. eLancing is an innovative

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research environment that can be used in a cost-effective manner to conduct realistic field experiments. Although we believe it is an excellent tool, it is just a tool. Researchers still need to make decisions about which questions to ask and what theories to test. If the questions asked or theories tested are not meaningful and interesting, results, no matter how methodologically sound, will not be meaningful or important (Bartunek et al., 2006). In addition, there are six important issues that must be taken into consideration when using eLancing to conduct experiments, and we discuss each of these next.

First, many eLancing applications may involve deception, which is quite common for research conducted using the Internet. For example, Skitka and Sargis (2006) reported that about 17% of web-based studies use some type of deception. This is not an issue unique to web-based research or eLancing in particular because deception has been used regularly for decades (Adair et al., 1985; Gross and Fleming, 1982; Sieber et al., 1995). Specifically, deception is a widely used and discussed topic in closely related fields such as psychology, sociology, and organizational behavior (Aguinis and Handelsman, 1997; Aguinis and Henle, 2001; Gross and Fleming, 1982). As concluded by a recent literature review of the use of deception in psychological research, "Deception represents an important research tool for psychologists and continues to serve as an essential means for overcoming the potential validity threats associated with the investigation of conscious human beings" (Kimmel, 2012, p. 417). Accordingly, there are well-established protocols regarding the use of deception in research (Aguinis and Henle, 2002; American Psychological Association, APA, 2002). Operationally, this means that researchers must submit a proposal to their university's Institutional Review Board (IRB) in which they describe how they will conduct their eLancing experiment, how they will inform participants about their rights (i.e., by giving them an online informed consent form), how deception will be used, and how they will debrief participants about the deception at the conclusion of the study. Specific IRB requirements vary from university to university, so researchers should consult local guidelines. However, a common requirement will be that individuals indicate their consent to participate in the study by typing their name on the online form, clicking a link, or marking a checkbox next to a consent statement such as "Checking this box indicates that you are at least 18 years old and voluntarily agree to participate in this study. You have read, as well as understood, the information provided" (Hoerger and Currell, 2012, p. 390).

Fortunately, there is evidence that participants do not perceive deception to be unethical (Aguinis and Henle, 2001; Collins et al., 1979; Smith and Berard, 1982; Sullivan and Deiker, 1973; Wilson and Donnerstein, 1976), and debriefing seems to eliminate the negative effects of deceptive research on participants (Holmes, 1976; Smith and Richardson, 1983). Moreover, the type of deception involved when conducting a study using eLancing is defined as "mild deception," which consists of "creating false beliefs… such as misleading [participants] about the research sponsor or study purpose" (Kimmel, 2012, p. 402). Nevertheless, the debriefing process, which is conducted once the eLancing study is completed, includes providing participants with an online form which includes information about the deception and purpose of the study (i.e., although there were paid to complete the task, the real purpose was to conduct a research study), and the utility of the study for theory as well as future applications, as well as invite comments and queries. In short, the type of deception involved in conducting an experiment using eLancing as a natural environment is defined as mild and has been quite common in psychology, organizational behavior, and other fields, for decades. Thus, researchers can use well-established protocols for the specific case of eLancing.

Second, in terms of the sampling of study participants, there are many definitions of who can be labeled an entrepreneur and of what entrepreneurs do (Venkataraman, 1997). Thus, Davidsson (2007) issued the recommendation that researchers adopt a research conception of entrepreneurship as a role rather than individual entrepreneurship, which means that samples of study participants should be drawn from a general population and not just a population of entrepreneurs. Nevertheless, if the focus is on individual entrepreneurship, the challenge of deciding whether or not eLancers are entrepreneurs is very similar to the difficulty we have as a field in defining exactly who is an entrepreneur and who is not and what entrepreneurs do differently compared to those who are not entrepreneurs (Shane and Venkataraman, 2000). So, although many eLancers have either tried, and are currently trying, to build a successful new venture and have registered a new business with their national government, this may not necessarily make them entrepreneurs. In addition, eLancers see the opportunity in using eLancing websites when others in the general population do not, but this may also not fully confirm their status as entrepreneurs. Given these considerations, following Davidsson (2007), our recommendation is to ask potential study participants about their entrepreneurial experience and then select study participants who have some requisite amount of experience (e.g., eLancers who may be business owners). Also, in addition to entrepreneurial experience, there are measures that have been used in the past to predict entrepreneurial career choice and entrepreneurial behavior and performance (Zhao and Siebert, 2006). These measures could be used as well in selecting study participants. Finally, although there are millions of eLancers around the world, they are not able to perform any type of task — for example, it is impossible to get a haircut over the Internet. Nevertheless, the pool of potential participants is much larger than most populations to which entrepreneurship researchers have access.

Third, also regarding research participants is the fact that eLancers include individuals from literally all over the world and are highly diverse in terms of functions and industries. While it is difficult to gather precise demographic data of eLancers, information made available by eLance.com provides insight into this issue (see http://www.elance.com/p/online-employment-report.html). For example, the majority (59%) of eLancers' earnings are derived from information technology-related tasks. The remaining 41% of earnings can be attributed to other types of tasks including creative (24%), marketing (7%), operations (7%), and others (3%). A perusal of jobs that were on contract on elance in September 2011 showed that not only Internet-based firms contract work, but also firms from varying industries look for contractors who specialize in wide-ranging matters from legal help to administrative assistants. These eLancers work in 134 countries across the globe, and client firms are based in 150 different countries. These are very impressive numbers considering that the United Nations includes a total of 192 Member States. The United States has the highest number of active contractors. India has the highest amount of activity, closely followed by the United States, the United Kingdom, and Pakistan. Similarly, oDesk offers researchers the possibility to recruit a highly diverse set of participants. Specifically, oDesk includes 1.5 million

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eLancers in its network and job descriptions range from software development to translation, telemarketing, and statistical analysis (Startup Stars, 2011). Like other eLancing sites, oDesk is so successful that *Fortune* magazine selected it as one of 11 companies offering cutting-edge products or services that are likely to go public within the next six to 12 months (Startup Stars, 2011). In short, researchers interested in using eLancing as a research tool are able to select study participants from a wide variety of jobs, occupations, and industries from all over the world.

Fourth, an additional issue to consider when using eLancing as a research tool is whether participants are motivated to be part of a study and whether their responses are truthful. Fortunately, in contrast to more traditional research, using eLancing involves not only measuring what entrepreneurs say – which is more prone to distortion – but also what entrepreneurs actually do. The literature on survey research shows that are important differences between what people say and what people do (e.g., Rynes et al., 2004). Thus, an important advantage of using eLancing to conduct field experiments is that researchers can actually assess behaviors and not only perceptions or attitudes.

Fifth, regarding the types of questions that can be investigated using eLancing, we acknowledge that this methodological approach lends itself better to the study of individual entrepreneurs and entrepreneurial teams compared to the study of clients paying for services. However, the setup of the eLancing websites does create opportunities for researchers to study the client organization side as well. By contacting client organizations and asking them to participate in a study, researchers can investigate how these clients use the website as well as collect other information about the entrepreneurial process that has been difficult to capture using more traditional types of research designs. For example, if entrepreneurship scholars contact client entrepreneurs and pay for the services rendered by the eLancer in exchange for access to all communications and entrepreneur participation in surveys, then entrepreneurship researchers may gain access to insights about entrepreneurial decision-making and cognitive heuristics.

Finally, as is the case for any type of research study, those interested in using eLancing need to be aware of potential response distortion given that individuals tend to provide information that make themselves look as good as possible (Cascio and Aguinis, 2011; McFarland and Ryan, 2000). Whether or not individuals provide untruthful information is influenced by a number of situational and personal characteristics (McFarland and Ryan, 2000). Fortunately, there are situational characteristics that reduce the likelihood of response distortion (Kluger and Colella, 1993). Accordingly, eLancing marketplaces have processes in place to reduce faking such as warning study participants that their responses can and may be verified as well as warning them of the presence of a lie scale. Directly related to this issue, Richman et al. (1999) provided evidence that response distortion, or providing false information to make oneself look better, is less of a concern in computer-administered questionnaires than in traditional paper-and-pencil questionnaires because there is a perception that responses could be checked for accuracy. This helps eLancing websites reduce response distortion because eLancers must use computers rather than paper and pencil to provide data. Because of these considerations, it is not surprising that studies conducted regarding eLancing show that eLancers provide honest responses (e.g., Suri et al., 2011). Moreover, there is preliminary evidence collected outside of the field of entrepreneurship that results of experiments using eLancing replicate results obtained using more traditional laboratory settings (e.g., Horton et al., 2011; Mason and Watts, 2011; Paolacci et al., 2010). Although this evidence is preliminary given the newness of eLancing, it is encouraging that results replicate because this is an indicator of the good quality of the data.

8. Conclusion

The experimental method has been critical to building and refining organizational science theory. Classic experiments have provided the foundation for organizational research on a number of topics including the Hawthorne effect (Roesthlisberger and Dickson, 1939), leadership (Lewin et al., 1939), bounded rationality and administrative decision making (March and Simon, 1958; Simon, 1947), and participative decision making in groups (Morse and Reimer, 1956). There are also contemporary examples of important theoretical breakthroughs that have been possible due to the use of experimentation such as the effects of compensation on productivity (Rynes et al., 2004), leader and supervisor expectations and their effects on subordinate performance (Eden, 2003), and the positive effects of goal-setting on individual and team performance (Locke and Latham, 2002). Moreover, experiments can allow the field of entrepeneurship to reduce the dense landscape of theory and conduct studies that pit theories against each other (Edwards, 2010; Gray and Cooper, 2010; Leavitt et al., 2010). In other words, the use of experimental designs has the potential to not only test new theories but also gather evidence regarding the relative merits of established ones.

Despite the value that experiments provide, organizational science researchers are reluctant to include experimentation as part of their research agenda (Grant and Wall, 2009; Highhouse, 2009). First, from a practical standpoint, financial and time constraints are certainly important hurdles for anyone interested in conducting an experiment. Second, by their very nature including experimenter control and random assignment, experiments usually face external validity threats (Argyris, 1975). The typical setting for an experiment is a controlled environment, such as a university laboratory, which is often dissimilar to the natural environment to which researchers may want to generalize their findings. Stated differently, experiments often force researchers to remove participants from their natural settings. So, experiments improve internal validity but, at the same time, they weaken external validity.

One solution for the difficulties of conducting experiments is to conduct a field experimental design — an experiment conducted in a natural setting. Field experiments allow concerns regarding external validity to be mitigated by using real entrepreneurs and situations. However, it is rare, and difficult, to conduct a field experiment and randomly assign real entrepreneurs to various experimental conditions in real situations. As noted by Lawler (1977, p. 577), "the methodological requirements of traditional experiments fail to mesh with the realities of life in organizations."

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eLancing's natural environment allows researchers to conduct field experiments in a practical and cost-effective manner. So, eLancing allows researchers to take advantage of all of the benefits that field experiments have to offer. Specifically, eLancing allows researchers to improve both internal and external validity. Moreover, as described in our article, eLancing has the potential to allow researchers to overcome some of the most pervasive methodological challenges in the field.

In closing, it has long been documented that entrepreneurship research is limited by methodological techniques and a wider variety of methods will be necessary to advance entrepreneurship theory (Aldrich and Baker, 1997; Chandler and Lyon, 2001; Low and MacMillan, 1988). As is the case of any newly proposed methodological approach, the adoption of eLancing to conduct experiments will require an investment of time on the part of researchers — the learning curve is likely to be steep initially. Moreover, we do not wish to portray eLancing as a silver-bullet approach that will overcome all difficulties and methodological challenges in entrepreneurship research. Similar to any other type of methodological approach, the choices that researchers make in terms of design, measures, and analysis, will determine the validity of the resulting conclusions. Nevertheless, we hope our article will serve as a catalyst for the implementation of field experiments using eLancing that will lead to theoretical advancements that will also translate into important practical applications not only in entrepreneurship but also in other fields in the organizational sciences.

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