CHAPTER 8

CONJOINT ANALYSIS IN ENTREPRENEURSHIP RESEARCH: END OF THE ROAD OR A BRIDGE TO THE FUTURE?

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ABSTRACT
Judgments and decision are central to entrepreneurship, but capturing them empirically is challenging. Shepherd and Zacharakis (1997) addressed this challenge by identifying metric conjoint analysis as an experimental method capable of capturing the decision policies of actors engaged in entrepreneurial task, creating a “window of opportunity” for entrepreneurship research. On the twentieth anniversary of this chapter, the authors reflect on the impact the ideas had on their own work and careers, while, at the same time, address the possibility that the “typical” conjoint study may have reached the end. From this platform, the authors identify unknown attributes, interactive effects, rich media, mixed methods, and sophisticated data analysis as potential pathways by which conjoint analysis can continue to advance understanding of entrepreneurship. Their conclusion is that when coupled with impactful research questions, innovative uses of conjoint analysis have an important role to play in the future of entrepreneurship research. Hence, the authors believe that Dean A. Shepherd’s and Zach Zacharakis’s bold effort will continue as a quintessential resource for those researchers who wish to tap the mind of entrepreneurs, investors, and other key actors as they traverse the journey of business venturing.

Keywords: Conjoint analysis; entrepreneurship; cognition; judgments; decisions; experiments
INTRODUCTION

Individual judgments and decisions are at the heart of entrepreneurship. Whether it is a new venture creation, innovation, or capital investment, it is ultimately individuals making judgments and decisions that drive observed phenomena. This realization dates to the genesis of the field of entrepreneurship (Schumpeter, 1934), but became central in the modern era when scholars turned their attention to identifying the drivers of entrepreneurial decision making (Campbell, 1992; Smith et al., 1988). This is no small task. As one might imagine, uncovering what is going in someone’s mind as they make decisions is a bit like capturing lightning in a bottle. By the mid-1990s, however, swift progress had been made via utilization of retrospective methods, whereby individuals reflected on past decisions and espoused what they believed to be key elements of their decision policies. Although insightful, this approach was plagued with problems related to post hoc rationalization, social desirability bias, and so forth, which are well-known limitations of self-report, post hoc techniques (see, e.g., Arnold & Feldman, 1981). This left entrepreneurship researchers with the realization that a new approach would be needed if these limitations were to be overcome. In other words, application of post-hoc techniques provided a clear picture of the bottle, but not the lightning.

One challenge with understanding the lighting in the bottle was the difficulty of understanding what goes on in the human mind. Shaver and Scott (1991) acknowledged this and highlighted the importance of showing “how the individual’s cognitive representations of the world get translated into action” (p. 27). Dean A. Shepherd and Andrew (Zach) Zacharakis recognized the significance of developing such an understanding and, in their 1997 chapter in Advances in Entrepreneurship, Firm Emergence and Growth, offered a proactive and forward-looking “person, process, choice” (Shaver & Scott, 1991) approach to capture the in-use decisions of individual entrepreneurs. These authors identified metric conjoint analysis as an experimental method capable of capturing the decision policies of actors engaged in entrepreneurial task. They saw metric conjoint analysis as representing a “window of opportunity for entrepreneurship research” and, in their chapter, highlighted the key points of the methodology, provided specific direction on how a conjoint study can be designed and the data analyzed. They then outlined the various ways in which the technique could enhance a host of research questions in entrepreneurship.

We see two features of their research as being particularly notable. First, Shepherd and Zacharakis (1997) highlighted that although the technique had been used for some time in other disciplines (sometimes, under the banner of policy capturing), researchers in entrepreneurship use different language. In response, they elected to translate conjoint analysis into language that is more familiar to entrepreneurship scholars and therein made it highly accessible to this audience. Second, the piece appeared as a book chapter rather than a journal article. The book chapter format relaxed the page length restrictions associated with journal articles and this allowed a depth of content that
shed additional light on the nuances of conducting research using the conjoint analysis method. The net effect of both features was a resource that became accessible to those who were new to the technique. After reading the chapter, one could have a relatively high degree of understanding about the technique, where it might apply and how to use it in their own work. Hence, Shepherd and Zacharakis (1997) has emerged as a foundational work for use of conjoint analysis in the field of entrepreneurship and proved an essential catalyst for our work, and that of many others, on judgment and decision making in entrepreneurship.

Although this is an overwhelmingly positive development, a close look at historical paths and recent developments indicate to us that conjoint analysis may have, in many ways, reached the end of the road. That is, the so-called “typical” conjoint study (Patzelt & Shepherd, 2017) is no longer seen as novel and this is especially true if the study is based on a vanilla research question or focuses on main effect relationships that are to be expected. This is intriguing because it suggests that use of conjoint analysis has become a victim of its own success; whereas, over the course of the last 20 years, it has moved from a fight for legitimacy to taken for granted status in entrepreneurship studies. We see Dean A. Shepherd’s and Zach Zacharakis’ (1997) chapter as the catalyst for this move and as Dean and Zach revisit their chapter in this edition of the Advances in Entrepreneurships and Firm Growth series, we reflect on the impact the chapter has had on our own work and careers while at the same time addressing the idea that conjoint analysis may have reached the end of the road. However, this is far from the epilogue of the story in that we offer ways in which innovative approaches to conjoint analysis create a bridge to the future for the method. Doing so, we hope to stimulate thinking around ways in which conjoint analysis can help address the many tough questions that remain in entrepreneurship domains where judgments and decisions are central to the phenomena.

**CONJOINT ANALYSIS AS A WINDOW**

Although conjoint analysis had been used in a variety of field since the early 1970s (Green & Srinivasan, 1978), and had been used in a handful of studies in entrepreneurship since the late 1980s (see, e.g., DeSarbo, MacMillan, & Day, 1987; Muzyka, Birley, & Leleux, 1996; Riquelme & Rickards, 1992), its mainstream utilization as a method in entrepreneurship began in earnest following the publication of the 1997 book chapter. Interestingly, even Shepherd and Zacharakis had not extensively published research using conjoint analysis prior to authoring this chapter. The chapter itself appears to have solidified the potential and value of conjoint in the minds of the authors and by extension, introduced the method to the masses as a way to better capture entrepreneurial judgment and decisions. For both of us, the publication of the Shepherd and Zacharakis (1997) chapter provided a foundation for our own research.
Although we came to conjoint in different ways, we were keen on conceptualizing entrepreneurship as a process underpinned by decisions about when and where to engage in entrepreneurial action (McMullen & Shepherd, 2006). Wood was interested in understanding how external circumstances and events influenced entrepreneurs’ evaluation of opportunities, conceptualized as new product or service introductions (Shane & Venkataraman, 2000). Around the same time, Mitchell was interested in how to conceptualize intuitive decision making as it relates to acting on entrepreneurial opportunities. Without conjoint analysis, we would have struggled in the pursuit of our own research interests because of the conundrum of trying to untangle a decision, made by an individual actor about the broader environment, from the actor and the environment. In other words, conjoint analysis enabled our research because it could model entrepreneurial decisions as nested within the individual-opportunity nexus (Shane, 2000), and thus capture such decisions by parsing out variance across levels of analysis.

For Wood, a search to find such a technique revealed the Shepherd and Zacharakis (1997) chapter that advocated conjoint analysis as an approach for precisely the type of research question being asked. Similarly, Mitchell highlighted the potential of conjoint analysis and referenced Shepherd and Zacharakis (1997) in his work on intuition (Mitchell, Friga, & Mitchell, 2005). Moreover, upon beginning to work with Shepherd, Mitchell’s assessment that conjoint analysis could assist in answering the research questions of interest was confirmed. The 1997 chapter made clear the ways in which the technique allows researchers (such as ourselves) to manipulate aspects of the decision environment through the presentation of series of decisions profiles, comprised of various combinations of decision attributes. Further, it highlighted ways in which individual differences could be captured and modeled in a way that not only controls for the individual or the environment, but also engenders theorizing around these. The fact that the chapter has been around for two decades enables us to now reflect on how it, and conjoint analysis, have each influenced us.

**Wood:**

Once I decided that conjoint analysis was the most appropriate technique for answering the research question in my dissertation, I read the Shepherd and Zacharakis (1997) book chapter over and over in attempt to discern how to design and implement a conjoint study. Almost 10 years following my use of this chapter in my dissertation, the chapter remains littered with post-it tabs marking areas central to my continued work using the technique. The chapter did not contain all the information needed to conduct a rigorous conjoint study, but it came close and it put me on the right path.

**Mitchell:**

I was fortunate to work with Dean A. Shepherd as my dissertation chair. Although some might say that the reason I used conjoint analysis in my research was because Dean was my dissertation chair, my own sense is that Dean was my dissertation chair because I was asking questions that could best be answered through the techniques he championed. I knew of the 1997 chapter before I knew of Dean and had cited his research in my first academic article (Mitchell, Friga, & Mitchell, 2005). And it turned out that conjoint analysis was perfect for my research, which facilitated Dean’s mentorship.
of me and our continued collaboration. And although I worked closely with Dean on designing my research, the 1997 chapter was an invaluable resource for me to understand how to best work with Dean using the conjoint analysis method.

As we hope is evident, the impact of the 1997 chapter on our thinking and scholarship cannot be understated. It truly shaped the trajectory of our research and in many ways, our careers. Including our own friendship and collaboration. Importantly, we are not outliers as there are many other researchers who have capitalized on and benefited from conjoint analysis as means to capturing the decisions of entrepreneurial actors across a range of contexts.

**CAPITALIZING ON THE CONJOINT METHOD**

In entrepreneurship, conjoint analysis was initially used as a mechanism for understanding decision making about ventures. This began with a study of managers making decisions regarding corporate venturing initiatives (DeSarbo et al., 1987), but then began to primarily be used by researchers to understand the decision making of venture capitalists (Muzyka et al., 1996; Riquelme & Rickards, 1992). Indeed, the topic of decision making by venture capitalists was what Shepherd and Zacharakis were primarily focused upon in their own research using conjoint analysis. Conjoint analysis represented a great technique for understanding venture capitalists’ decision making. This is one reason that its use was predominantly in this space. However, at that time, its use beyond venture capital research was more limited.

One reason for this, we believe, was because many scholars looking at other topics in entrepreneurship research were not familiar with the technique. Although they may have had some training on conjoint analysis in graduate school, we speculate this may have been focused on the choice-based approach that is more prevalent in marketing research. The approach that was emerging in entrepreneurship, however, was that of metric conjoint analysis. Although choice-based and metric-based conjoint analysis are related, the differences – which involve how the study is designed and choices are made – may have been enough for researchers not familiar with the technique to misunderstand its usefulness to entrepreneurial decision making. In this sense, the adoption of conjoint analysis in other areas of research in entrepreneurship was slow.

Indeed, from what we see in the literature, there were only a few uses of conjoint analysis in the decade from 1987 to 1997 (see DeSarbo et al., 1987; Muzyka et al., 1996; Riquelme & Rickards, 1992). Use of conjoint analysis began to increase in frequency with the publication of Shepherd and Zacharakis (1997), with one or two being published each year in major entrepreneurship and management journals until 2008, at which time, there were five articles published. Many of these were published by Dean A. Shepherd and Andrew Zacharakis along with 11 different colleagues in the papers they published over this time. However, many papers appeared that were not collaborations with Shepherd or Zacharakis (e.g., Bruns & Fletcher, 2008; Franke, Gruber, Harhoff, & Henkel, 2006, 2008; Valliere & Peterson, 2007). The fact that a diverse group of scholars
had picked up conjoint analysis as a methodological tool was an important step in the normalization of the technique as others began to see its usefulness.

In our own work, conjoint analysis enabled us to investigate several interesting questions. For Mitchell, conjoint analysis not only facilitated research that developed an understanding of how opportunity identification is influenced by both images of opportunity, but also images of the self (e.g., self-images of capability and self-images of vulnerability) that affect the images of opportunities that underlie opportunity identification (Mitchell & Shepherd, 2010). Conjoint analysis has also enabled an understanding of decision incongruence (which represents the gap between how individuals convey their decision-making rationale to others and the actual rationale they use). Specifically, we combined conjoint analysis with a field experiment to understand how certain capability building mechanisms lead some individuals to be less likely to have high decision incongruence in opportunity decisions than others (Mitchell & Shepherd, 2012). It also enabled an understanding of why some decision makers were more erratic in their decision making than others (Mitchell, Shepherd, & Sharfman, 2011).

For Wood, conjoint analysis engendered a stream of research that explored the drivers and manifestations of beliefs about the attractiveness of entrepreneurial opportunities (Wood, McKelvie, & Haynie, 2014). Specifically, the conjoint approach allowed us to look at how opportunity-related attributes influenced opportunity judgments, but more critically conjoint allowed the exploration of how those effects changed in the presence of individual differences, such as fear of failure. Taking things further, David Williams and Wood drew on the notion of rule-based processing to identify factors such as the worst-case scenario, which appear to be used as rules of thumb by entrepreneurs while making decisions about which opportunities to pursue (Wood & Williams, 2014). The insights derived proved valuable for entrepreneurship theory and practice by providing a “window” (just as Shepherd and Zacharakis suggested in 1997) into why individuals elect to pursue some opportunities while ignoring others. This was only possible because conjoint analysis provided a method capable of jointly modeling environmental and individual factors, while at the same time avoiding the problems associated with the post-hoc nature of opportunities (Davidsson, 2015).

We also note other interesting insights that have been developed by talented colleagues through use of conjoint analysis. For example, Monsen, Patzelt, and Saxton (2010) investigate the tradeoffs and opportunity costs that are involved in corporate venturing efforts. They find that risk and effort interact in their effect on the decision to engage in corporate venturing. Murnieks, Haynie, Wiltbank, and Harting (2011) utilize conjoint analysis to study how investors look at those entrepreneurs who think in ways like their own in a more favorable light. For their part, McKlevie, Haynie, and Gustavsson (2011) selected conjoint analysis to unpack the role of state, effect, and response uncertainty and find that the type of uncertainty experienced influences the willingness to engage in entrepreneurial action differently. These three studies are just a few examples, but they are indicative of the diffusion of conjoint analysis throughout the field of entrepreneurship as individuals other than Shepherd, Zacharakis, or their affiliates, who have
adopted conjoint analysis as a valuable tool. They also highlight that although conjoint is indeed useful, the way in which it is used has shifted over time.

That is, as researchers heavily embedded in the use of conjoint in entrepreneurship studies, we have observed significant gains along the lines as those foreshadowed by Shepherd and Zacharakis in the 1997 chapter. So much so that conjoint analysis is no longer necessarily seen as novel and all too often, the insights derived are evaluated by reviewers as obvious. This is not apparent to many in the field because scholars are unaware of the papers that do not make it to publication. In our roles as reviewers and editors, both of us often handle papers that use conjoint analysis and this gives us a unique perspective. In that vein, the trend we have observed is that conducting a conjoint study the same way it was done 10 years ago when the method was being legitimized in the field, is not well received by reviewers. We characterize this state of affairs as the realization of Shepherd and Zacharakis's vision where conjoint analysis served as a means (a way to tap into decisions) to an end (the understanding of factors that influence decisions); however, the overwhelming success of this approach has resulted in a state where use of conjoint analysis can be characterized as having run its course and thus may have reached the end of the road. Having said this, we believe that conjoint continues to hold vast potential for the field of entrepreneurship, but tapping that potential rest on new innovative approaches and we now discuss all of this in turn.

End of the Road for “Typical” Conjoint

In a recent chapter on decision-making in their book, Patzelt and Shepherd (2017) highlight the contribution that research using conjoint analysis has made to our understanding of how entrepreneurs make decisions. In this chapter, they talk about the opportunities for research to use conjoint to delve more deeply into issues of level. In making this suggestion, they draw attention to the issue of how “typical” conjoint analyses in entrepreneurship that simply look at the decision level are no longer enough. This is due in part to the fact that conjoint is no longer seen as novel method and thus the presence of conjoint technique is not enough in and of itself to warrant a contribution. Further, decision attributes must be something surprising to the field or they come across as obvious. One reason for this is the very area we research. Entrepreneurship involves the identification and creation of the new (e.g., new opportunities, new products and services, new business, new industries, etc.) and thus reviewers are asking “what is new here?” In other words, the focus of entrepreneurship researchers on studying processes related to the new may implicitly predispose them to also require newness of theoretical questions in their own work and in their reviews of the work of others.

New research that does not ask questions that are perceived as new and novel enough are, as a result, discounted. Therefore, although there are many types of decisions in entrepreneurship that have not yet been investigated, simply investigating these decisions may not necessarily be seen as novel enough to publish in top-tier entrepreneurship journals (even if understanding these decisions could be helpful). This means that researchers who explore decisions context that are “run of the mill” and do so using attributes that lead to obvious relationships
(e.g., the lower the profit potential of the opportunity the less likely one will decide to pursue it) are likely to be selected out during the review process at top journals. In short, taking the “typical” conjoint approach will likely result in researchers confronting the end of the road – what worked well for scholars years ago will not work today.

Does this mean that researchers should abandon conjoint studies moving forward? No, not at all! Some of the most recent work in entrepreneurship includes calls to continue research using conjoint analysis and in doing so suggests that conjoint is still viewed as a “sophisticated research design” (Gaglio & Winter, 2017). To capitalize on this, however, conjoint must be used in novel ways. As we highlight in the next section, we see a bright future for use of conjoint analysis when innovative advances are offered. This, we believe, represents an opportunity for the next wave of research using conjoint analysis.

**A BRIDGE TO THE FUTURE**

Although our position is that the “typical” conjoint approach has likely reached an end of one road, at least in terms of publication potential in premier journals, the method continues to hold a wealth of untapped potential. That is, there are many ways in which researchers can innovate the conjoint method and moves in this direction serve to reopen the window of opportunity for contributions to entrepreneurship that were originally envisioned two decades ago by Shepherd and Zacharakis. Innovations to conjoint analysis can take many forms, but we offer several key areas where we think important adjustments can be made such that future studies are more likely to meet reviewers test for novelty and rigor.

**From Known to Unknown Attributes**

The first area of potential innovation flows from the realization that one of the central assumptions of conjoint analysis is that researchers know a priori the most critical attributes and levels that are likely to affect respondent decision making (Lohrke, Holloway, & Woolley, 2010). This is not particularly problematic in research domains where rich theoretical insights point to likely suspects. In areas such as human resources management, for example, it is well established that attributes of the compensation package impact employment decisions (cf., Williams & Dreher, 1992). In less developed areas such as entrepreneurship, where theories about entrepreneurial process, nature of entrepreneurial opportunity and the role of stakeholders therein are rather nascent, specification of the most critical attributes can be challenging. To be sure, researchers have been able to identify a host of face valid attributes thought to play a central role in venture capital (VC), angel, and entrepreneur decisions, just to name a few (Drover, Wood, & Zacharakis, 2017; Mitchell & Shepherd, 2010; Zacharakis, McMullen, & Shepherd, 2007).

Having said this, there is an opportunity for research to engage in theory building as a function of the utilization of conjoint analysis. Specifically, researchers can engage in identifying ecologically valid attributes that may have
been overlooked or reside in contexts that are poorly understood. Engaging techniques such as “flipping to the other side of the coin” where researchers look to attributes indicative of “what is the worst that can happen” (Wood & Williams, 2014) instead of “what is the best possible outcome.” Researchers can look to decision processes that are seemingly irrational or impulsive and therein identify decision cues that resonate with those who engage these processes. The point here is that conjoint designs necessitate manipulation of decision cues in relatively simple ways (i.e., high vs low levels) so the attributes themselves need to be interesting decision cues, ones that have been overlooked or lead to counterintuitive predictions.

To do this, researchers must do the hard work required to uncover such attributes. In some cases, popular press accounts of entrepreneurs or investors decision making provide clues (see, e.g., Gartner, Starr, & Bhat, 1999). Likewise, engaging in inductive qualitative research to derive attributes from actors in the field can reveal hidden decision cues. Interviews with those imbedded in the phenomena of interest (i.e., investors, entrepreneurs, etc.) whereby individuals describe the factors they attend to in decision making can provide tremendous insights. Verbal protocols (Mathias & Williams, 2017) or observational ethnography can also be used to identify relevant decisions cues, ones that actors themselves may not be aware they use. The takeaway here is that rather than positioning conjoint analysis as an alternative to using, for example, in situ observation data (cf., Malmström, Johansson, & Wincent, 2017), conjoint analysis studies can be built on insights derived from actors in the field to provide added sophistication and depth of understanding. Adopting such an approach has the potential to re-energize use of conjoint analysis because coupling it with techniques such as verbal protocols emboldens it to becomes a gateway to theory development, as opposed to simply a test of known attributes.

**Interactive Rather Than Main Effects**

A second area ripe for innovation in use of conjoint analysis comes from one of the little discussed features of conjoint analysis. That is, one should fully expect to find significant main effects for the attributes, by design. This is because conjoint analysis utilizes an orthogonal approach such that attributes are typically assigned dichotomous levels (e.g., high vs low). Because there is very little information beyond the attributes to base decisions on, attribute level dichotomy is sure to elicit a response unless the attributes selected are not relevant to the decision (i.e., lack face validity) or the definition of the attribute is poorly understood by participants. In other words, main effects for each attribute are to be expected. Table 1 provides evidence of this reality via cataloging attributes from five select exemplar studies published in high quality outlets.

What the findings in Table 1 reveal is that of the 22 attributes included in these studies, 21 of them evoked a statistically significant main effect at the 0.05 level. This has critical implications because it suggests that unless the attribute is truly an unknown (i.e., new to the phenomena as a predictor) or the direction of effect of the attribute is in question (main effects can be significant but in a
counterintuitive direction), the main effects should not be the focus of study given the research design is expected to evoke such effects. Instead, we advocate that researchers focus on interactive effects between attributes and consider that the most interesting effects are likely to come from cross level interactions between individual level variables and attributes of the decision environment.

Indeed, some recent conjoint analysis studies have moved toward reporting main effects of manipulated attributes primarily as a baseline. In some cases, this means specify the main effects as a set of foundational hypotheses (Wood et al., 2014) or not hypothesizing some of them at all (e.g., Drover, Wood, & Payne, 2014). In both cases, the approach is to provide initial theorizing on the main effects, but then move directly to interactive effects as the “meat” of the conceptual model. Empirically, researchers then analyze and report main effects but do so in a foundational way where results are reported as confirmation of relationships assumed to exist based on logic, prior research, or experimental design. If one or more of the main effects is not significant, and the researcher is confident this is not a function of errors in the manipulation (e.g., confounded, ineffective, or unintelligible manipulation) then it suggests a need for new theory or revised theory. This approach allows researchers to focus the “heart” of the study

### Table 1. Significant Main Effects in Select Exemplar Studies.

<table>
<thead>
<tr>
<th>Exemplar Study</th>
<th>Attributes</th>
<th>Significant main effect ($p &lt; 0.05$)</th>
</tr>
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<tbody>
<tr>
<td>Patzelt and Shepherd (2008)</td>
<td>Output control, Behavioral control, Social control, Competence trust, Goodwill trust</td>
<td>Yes</td>
</tr>
<tr>
<td>Haynie, Shepherd and McMullen (2009)</td>
<td>Value, Rarity, Inimitability, Limits to competition</td>
<td>Yes</td>
</tr>
<tr>
<td>Mitchell and Shepherd (2010)</td>
<td>Potential value, Knowledge relatedness, Window of opportunity, Number of potential opportunities</td>
<td>Yes</td>
</tr>
<tr>
<td>McKelvie, Haynie, and Gustavsson (2011)</td>
<td>Rate of demand (state uncertainty), Rate of technology (state uncertainty), Predictability of demand (effect uncertainty), Predictability of technology (effect uncertainty), Sustainable innovation (response uncertainty), Lead-time (response uncertainty)</td>
<td>No, Yes, Yes, Yes, Yes, Yes, Yes</td>
</tr>
<tr>
<td>Wood et al. (2014)</td>
<td>Founding rates, Dissolution rates, Density levels</td>
<td>Yes, Yes, Yes</td>
</tr>
</tbody>
</table>
on interactions, configurations, and other contingent relationships that provide insights on how attributes of the decision environment coalesce into a decision policy that drives judgments. This, we believe, is valuable because conjoint is one of the few techniques that allows researchers to tap into decision policy as a function of “theory in use” (Argyris & Schön, 1974; Lohrke et al., 2010, p. 19) and therein model the effects of attribute combinations and attribute by person interactions on outcomes. Hence, our recommendation for scholars considering employing conjoint analysis is to focus on interactive and configurational, rather than the main, effects of conjoint attributes.

Richer Media

A third area where scholars can move beyond the typical conjoint study is by using rich media as a mechanism to present attribute profiles. At present, most conjoint studies include a written vignette followed by a series of written profiles with various combinations of attributes described. Although presentation has moved to an online format, the enhanced capabilities of web portals have not yet been tapped. Because researchers can put content on-line, there is the possibility that background scenario and profiles can be presented in richer formats such as video or video with audio. Although video manipulations in experimental research has grown (e.g., Vohs & Heatherton, 2000), including advancements into the virtual reality space (Kozlov & Johansen, 2010), the video approach has yet to meaningfully make its way into the conjoint method specifically, or into entrepreneurship research generally. It may be possible to do so in ways that open new vistas for conjoint analysis, not only for the field of entrepreneurship, but also for other disciplines that utilize the technique.

Although the notion of using videos for background information and profile presentation is exciting, we acknowledge that it is a daunting task due to the risk of confounding. Things like attractiveness of the presenter, voice inflection, and use of images and other elements associated with video presentation can become unaccounted for sources of variance. Although the richness of presenting a new technology as a potential business opportunity, for example, via a video depicting it (think Kickstarter campaign video) would draw participants in and help them more readily engage in what Shepherd (2015) called “hot cognition” the number of additional variables introduced could render results invalid. If the color of the new widget is red, for instance, and red is known to be the most common favorite color, then assessments of the opportunity could be driven by the color of the widget as opposed to the variables manipulated. This, of course, is not an issue with the traditional written verbiage approach.

Given these challenges, researchers might start with some form of visual or auditory supplement to written content. Although not a conjoint study, Drover, Wood, Sohl, & Williams's (2016) recent conference paper highlighted this approach as these scholars engaged entrepreneur investment pitches made to angel investors. Specifically, manipulated attributes were conveyed in written form but imbedded in in a PowerPoint slide series, and this was supplemented by audio of the entrepreneur verbalizing the content on the slides. The idea is that in real angel pitches,
entrepreneurs use PowerPoint as a main communication device for written content and they present the information verbally. Using audio, then, increased realism but did so without confounds caused by video of the presenter (attractiveness, style, and so on). The net effect is that the experiment is richer in context and thus more realistic as compared to real life investment pitches. Thus, we advance that similar technique might be used in a conjoint study, especially those studies that explore investor decision making, to overcome the “typical” conjoint problem. One of the more common pushbacks from reviewers against conjoint analysis that we have seen is concerns over the sterile and artificial nature of the experiment. Moving to richer content and presentation of content is one way to begin to overcome that challenge as the approach makes the experiment more realistic.

Conjoint as Mixed Method

As our discussion thus far highlights, we see conjoint analysis as having continued potential and another way to realize that potential is to combine conjoint analysis with other methods. This reflects the “mixed method” approach that is often included in calls for path breaking future research (see Autio, Dahlander, & Frederiksen, 2013, as an excellent example of mixed methods research). Here, scholarly effort is needed not only in terms of study design and execution, but also in writing and managing the review process. In terms of study design, we note that research questions should drive selection of methods. However, robust methods enable scholars to ask deep research questions, such as those questions that are interactive in the sense they involve the inter-relationship and mutual adjustment of the entrepreneur’s mind and the world (Shepherd, 2015). We suggest that researchers use conjoint analysis in a more robust manner by combining it with other methods, and that in doing so the research questions that can be asked will deepen. As researchers articulate rich research questions, care should be taken to understand how conjoint analysis can be used in combination with other methods. As Brannen (2005) notes, use of mixed methods can result in the achievement of a variety of goals. Specifically, a researcher might use mixed methods to corroborate, elaborate on, complement, or contradict prior research findings.

For example, a researcher might employ conjoint analysis in conjunction with a qualitative approach based in semi-structured interviews (e.g., Gioia, Corley, & Hamilton, 2013). The results from the conjoint analysis might corroborate the findings from interviews in a way that supports the emerging theory. Alternatively, the results from the conjoint analysis might elaborate on the findings from the study in a way that highlights the contingent aspects of the emergent theory based on differences in individual characteristics or based on specific aspects of the environment. Conjoint analysis might also complement qualitative interviews where there are differences in findings between the interviews and the conjoint analysis, but both sets of findings combine to inform understanding. Alternatively, it may be that the results from the conjoint analysis contradict the findings from the interviews, which may raise further questions and suggest the need for continued theorizing and research. In this example, we highlight how semi-structured interviews might be used in conjunction with conjoint, but the same could apply to
many different methods and approaches. Regardless of the mix of methods, we fully appreciate that the execution of such studies requires significant effort. As Brannen (2005) noted in her work, use of mixed methods involves considerations at each phase of research enquiry. In other words, when researchers work with different types of data within the same research project, the way they use these data will vary according to the phase of the research in which the researcher brings the different data sets into play (pp. 176–177).

Whatever the methods being mixed, the key point is that careful thought and effort are required in the research design to account for the increased sophistication outcomes.

One obvious challenge to combining conjoint analysis with other methods is that the writing and reviewing process will undoubtedly be more complicated. Adding methods adds complexity to the research and increases the possibility of errors. Further, it requires reviewers to evaluate the merits of multiple methods, one of which he or she may not be an expert. What this also means is that researchers are likely to draw reviewers who may not understand both methods employed and thus it is incumbent on the researchers to provide a highly detailed explanation of the different techniques. What is needed on the part of researchers is to clearly and concisely describe each aspect of the study so that editors and reviewers have enough information to understand what was done in the study. We emphasize the word concise because although mixed methods studies will often get some accommodation by journal editors in terms of length of the papers they accept, authors still must come relatively close to page limit guidelines. Although clear and concise writing will help, there may still be cases where the different methods and traditions present divergent or even competing assumptions and these will need to be satisfactorily reconciled.

In sum, combining conjoint analysis with other methods is a challenging task. We do not deny this. However, we feel that for conjoint analysis to reach its full potential, its combination with other methods is important piece of the puzzle. By combining conjoint analysis with other techniques such as interviews or secondary data, scholars have the chance to produce transformational research. Although there is greater risk in trying to publish such research in high-quality journals, there is also the potential for what Shepherd (2015, p. 501) called “home runs” that “capture the attention of editors, reviewers, and audiences.” To us, this parallels the path of Shepherd and Zacharakis (1997) in the sense that at the time of publication, their notion of using conjoint analysis to study entrepreneurship was a risky strategy for those who elected to follow it. The technique was not well understood by reviewers; and Wood and Mitchell received numerous rejections of conjoint studies until finding a formula that worked – providing a detailed but concise explanation of the method such that reviewers could understand it and have confidence in its validity. That perseverance paid off for us, and many others, as conjoint studies have proven highly impactful scholarship (e.g., Haynie, Shepherd, & McMullen, 2009 cited 282 times in Google Scholar). The same will likely be true for the mixed-methods approach, but the potential for transformational insight is immense and this will enable conjoint analysis to remain relevant and useful for many years to come.
Sophisticated Data Analysis

A final pathway by which conjoint studies can serve as a bridge to the future is by increasing the sophistication of data analysis. By this, we mean that early conjoint studies in entrepreneurship relied on multilevel modeling (MLM) techniques. This is notable because MLM techniques had not been used much in entrepreneurship and because conjoint is nested data MLM is a necessity. Simply put, not using MLM techniques is a fatal flaw for conjoint analysis studies and researchers new to the area should be aware of this. Having said this, a scan of the literature reveals that early conjoint studies in entrepreneurship relied on reporting results from only full model outputs. The well-cited study of Haynie, Shepherd et al. (2009) is a prime example. In this study, the authors report results from hierarchical linear modeling (HLM) of entrepreneurs’ evaluations of opportunity attractiveness via a single model (i.e., full model). The problem with this approach is that it is very difficult to untangle independent effects of predictors and interaction vectors. Further, effects of control variables are not included in the table, but rather reflected in the intercept coefficient. The authors claim that “analyzing two models (main-effects and full) is neither necessary nor appropriate given that the orthogonal research design assures there is zero correlation between the criteria” (Haynie et al., 2009, p. 351). Although the zero correlation is correct, this misses the point because it can be helpful for researchers to see variable effects in stepwise models. Indeed, Mitchell and Shepherd’s (2010) conjoint analysis study of entrepreneurs’ images of opportunity and images of self, present stepwise models that provide nuanced understanding.

Although we acknowledge that the full model approach has been standard practice in many studies, including some of our own work, the trend is toward a more nuanced and sophisticated approach. A good example of this is Gruber, Kim, and Brinkmann (2015) who provide a base model followed by full model, but then comparisons are made of the full model across three different samples of respondents (managers, technologist, and entrepreneurs). They also engage several robustness checks, which is a common econometric technique for ruling out alternative explanations, but has not been utilized much in conjoint data analysis. In that way, moving to more sophisticated analysis techniques for conjoint data will advance the rigor and relevance of findings. This, we believe, will increase the odds that conjoint will shed new light on currently hidden dynamics within the process of business venturing and thus continue Shepherd and Zacharakis’s (1997) vision of conjoint analysis as a window for entrepreneurship research.

CROSSING THE BRIDGE TO ANSWER TOUGH QUESTIONS

Although the pathways to the future of conjoint we outline are useful, they are only as impactful as the questions they seek to address. In other words, although there may be a bridge to the future for conjoint a critically important question is, what is on the other side of the bridge? Conjoint analysis is a tool best suited for capturing judgments and decisions; thus, research questions that fall under
the conceptual domain of cognition are likely candidates. Recent developments in entrepreneurial cognition research present interesting questions that might be explored using the conjoint method. One area of emergent interest is the notion of focusing on decisions to maintain the status quo through inaction, rather than the ubiquitous action orientation found in the literature. Wood, Williams, and Drover (2017) recently explored deliberate decisions not to pursue a perceived opportunity; in addition, although their experiment was not conjoint, the finding that past inaction decisions influence subsequent opportunity judgments opens the door for conjoint studies that explore inaction as a turning point in the entrepreneurship process. It also raises the possibility that elements of past decisions could serve as attributes in conjoint studies such that researchers can tease out what dimensions of prior decision positively or negatively charge subsequent judgments, related to new opportunities or other salient variables. For example, would an investor who recently experienced a “home run” exit have his or her current judgment of a new investment opportunity influenced by that experience? Tversky and Kahneman’s (1974) work on biases suggest it would and conjoint analysis is a technique that allows researchers to investigate whether this is indeed the case.

Another candidate for research questions that might be illuminated by conjoint analysis flow from recent research on disinhibition and the notion that it is not only carefully planned reason action (e.g., Haynie et al., 2009), but also non-deliberative impulse-driven logics that can drive venture creation actions (Lerner, Hunt, & Dimov, 2017). At present, this is a conceptual notion that has yet to be empirically validated and we contend that unreasoned entrepreneurial action might be captured and assessed via a carefully designed conjoint study. It might be possible, for instance, to have entrepreneurs make a series of attribute driven decision with some of the attributes reflecting information needed for planned action and some for more unreasoned action. Researchers could look at the time it takes for decisions to be made on various conjoint profiles as indicator of less reasoned action judgments. Regardless of the nuances of the design, we find the notion of disinhibition in entrepreneurial judgments and decisions fascinating and believe conjoint analysis has potential as a way forward for this line of research.

A third area ripe for research that can be addressed using conjoint analysis involves the exploration of the recursive matching and updating that unfolds as entrepreneurs develop the confidence required to act (Dimov, 2010; Shepherd, McMullen, & Jennings, 2006). We know that entrepreneurs can use interactions with others to create images of an envisioned future around new venture ideas (Davidsson, 2015; Wood & McKinley, 2010), but this has yet to be properly modeled in experimental research. Conjoint studies, for example, have focused on a single judgment at a single point in time, but what if the entrepreneur received feedback from others along the way; could changes in judgments as a function of variations in feedback be captured? We believe that it might be possible to use conjoint analysis in an innovative way to capture multiple judgments over time. Though not a conjoint study, Wood et al.’s (2017) sequential decision-judgment experimental design could serve as a framework for this approach. In that way, we believe that moving to a dynamic multiple judgment approach is a key area for future research and one where conjoint analysis can play a vital role.
A final set of research questions that may provide fertile ground for the future of conjoint analysis involves considerations of who is making the judgment or decision. That is, entrepreneurship is very much a multi-actor sport where entrepreneurs, customers, investors, and other stakeholders come together with shared purpose. There is very little research that captures the essence of the multi-actor judgments. An entrepreneur may be enthusiastic about his or her new product idea; however, do investors concur with this? Conjoint studies could be designed to capture congruence between these perspectives. Gruber et al. (2015) provide a nice roadmap for this as they consider the perspective of managers, technologist, and entrepreneurs in the same conjoint study. Here, we note that the opinions of customers have been almost totally neglected. Because customers ultimately drive venture success, it seems that conjoint studies that tap alignment between entrepreneurs and customer assessments could be insightful. Researchers could take this as a step further and explore how interactions between these two groups shape the decisions that each make around new introductions. Indeed, we see a bright future for this area given the wide range of questions that have yet to be considered.

**FINAL THOUGHTS**

The selection of a research method to use should be driven by fit with the research question and the objective of the study. As such, the purpose of this chapter is not to evangelize conjoint analysis as superior method. Rather, it is to take a retrospective and prospective look at conjoint analysis as a method that is central to the development of our understanding of entrepreneurial cognition and decision-making research specifically, and to entrepreneurship research broadly. In terms of retrospection, there is little doubt that the field has seen an explosion of conjoint analysis studies since Shepherd and Zacharakis foreshowed the potential of the technique in their 1997 chapter. This tracks with the notion that when new methods are introduced, they open new conceptual domains and possibilities. This has certainly proved to be the case for conjoint analysis in entrepreneurship research. Entire streams of research that explore things like how individual evaluate circumstances perceived as entrepreneurial opportunities have been spawned (see Short, Ketchen, Shook, & Ireland, 2010; Wood & McKelvie, 2015, for reviews). This is due in large part, we believe, to the fact that conjoint provided a method capable of tapping into the inherent complexities of untangling why an individual would elect to pursue opportunity A while ignoring opportunity B.

Although these advances are something to be proud of, we see the possibility that the “typical” conjoint study may have reached the end of the road in terms of publishing such studies in top journals. Having said this, we believe there is a way forward that avoids constraining the future of conjoint analysis. In this vein, we identify several potential pathways for use of conjoint analysis and these pathways represent exciting ways in which conjoint analysis can continue to advance our understanding of entrepreneurship. When coupled with impactful research questions, innovative uses of conjoint analysis can create a 1–2 punch
that increases the odds of publication in elite journals. Although most reviewers and editors will agree that methodological innovations are not enough for publication, they will also likely agree that when such innovations are introduced as a necessary advancement for answering complex and interesting research questions, they provide a compelling case. As such, we encourage researchers to first ask interesting questions and when those questions involve judgments and decisions, to consider conjoint analysis as a candidate for investigation.

In closing, we point out that the paths forward we identify are only a few of the many possible. Just as entrepreneurs are creative problem solvers, so too should entrepreneurship scholars strive to be creative in our own research, including finding innovative ways to utilize conjoint analysis to address the complexities of the entrepreneurship journey (McMullen & Dimov, 2013). Although numerous advances have been made in the 20 years since Shepherd and Zacharakis (1997) more fully introduced the field of entrepreneurship to conjoint analysis, there is still much that we do not understand. We thus believe that conjoint analysis will continue to play an important role in entrepreneurship research in the years to come. We are indeed grateful for the contributions that have flowed from Dean and Zach’s bold effort in 1997. Their chapter inspired the field of entrepreneurship, and has been central to the development of our own careers. On behalf of the many scholars who consider the chapter a quintessential resource, our hats are off to you.

REFERENCES


