INSTRUCTING UNDERGRADUATES IN MARKETING STRATEGY: FROM HINDSIGHT TO FORESIGHT

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Abstract

We are very good at instructing our students with explanations of the past. Unfortunately, prior research has noted that many business postgraduates misuse theory, as they tend to apply concepts they have been taught in the past, rather than adapt and apply foresight to a particular present context. Highly controversial work published earlier exposed the misuse of the popular Boston Consulting Group (BCG) matrix. Empirical evidence revealed that the BCG matrix leads to poor strategic marketing decisions causing managers to focus upon market share rather than profitability. In this present study, the earlier work is extended, using more controls and a larger suite of experimental conditions. A series of experiments were conducted, working with a sample of 221 executives in-training and experienced practitioners, in North America and New Zealand.

A threefold contribution of this work includes; first, the earlier work is confirmed using a more rigorous methodology; second, the pattern of responses come from a wider cultural and educational spectrum than before; third, and most important, incompetent decision-making can be countered by training in foresight using heuristics and sensemaking tools. Management is thereby enabled to synthesize effective marketing strategy.

Completion of the study was followed by application of the findings to undergraduate classes (N=240) in Marketing Strategy. Initial anecdotal results are reported in the epilogue to this study including feedback regarding student ability to adapt heuristics to employment in a practitioner environment.

Introduction

"Life must be understood backwards; but it must be lived forward" - Søren Kierkegaard

Educators presume that the knowledge we impart flows from our academic community to the practitioner. Barley, Meyer, and Gash (1988), explored the acculturation of the academic and practitioner communities. Using quantitative methodology their paper tested the knowledge diffusion theorists' presumption that knowledge flows from academic to practitioner. Their conclusion was that knowledge often flows in the opposite direction, from experienced

practitioner to theoretical academic. How does knowledge and skills acquisition differ between academic and practitioner? The knowledge acquisition model for the academic progresses as: research, to analysis, to knowledge-that explanation; the skills acquisition model for the practitioner flows from: experience, to synthesis, to knowledge-how expertise (Bloom, 1956; Dreyfus & Dreyfus, 2005; Ryle, 1949; Weick, 2003).

The business school classroom is a very good place to explain knowledge-that theories. Textbooks are filled with valuable hindsight in how businesses have conducted themselves successfully and with theoretical explanation of past reality (Weick, 2003). In today's environment of dynamic complexity, hindsight is not enough (Senge, 1990). Students need to be exposed to knowledge-how foresight necessary for living forward (Schwartz, 1991). This paper argues that students must have instruction in the theoretical explanations of hindsight, but they also need training in the synthesis of foresight. Non-deterministic heuristics and sensemaking are tools that can augment what may be a shortfall of foresight training in the classroom (Crittenden & Woodside, 2007).

Our understanding of the nature of heuristics as cognitive tools to train executives has gone through a transformation. Heuristics bias our judgment, and cause people to make incompetent decisions (Tversky & Kahneman, 1974). At the turn of the new millennium, Gerd Gigerenzer from the Planck Institute in Berlin, published new empirical data revealing how heuristics reduce our effort to make competent decisions (2000). Competent decision-making using heuristics requires the training of students to become aware of their whole decision making environment and experientially adapt to their ever-changing context. Heuristics are paradoxical, as non-deterministic metaphors they bias our decision-making and simultaneously reduce effort by engaging our natural intuition for fast effective decision-making (Todd & Gigerenzer, 2000).

The extant literature provides evidence of the weak efficacy of heuristics as theoretical teaching tools in graduate business classes (Armstrong, et al., 1994; 1996; 2007). The present research reported herein provides solutions to some of the pitfalls of non-deterministic heuristics in undergraduate and graduate classes. Following this study, students were trained with experiential tools of computer simulations, case studies and acknowledgement of the nondeterministic nature of heuristics. They appear to gain insight for synthesizing competent decisions. The epilogue to this study includes classroom application and anecdotal results reported by a student.

Theory Development

Cognitive Processing: Practitioner Heuristics and Experience

Do businesses get more value from executives with knowledge-how experience or knowledge-that theory (Ryle, 1949)? Of course decision-making requires both, but one can discern a difference in the effects of these two variables. Dreyfus and Dreyfus (2005) developed a skills acquisition model that looks like a ladder where students climb upward, starting from novice and topping at expertise. At the bottom novice-rung beginners first learn the rules, or knowledge-that theory of business operations. Students advance up the ladder gaining experience on the way through to advanced beginner, to competent, then proficient. Along this climb they develop their natural, innate skills of intuitive thinking, synthesis formulation, and knowledge-how capability. Hopefully, with experience as the teacher, they arrive at the top rung of expert.

Many scholars are proponents of experiential training. Li, Greenberg, and Nicholls report on using an experential computer simulation in the classroom. Findings from their research demonstrate that undergraduates perceive the simulation experience as a powerful alternative to the rules driven lecture-based pedagogy. Students acquire deep how-to understanding when exposed to hands-on decision-making experience (Li, Greenberg, & Nicholls, 2007).

In the context of learning organizations, the impact of shared experience within group activities reveals the results of improved group decision-making (Barrick, David, & Lord, 1991; Kolb, 1981; Melone, 1994; Senge 1990). Crittenden and Woodside report their positive findings on knowledge-how experiential exercises in the classroom and skillbuilding in metathinking with heuristics and sensemaking exercises (2007). Heuristics and sensemaking are particularly salient tools when operating in an environment of dynamic complexity.

Environment of Dynamic Complexity: Cope by Using Cognitive Heuristics/Sensemaking

“Today, systems thinking is needed more than ever because we are becoming overwhelmed by complexity” (Senge, 1990, p. 69). Systems’ thinking requires specifying micro-relationships within a gestalt view of a system. One must move from closed system analysis to open system synthesis. The tools available for synthesis include heuristics and sensemaking. Schutz (1979) suggests executives must cut through open system complexity by moving from confused complexity to profound simplicity and dropping useless and contradictory concepts. Weick (2007) offers several suggestions of where and how-to use heuristics when analysis becomes inappropriate for the context at hand. The sensemaking tool of tool-dropping and heuristic

formulation is particularly appropriate here. Weick provides an example of this phenomenon from the fire-fighting community. He reports that forest fire-fighters boil down their many rules to a simple heuristic acronym LCES. Forest fire-fighters never put themselves into a high-risk situation unless they first have Lookouts, assured Communication, two Escape routes, and Safety zones (2007).

Cognitive Heuristics: Creativity and Competence in Marketing Education

Heuristics are not new to marketing education. One helpful heuristic with no apparent negative impact is the Creative Marketing Breakthrough Model (CMBM). Research reported by Titus (2007) signified the power that association heuristics have to train marketing students in creative thinking. By using word associations, marketing students apply CMBM experiential training to synthesize creative solutions.

Students of Marketing Strategy become accustomed to the non-deterministic heuristic as a simple, naturalistic tool to explain strategic concepts. In his explanation of non-deterministic metaphors, Audebrand uses a knowledge-that example of the familiar Boston Consulting Group's (BCG) growth-share matrix heuristic. He describes that this model uses a cash cow, a dog, a star and a question mark to help decision makers synthesize resource allocation between their product portfolios, unfortunately he does not provide knowledge-how to do it (2010). Armstrong and colleagues (1994, 1996, 2007) extend the discussion of the BCG model by exposing it as a tool leading marketing students to incompetence.

Heuristics help us deal with the ever-changing environment, but they can be misleading (Tsoukas, 1991). As non-deterministic models, their utility in a changing environment can quickly dissolve as Armstrong and colleagues (ob. cit.) demonstrate in numerous research projects using the BCG matrix as an example of a poor knowledge-that heuristic resulting in incompetent decision-making. From their research, evidence abounds that focussing on market share encourages a sub-optimal mindset that often results in profit losses. The central problem addressed by the research of this paper focuses on testing the efficacy of heuristics and sensemaking as knowledge-how tools for executive synthesis of competent decision-making.

Methodology: Research Experiments

Four mutually exclusive experiment treatments were conducted comprising of differential scenarios and patterned after the Armstrong and colleagues (ob.cit.) experiments. Each scenario presented a situation from which the respondent made a marketing manager's selling

price decision based upon the biased information of the scenario. Each respondent read only one of four scenarios. After reading their scenario, each respondent then makes one decision by selecting either a high-price or low-price option and completed the experiment by providing six items of demographic information.

Strength of association was summarised through modification of the chi-square statistic to take into account sample size and degrees of freedom, along with practical significance testing using frequency ratios. The present study reported below follows this method with extensions, including more controls, scenarios and a broader sample base.

Unit of Analysis and Sample

Practicing executives and executives-in-training are the unit of analysis. The sample of this study accesses undergraduate and postgraduate students from three universities with worldwide representation. These universities include: AUT University, Auckland, New Zealand; San Francisco State University and San Jose State University in California. Practitioners from North America and Australasia are also included among the respondents (N=212). The earlier Armstrong experiments were conducted exclusively with postgraduate MBA students.

Specifically, this research extends Armstong's earlier work to not only confirm his belief that the BCG matrix is still commonly misused and results in incompetent decisions, but also includes remedial suggestions using heuristics and sensemaking methods for training competent decision-making in environments of dynamic complexity (Senge, 1990; Simon, 1956).

Operational Hypotheses and Summary of Significant Findings

The objective of this research is to extend Armstrong's work and include propositions from the sensemaking work of Karl Weick (2007) and heuristics work of Gerd Gigerenzer (1999). This paper reports on four hypotheses presented in Table 1. Each hypotheses test involves one scenario for each cohort of respondents (n=~53) individually and privately reading one of the four mutually exclusive scenarios before making their individual dichotomous pricing decision. The single dependent variable continues as executive competence – measured by selection of either high price for competence determination, or low-price for incompetence determination.

Survey forms including participant instructions, decision forms, and research scenario exhibits are available upon request.

Table 1: Summary of Four (4) Hypotheses

Content	Scenario
H1: The introduction of competitor information to the decision will result in more respondents selecting the *incompetent*, lower-priced, alternative, even with the market share and profit information for the decision-maker's company remaining the same	1
H2: The higher market share number attached to a low price decision will result in a greater proportion of *(incompetent)* low-price decisions being made	2
H3: When respondent decision makers are primed with BCG information, a greater proportion will make an *incompetent,* low-price decision.	3
H4: Provision of materials showing that the BCG and the Experience Curve lead to lower profitability increases *competent*, high-price decision-making.	4

Results

Scenario 1/H1 and 2/H2 are controls, 3/H3 is a replication from the Armstrong and collegues studies, whereas Scenario 4/H4 extends this previous work (op.cit.). The study participants (n=52) of scenario 4/H4 are given a competitive focus but then shown the folly of such a focus, with the result that the level of incompetent decisions immediately falls significantly.

Scenario 4/H4 positions a powerful training tool. The scenario from 4/H4 exhibits evidence from the literature that shows why attempting to beat the competition actually hurts a firm's performance. The information in this scenario includes a list of findings from the extant literature reporting on the negative relationship between market share and profits. The intent of this scenario is to encourage respondents to drop their preconceived BCG notions from comparative results of Scenario 3/H3, and the controls of Scenario 2/H2 and Scenario 1/H1.

The findings for H1 through H4 are summarized in Table 3. This data reveals that good decision-making can be trained in business schools. In particular, H1, H2, and H3, confirm and update the research findings of Armstrong and colleagues (ob.cit.) and consistently show that competitive information, and the BCG matrix continues to train for incompetence.

Table 2: Responses to Scenario 4, Training Impact

Scenario, Hypothesis number	Condition	High-price competent decision	Low-price incompetent decision	Total
4	A price choice linked to a 10 yr market share prediction of 56% With competitor share and materials advising against competitive decisions included	38 (73.1%)	14 (26.9%)	54

The proportion of incompetent decisions is greater than in the case of Scenario 2 (chi-square = 7.898, D.F. = 3, $p < .048$, phi = .187).

Findings show the significant impact competency training (i.e., presenting evidence in sentences) has on decreasing incompetent decision-making versus the control condition. Training tools indicate competitor-oriented objectives hurts performance. Scenario 4 trains with evidence-based cues; this information cited from extant literature that setting competitor-oriented objectives hurts a firm's performance.

Conclusions

Remedial Suggestions

This study concurs that participative teaching, where teachers can lead students how to apply sensemaking processes within real-life simulations, are a superior way of training strategists than lectures or guided reading (Li, et al, 2007). The research here has shown clearly that simply textbook reading about decision-making techniques does not assist students to learn and apply those techniques in a sensible manner. Finally, the drop your tool ideas are real and useful. That is, students do need a kitbag of management sensemaking tools, they need to be experientially trained in sensemaking to drop tools and adapt simple heuristics within a particular decision environment (Weick, 2007).

Research Benefits

This research analyses the systematic relationship between cognitive decision-making theory and an environment of dynamic complexity. Cognitive decision-making theory analysed through

Table 3: Impact of competency Training on Incompetent Choice

Scenario number	Mean	N	SD	Std. Error of Mean
S4	.269	52	.448	.062
S1	.296	54	.461	.063
S2	.389	54	.492	.067
S3	.538	52	.503	.069
Total	.3726	212	.485	.033

hypothetical deductive tests, indicates that competence and incompetence in an experiencial environment may be taught and tested through the knowledge-how sensitive application of heuristics and sensemaking. Business students, educators, and practitioners are the primary benefactors of this research. The results provide an explanation of how levels of competency may be improved when executives operate in environments of dynamic complexity.

Epilogue: Implications for Training

There is evidence in the results of this research to show that competent decision-making can be trained in business schools. The lessons learned from this study were applied in an undergraduate, upper-division marketing strategy class. Students, throughout a twelve-week semester, were exposed to a computer simulation, business case studies, and numerous business decision-making heuristics. These non-deterministic heuristics include, though not limited to: What Is Strategy? (Porter, (1996); Blue Ocean Strategy (Kim & Mauborgne, 2005); The Balanced Score Card (Kaplan & Norton, 1996); Vision Building (Collins & Porras, 1996); Brand Alignment (Reinartz & Kumar, 2002); The Learning Organization (Slater & Narver, 1995); Resilience (Hamel & Valikangas, 2003); Industry Five Forces (Porter, 2008); Relationship Marketing (Grönroos, 1995); Mismanagement of Customer Loyalty (Reinartz & Kumar, 2002). Students were trained to adapt these heuristics when making decisions. They adapted the heuristic cues to a particular context and dropped the irrelevant aspects (analogous to dropping your tools). As they played through the Mikes Bikes computer simulation over a ten-week period, they applied the mutually exclusive, non-deterministic heuristics listed above to their

decision-making while operating their company in the competitive computer simulation. They simultaneously applied these same techniques to business case study analysis. Students train to rely on their heuristic intuition by focusing on salient cues and dropping unnecessary or irrelevant cues as they synthesize future options for the business case. They were trained to be sensitive to the global commercial environment and constantly aware of the non-deterministic nature of heuristics. This occurred as they experienced a competitive industry environment and weekly sensed the pleasure of victory, and chagrin of defeat.

In the case study they are trained how-to synthesize a conclusive statement on heuristic application, or lack of application, to the salient issue of the case. The student completes the study by identifying various future options available to move the business organization into the future. Ultimately, after these simulation and case study exercises, students demonstrate how-to adapt to a wide range of strategy decision-making heuristics to an ever-evolving environment. One undergraduate student in an unsolicited letter expressed an example of this successful adaptation.

Student Unsolicited Testimonial from Undergraduate Marketing Strategy Class

I am currently doing my [initial job out of school], but first I just say at how my mind is absolutely blown at the level of applicability of everything I have learnt in our [Marketing Strategy] class to the real world. The [MikesBikes, Smartsims] simulation combined with the journals has really enhanced the way I see the bigger picture and back it up with the analytical side. I was so surprised to find that the company I am doing [work] for had no structures in place whatsoever when it comes to measuring company performance; especially when the company looked so successful on the outside. On the second day of my [work] placement I managed to sell Kaplan's Balanced Score Card to the CFO and the CEO of the company; through the use of [heuristics] but also, because the simulation has put me in the seat of the CEO, I was able to talk in their language by using jargon that was music to their ears. And only after hours of going through data and speaking with front line managers, I found, that this company is going through some of the devastating decisions we made on the [MikesBikes] simulation; for example, no vision, promotional abuse and mismanagement of customer loyalty. I have also recommended this paper to all my friends doing Marketing as a MUST DO [upper division] PAPER. Another thing I found about this paper is that it correlates perfectly with my other major in management. I really can't imagine how I would be able to sell my management theories and ideas alone; but with the use of the Balance Score Card for example, I would be able to show the implications

and/or justify the benefits of those management theories/ideas by relating it to marketing decisions and pin pointing it on where it affected company results. (Personal email received from undergraduate student, 2012)

Appendix A: Keyword Definitions

Heuristics -- efficient cognitive processes that ignore some information or cues that may or may not be effective depending on their appropriateness to a given context. Heuristics reduce effort. They are not guidelines for reaching a goal, unless viewed as reducing effort compared to an optimisation model. They are non-deterministic in that they do not indicate causality. Heuristics reside within the typology of metaphors (Gigerenzer & Brighton, 2009).

Knowledge-that -- knowledge gained through explanations of reality. Theories are herein considered as synonymous with explanations that offer reasons for the cause of an event (Weick, 2003).

Knowledge-how -- knowledge gained through experience and practice. Theories constitute knowledge-that interconnections exist, but not knowledge-how to make those connections happen (Weick 2003, p.455). We learn *how* to ride a bicycle through trial and error experience, not by gaining the theoretical knowledge of physics *that* gyro stabilization, caused by a spinning, wheel enables us to balance a bicycle in motion.

Sensemaking -- order, interruption, recovery. That is sensemaking in a nutshell. And organizing is the act of trying to hold things together by such means as text and conversation, justification, faith, mutual effort (heedful interrelating), transactive memory, resilience, vocabulary, and by seeing what we say in order to assign it to familiar categories (Weick, 2006, p. 1731). Sensemaking includes both explicit and implicit mental processes of constructing, framing, creating, and rendering a view e.g., an executive's mental model of how things get done in an organization. Related to decision-making, sensemaking includes automatic and controlled scanning of memory and environments for framing issues. Sensemaking is meaning creation based on current and prior interpretations of thoughts generated from three sources: external stimuli, focused retrieval from internal memory, and seemingly random foci in working memory; such sensemaking is constructed on cultural pilings held unconsciously in long-term memory. Consequently, meta-sense-making efforts are always incomplete; that is, all of us possess an incomplete ability to understand the process and outcomes of our own sensemaking (Woodside, 2001, p. 415).

Strategy -- a mental tapestry of changing intentions for harmonizing and focusing our efforts; a basis for realizing some aim or purpose in an unfolding and often unforeseen world of many bewildering events and many contending interests (Boyd, 2007).

Tool-dropping -- in the context of sensemaking; consider the tools of traditional logic and rationality. These tools presume that the world is stable, knowable, and predictable. To set aside those tools is not to give up on finding a workable way to keep moving - it is only to give up one means of direction finding that is ill suited to the unstable, the unknowable, and the unpredictable. To drop the tools of rationality is to gain access to lightness in the form of intuitions, feelings, stories, improvisation, experience, imagination, active listening, and awareness in the moment, novel words, and empathy. All of these illogical activities enable people to solve problems and enact their potential (Weick, 2007).

References Available upon Request