Why 'soft science' is the key to regaining leadership in marketing knowledge

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Abstract

Paper category: Viewpoint founded from an extensive literature review

Purpose

The purpose of this work is to highlight what the authors regard as serious problems with the continuing dominance of a 'hard science' view of what constitutes 'top quality' research, and to present evidence that a 'softer' approach will yield work that more closely aligns with the everyday reality of marketing.

Design

The authors used a contrast between the marketing discipline and chemistry to illustrate their concerns about the use of 'hard science' in academic marketing. This was supplemented with analyses of academic marketing work already published to illustrate particular points.

Findings

We propose that academic marketers need to take a 'horses for courses' approach and ground our research in the reality of the discipline. We debate different areas within the discipline of marketing and conclude that some areas may still respond well to scientific approaches, while others may benefit from a relaxation into interpretive approaches. We argue the need to concentrate more on reflecting a reality that is recognised by the wider marketing community, rather than getting wound up in methodological strait-jackets. To illustrate these points we consider the lack of recent progress in research on market segmentation and critique a 'typical hard science paper'. We summarize the reasons why it is wrong to apply a 'hard science' approach on a carte blanche basis and argue for a more pluralist critical realist approach.

Value

The intention is that this commentary will promote the soft science stance as the most appropriate epistemology for mainstream academic marketing research

Practical implications

The contention is that the over-heavy trappings of science in much academic work has the effect of removing that work from practical norms. Therefore the practical implications of this paper are potentially significant

Keywords

Academic marketing research; dominant paradigm; realist approach; 'soft science'

The gap between elite academic marketing research and reality

Commentators are expressing increasing disquiet about the dislocation between research and practice caused by the dominance of 'hard science' in business and management research. These criticisms are far from new (Porter and McKibbon 1988; Leavitt, 1989; Brown 1995; Bailey and Ford, 1996; Marsden and Littler 1996; Mintzberg, 1996; Piercy 1997; McKenzie et al 2002) and nor are attempts to solve the problems (Brown 1998; Huff, 2000; Hatchuel 2001; Starkey and Madan 2001; Griseri 2002; Pfeffer and Fong, 2002; Piercy, 2002; Brown et al. 2005; Tapp 2005). While the debate over paradigm dominance in research has raged for some time (Hunt, 1991), it has tended to be at an abstract level (Marsden and Littler, 1996) and in mainstream academic marketing little has changed. At the same time alternative solutions based on postmodernist thinking (Brown, 1998) have yet to garner popular support.

Part of the problem may lie with the commitment of academics in elite positions (RAE assessors, journal editors, some deans of traditional business schools) to a narrowly defined 'hard science'-based system of research. But whether the dam can be shored up for much longer is in doubt. A wake up call came recently with the Harvard Business Review article 'How Business Schools Lost Their Way' (Bennis and O'Toole, 2005), which has added its not inconsiderable weight to the criticisms. The problems of 'hard science' approaches were discussed in a recent conference: 'Forum on the Future of the Business School' (Warwick University, December 2005), where it was acknowledged that business schools have not been good at developing usable knowledge in spite of the doubling of management journals in the last decade.

In the UK the final push may come from the funding bodies (Lambert Review 2003; Commission on the Social Sciences 2003) that appear to have convinced the government that, sooner or later, an alternative hegemony needs to be found. The high profile of the Harvard Business Review article may accelerate this process. With HBR's intervention the Emperor's clothes are well and truly off. It is becoming increasingly embarrassing to blithely carry on producing research that is routinely ignored by all its stakeholders except one – fellow academics.

In this paper we examine the principles that we and others (see for example Weber 2004) believe represent the pragmatic mid-ground view of much good quality management and marketing research today. Taking a recent paper from the Journal of Marketing, we offer a deconstruction of the typical problems that arise from an uncompromising 'hard science' methodology. (These problems are not as a result of incompetence by the authors; in our opinion they illustrate the methodological flaws common across this mode of enquiry). We suggest a 'horses for courses' mentality for academic marketing research such that different types of problems should be tackled in different ways, and our call is for an end to the false superiority of one type of approach. We argue that a more open minded attitude to research also needs to sit alongside an attitude of more open sharing of research within the wider marketing community, both in considering what subjects are important to research and in interpreting results.

Our first argument is that 'hard science' is often a 'fish out of water' when applied to marketing. To illustrate this it is helpful to look at the scientific approach where it has been most successful, that is, in the physical sciences.

Sodium and water -the successful application of 'hard science'

Let's take the example of how an element, sodium, reacts with water. We can divide up our description into observable facts and their underlying theories.

Take in Figure 1

Look at Figure 1 above. Physical scientists have no trouble distinguishing facts and theories. It is an observable fact that if you throw sodium into hot water it explodes, creating hydrogen and sodium hydroxide. Chemists have a settled view of why this happens – sodium's position in the periodic table makes it a 'group 1' element, with

11 electrons, and Valence Theory says a maximum of 2 followed by 8 electrons can orbit before the next electron must move into a new orbit. Hence one sodium electron is isolated in its own orbit, and is highly vulnerable. This vulnerability makes sodium highly reactive. The same is predicted of other elements with one isolated electron. The Periodic Table predicts that Potassium, Rubidium and Caesium will also be highly reactive, and observations demonstrate that this is so.

Valence Theory may not be the literal truth. It's just a theory. But it explains the known facts – and, at least in chemistry, the core facts don't change. Non changing factual evidence provides a solid platform for building theories, which are adjusted by subsequent data to better explain and predict. Further, in science theories do not exist in isolation but as part of a 'web of belief' (Williams, 2000). So to be credible any theory must exist as part of a network of interwoven meta theory, which is constantly scrutinised through replication of experiments. The chemistry 'web of belief' led to the periodic table and Valence Theory, which together elegantly explain chemical behaviour. So much so, that when brand new elements are created artificially they react according to the predictions of the Periodic Table.

What are the characteristics of chemistry like this that allows a 'hard science' approach to be successful? Epistemologically, reductionism – the drilling down of knowledge into smaller elements – makes intuitive sense in this field. Researchers can isolate the experiments, agree the constructs, control all the variables, and deploy hypothetico deductive method with complete confidence. Ontologically, facts are facts, and they don't change, nor, once established, are they disputed. There is an underlying order and pattern in chemical reactions that appears absolute. The underlying theories are supported by data and are highly predictive. These theories contain detailed explanations to help us understand why things happen. The theories may not be literally 'true' – Kuhn exposed the risk in absolute belief in science – but they work in an everyday way to help progress.

Scientific marketing – horses for courses?

Now let's compare chemistry and marketing:

Take in Figure 2

In Figure 2 we suggest that marketing science can sometimes work, but sometimes does not work well, depending on the nature of what is being researched. If we break the discipline into some of its constituents we may see that some behave more 'scientifically' than others. Examples might include studies of macro social trends and their impact on aggregate shopping behaviour. Obvious examples abound: an aging population might shop in different ways from a younger one. Here a 'hard science' approach may well pay dividends, provided it gives due lassitude for the inevitable uncertainties about different contexts and imprecise variables built in. Elsewhere, predictability in our discipline varies. At an aggregate level geo-demographic data predicts purchase behaviour, albeit not strongly. Extensive empirical work by Ehrenberg and co-workers (see for example Charlton & Ehrenberg 1976, but there is a long list) demonstrates that previous purchase behaviour is a strong predictor of future purchase; existing market share predicts future market share and so on. Theoretically, investigating the profit impact of marketing strategies (the famous PIMS studies) across many firms also looks attractive science. Problems here may not arise because this is inherently un-scientific, but because the sheer complexity across products, markets, conditions and so on prevents control and comparability.

On the other hand a lot of the social (marketing) world may be more safely described as a social construct that is difficult or impossible to precisely externalise outside of human debate. Here we are thinking of complex, nebulous, difficult to define constructs. Let's look at something such as people's feelings of nostalgia and how this may link to the phenomenon of car firms 'retro-marketing'. A number of questions arise when researching such a topic, of which whether we are dealing with external reality or social constructions is probably *one of the least useful to ask*. More pragmatically for 'science': can a definition of nostalgia and for that matter 'retro marketing' be agreed upon? Next, can these entities be consistently measured, in different situations, and over time? Given the uncertainties and complexities in delving into the socio-psychology of nostalgia, is there much point in trying to express the concepts in a quantified model?

The problem with our literature on complex phenomena like nostalgia & retro marketing is that the inherent uncertainties of such social constructs simply aren't acknowledged, and hence aren't dealt with. The pretence of a precise, predictive model that everyone agrees on is then entered into. Uncertainties of definition are

skipped over. The external validity issues of different contexts aren't properly addressed, which is unfortunate if the phenomenon is situation specific (for instance nostalgia emerges very differently across different nationalities).

This leads us to our first suggestion, shown in Figure 3, that research in marketing should be methodologically driven in a 'horses for courses' pragmatic manner.

Take in Figure 3

This 'horses for courses' epistemological relaxation may seem pragmatic and sensible, but it isn't what happens in published 'elite' research.

Scientific marketing - a reality check

A more pragmatic approach to epistemology needs to be accompanied by finding ways to link our research into context and to get closer to an often-complex reality. To illustrate what we mean, let us consider market segmentation. This should be a prime sector for academic science, but, while it is true that segmentation's place in marketing is reasonably secure, little recent work on this subject has been done on this in our elite journals. In fact academic work on market segmentation has hit a cul-desac: there have been no significant papers in the Journal of Consumer Research (JCR) on segmentation since 1997; and only two in the Journal of Marketing since 2001. There have however, been plenty in the Journal of Marketing Research (JMR) concentrating on obscure debates about complex mathematical techniques predicated on the 'hard science' belief that segments are stable, useful and real entities that can be refined and improved by number crunching. However, these assumptions are open to question at anything below the grossest level of aggregation, as argued by Wensley (1995). He pointed out that if we analyse purchase data cross sectionally we will be able to demonstrate segments by ascribing the variability in the data to individual customers. However if we then look at the same market over time using time series analysis, it then becomes clear that the stability assumed from the cross sections isn't there. Variability could be due as much to the same customer acting differently in different contexts or times, as to different customers acting differently. Although Wensley's conclusions have been contested by Saunders (1995) we would contend that there is sufficient uncertainty and debate concerning the entire edifice of segmentation as 'hard science' to cause us to question the point of the dozens of JMR papers over the last decade. Our contention here is that JMR style 'hard science' has

poorly served the user community or academia as a contribution to segmentation knowledge. We need to recognise the mess, the uncertainties, the instabilities of the segments, while still investigating how *that which remains* is useful to managers in organisations, the implications for strategy, and so on. Researching how to manage these uncertainties is, we feel, better than pretending they don't exist.

The user community is crying out for work on segmentation that addresses these contradictions and can work with the imprecision and uncertainties of the on-theground reality to create (imperfect but realistic) solutions to their real life challenges. In addition, significant organisational issues arise in *managing* segments. These have been addressed (see for example Hammond et al. 1996; Dibb and Simkin, 2001; Dibb and Wensley, 2002; Hunt and Humby, 2003), but this stream of work is not currently recognised by elite journals. This is a pity, because we'd argue this is where critical future work in segmentation should lie. Hunt and Humby's (2003) book 'Scoring Points' discusses in detail the story of UK supermarket chain Tesco's use of consumer loyalty card data to create a strategic, company changing segmentation approach that took enormous resources, five years of hard work, and was one of the most important factors leading to the enormous power Tesco now has in its retail markets. The case study reveals many of the management and commercial difficulties, and provides numerous insights that give hints on issues that are of interest to academics: such as the most effective variables to use; the most effective methodologies in practice; the role of data in strategy and tactics; segmentation implementation difficulties; the importance of context and situation in deciding how to go forward; how segmentation can influence market orientation, and so on. The value of 'Scoring Points' is that it provides a piece of context specific knowledge that improves understanding. It inculcates a multiplex of theory and data and resists answering the dilemmas with one model, one analysis or one theory. But our hard science bias within academia prevents this important work being inculcated into our leading edge thinking.

In this section we have illustrated how 'hard science' can impact negatively on the output of an academic sub-discipline and render much of the research meaningless to anyone, but a small group of academics. In the next section we critique one paper in detail.

A critique of a recent 'top journal' paper

Academia is too often focused on methodological robustness, while missing the fundamental foundation of the robustness of the research platform: connection of the research to reality let's look in detail at a 'hard science' top journal paper. Bart et al's (2005) Journal of Marketing paper 'Are the Drivers and role of Online Trust the Same for All Web Sites and Consumers? A Large-Scale Exploratory Empirical Study' reported the results of a large scale cross sectional study that linked web site characteristics (privacy, security, navigation, brand strength, order fulfilment, community features and absence of errors) with consumer characteristics (on line expertise, familiarity with the web site, and Internet buying/entertainment experience), trust and subsequent positive outcomes. A pilot qualitative study underpinned a survey to over 6000 respondents; with the results analysed using structured equation modelling. Throughout the paper the research is of huge scale (albeit cross-sectional); the techniques are rigorous and professional; modelling is of the highest order.

But if we look a bit harder at the questionnaire used, complex constructs such as trust are simply measured by the level of agreement with phrases such 'this site seems more trustworthy than others I have visited', 'this site represents a company that will deliver on promises made', and 'my overall confidence in the recommendations made in this site is...'. Within the 'local rules' developed by academic marketers on measuring trust this is understandable. Trust has been endlessly debated, and for the authors of this paper to rehash these arguments would have been rather tedious. But the extent of the debate about the definition and measurement of trust reveals the difficulty of claiming that by calling something 'trust' in a piece of research that everyone is on board, or that you are close to the external truth of what 'trust' is. If ever there was something that may be better treated as a social construct, 'trust' may be it. Substitute words like uncertainty, dishonesty, confidence, reciprocity, friendship, relationship, faith, hope, reliability, and so on, can be applied. If I talk to you about trust and you talk back to me, how do we know we are both talking about the same thing? The same issue of subjectivity applies strongly to questions in questionnaires. All too often, the person answering the question has read something different into it than was intended by the researchers. I could access your web site and I may trust you to give me a product that has value for money, but maybe I don't trust

you to be honest. If you then research my 'trust' in the site, what exactly are you researching?

Bart et al may counter by arguing that all these issues average out and the model as a probabilistic entity still holds. Maybe – this isn't totally convincing – but let's assume this is so. It still begs the question: what is the point of giving the impression that this model accurately and precisely explains and predicts? Apparently 'shopping experience' is 0.12 correlated with 'trust'. If this is a science then 'shopping experience' is something out there that we all agree about, ditto 'trust', and we should be convinced that the relationship between them is only 12% correlated. An experienced practitioner may have difficulty swallowing these 'certainties'. But they would certainly ask: what is the point of the precision of the numbers in the model? The impression is given of a highly tuned, finely balanced and hugely predictive system of web sites, people, and outcomes all dependent on privacy, trust, navigation and so on with executives able to tweak the controls: "Dan, HQ here, increase navigation by 12%, ease up on the privacy by 6% and this will improve sales by 3.8%". This is nonsense of the highest order and everyone who is still in touch with reality knows this is nonsense, including, we suspect, the authors. So why is it that these models are seen as the apex, the final triumph of marketing knowledge?

Perhaps we should re-iterate that in no way are we implying that the research was shoddy. Neither do we see this paper as any worse than others of this type. Indeed it is better than many – at least the authors' investigation covered different sectors and took account of these differences – many such studies do not. Our view is that the marketing literature is replete with studies like Bart et al's, which miss the chance to relax a little, and move away from the pretence that we are in a position to treat the study of marketing as a predictive science. Quantitative studies systematically give the illusion of comparability with each other, when in fact the significance and meaning of the numbers is constantly shifting. This brings us back to our two suggestions: on the one hand, of the need for methodological relaxation and on the other, for grounding research in a reality that would be recognised by the wider marketing community.

A better way – establishing a more robust research platform

What could Bart et al have done instead? Their budget for this work involved sending questionnaires to over 90,000 consumers, so we can assume funding was at least reasonable. Perhaps they could have looked for qualitative understandings of the concept of trust on-line, how and why this differs from general shopping environments. A general quantification of some key relationships between variables would be useful, but precise modelling less so. Tracking variables over time, split by different on line sectors (in the very sensible way defined by Bart et al) would produce valuable data on the stability of any relationships. We'd then develop some tentative hypotheses from the work to date, treating our findings with appropriate scepticism, and take these hypotheses into interviews with experienced executives in the field. Then onto case study work, keep the tracking study going, tweaking it as we learn more. And so on. Such a process, as illustrated in Figure 4, would build knowledge in close proximity with reality rather than in isolation:

Take in Figure 4

The methods are less important than the iterative process that we outline. In this way knowledge is built up with repeated reference to the social context in which the phenomenon under study operates. Scientists understand that their theories, models and constructs are social constructions of reality rather than reality itself, so why can't we?

Summary: Why we need to rethink the research approach in academic marketing

While 'hard science' research may be appropriate for tackling a number of questions within marketing, the problem, as we see it, is that it tends to be applied on a carte blanche basis to most research problems reported in elite journals. We have six major issues with this:

In contrast to chemistry, constructs in marketing are woolly and prone to disagreement.

All too often in academic marketing we don't deal with agreed factual entities like product purchases. Quite often, what constitutes a fact is a lot less certain and rather woolly. There are lots of phenomena where facts are disputed, such as attitude data, survey responses, observations of social phenomena such as what took place at a meeting, or complex psychological constructs such as self image, proneness to

nostalgia and so on, or variables that are difficult to define such as market orientation. These subjective and socially (dis)agreed variables may be less easy to treat scientifically than, say, simple purchase data. Statistical treatment of operationalised constructs give the *impression* of science, but there is a world of difference between a *hard fact* like a sale, and an *uncertain construct* such as self image. No amount of statistical wizardry makes up for this.

Chemists deal largely with absolutes, marketers usually deal with probabilities

Probabilities are strange things to treat scientifically. On balance, observations and findings suggest people tend to spend less time buying a chocolate bar than buying a car. But these 'facts' are woolly and vague compared to physical science. However, marketing science systematically gives the impression of precision, with probabilities expressed to decimal places, adding to the illusion.

Sodium explodes in hot water all round the world. But people behave differently from one place to the next.

Marketers face uncertainty over external validation of their results across different contexts. Loyalty cards may be of minimal value to consumers in Europe but does this translate across all markets? The external validity of much of our elite journal work is pitifully low, but this is *never discussed*. Again this relates to the point made above of the need for a critical/reflective approach from both academic and practitioner sides in different contextual situations.

Chemists can isolate the problem. Marketers can't.

Marketing academic models have a tendency to work a bit better at the gross aggregate level, but break down when we get to any sort of useful level, for example a firm and its customers. The failure of Tom Peters' Excellence models; the difficulty in persuasively demonstrating the link between market orientation and profitability in different contexts; the relative lack of any successful link between marketing planning and a firm's success. All these things point to systems, structures, variables that are so vast and complex (almost weather like), that they are pretty much impossible to predict. Technically, the modelling techniques can't handle the complexity. But even if they could, the hundreds of independent variables that you'd have to put in mean that any one variable would have minimal impact. (But even the weather is easier to

try and model than human, firm, or market behaviour. At least the weather doesn't wake up one day, spot the trends it has set, and deliberately set out against them).

Ironically, marketers can't isolate the system, but do isolate their theories

As we discussed earlier in science theories do not exist in isolation, but as part of an integrated 'web of belief' (Williams 2000). But in marketing, because we lack agreement, there is not a proper web of belief. And this means when a theory is developed in a paper there is a sense in which it is an isolated event, linked to other 'top journal' literature, but completely lacking cohesion with a more general view.

The formula driven approach of scientific marketing kills thinking by the researcher that in turn kills insight and understanding

Our view is that a narrow research formula is increasingly deployed in academic marketing as a substitute for thinking rather than an aid to it. This is reflected in the format of many top journal articles in marketing. The language and the stilted process seem to disallow freedom to muse and ponder. The formula drives the researcher to an expected outcome in which the answer must be... a model with antecedents and consequences. The very distance this leads us from our lived experience inevitably leads to a dumbing of the intellect – there is nothing for us to iterate our models against, no room for interpretation, for a search for understanding. Bringing insight and understanding requires a more open approach in which research is debated and contested outside of the confines a handful of academics.

A summary of our position: the militant middle ground

If research approaches based on a narrow interpretation of the dominant positivist paradigm imply a precision that we think is false, then social constructivist positions can be just as damaging to the academic-reality gap. To take the position that *all* reality is a social construction is, to us, merely academic posturing. Do those who adopt this stance in university debates or in articles then take this into their lives by, say, standing on a motorway and testing whether the cars coming towards them are social constructions? Those who argue that nothing is predictable and all forecasts in social science are a waste of time may also be striking an academic pose that they don't take into their everyday lives. When they drive in and get stuck in traffic jams day after day do they adjust their behaviour by forecasting that there may be a jam

tomorrow? One suspects they do. So, the debate about the use of scientific methods in academic marketing research is not always played out with critical neutrality. It is worth reflecting that many critics enter social science because they are critical of the social order and part of that order is science. In other words, as Williams (2000) suggests, many social scientists arguably begin as rebels, and their critiques of the use of science in marketing are perhaps a little too aggressive as a result.

Like a pendulum swinging from either extreme we advocate a sensible middle: a critical realist stance (Pawson and Tilly, 1997) for academic marketing research. This asserts that the (marketing) world is external but it can only be known in terms of incomplete descriptions and discourses. This acknowledgement allows critical realists to relax away from the constriction of pretending that we are dealing with a hard science. So, critical realism is comfortable with an interpretivist epistemology because it shares the view that the context of social phenomena needs to be understood and that only first hand engagement with participants reveals the subjective meanings and motivations that constitute actions. But it demands explanations as well as understandings – sitting somewhere between positivism and interpretivism.

Another layer of relaxation derives from taking a socio-psychological rather than economic perspective *where appropriate*. The former lend themselves sympathetically to interpretive studies where an allowance is made for the difficulties of agreeing social phenomena, such as how and why consumers interact with each other. We are also influenced by Carson et al. (2001) and Wilk and Mick (2001) who suggest a tolerant pluralism, including the use of different forms of enquiry sequentially, and the use of multiple perspectives simultaneously. The call here is for different research perspectives to work together to demonstrate their value, rather than fight to demonstrate their superiority.

Science drives the researcher towards atomism: breaking down phenomena into constituent parts. In contrast pluralistic approaches encourage holistic approaches that try to build up a 'big picture', acknowledging the crucial importance of the situation or context that the consumer, organisation, or market is in. Certainly, if practitioners usage is important then we need to reflect their world: users of the work in practice will have to deal with uncertainties, imperfect information, half finished, messy

problems, and politics that colours the objectivity of what to do, all the time (Carson et al. 2001). Theoretical positions that are unconnected with perceived reality are unlikely to inspire trust in the user communities for management knowledge (Hunt, 2005).

Conclusion: never believe without doubt

In everyday life managers, executives, consumers, and people in their ordinary lives make decisions that essentially assume that a) the world is 'out there', but that b) different points of view exist about what is going on and how it works. In everyday life people who hold *no doubts* that they are wrong are generally ostracized. The same may be true in 'everyday academia' but for some reason this judgement is suspended in journal articles. As a result a false precision is communicated.

Marketing science academics need to adjust to the imperfections of social reality. Critical realist methods create knowledge that is messy and less pleasing than nice clean scientific models, but it is ultimately more valuable. In chemistry the Periodic Table has great beauty with its reach and awe-inspiring qualities of prediction. Alas, in business and management we have no equivalent, but the desire to achieve such perfection seems to dominate the research published in the 'elite' literature.

Academic marketing is in crisis: we seem to have lost our collective ability to think. Our hard science stance removes our room for manoeuvre. A golfer who is putting badly can improve by relaxing. Relaxing allows the golfer to get away from logical analytical mode and into an intuitive, kinaesthetic feel for the problem. The analogy doesn't stretch too far, but a whiff of truth remains – relaxation about method allows us to concentrate on content instead of techniques.

We should not eschew models, but we should make explicit our *everyday*, *intuitive understanding of their limitations*. Models are often just a start point for problem solving, not an end point. This gap between the model and the final solution is an opportunity for dialogue with the world of practice that can enrich the quality of our findings. The gap may be filled with case study work, qualitative studies, ethnographies or indeed any technique that helps us understand the difference between a model and the local reality. The issue is not that this doesn't happen, but

that this kind of work is not valued by upper echelon journals, is under-valued by RAE assessors, and hence is frowned upon by deans with targets to reach. Another implication of this might be less guruism and more of a critical/reflective approach to problems from both the academic and practitioner sides of the community. Academic marketers do not have all the answers and practitioners should not expect them to. Rather, both parties have complementary experience and skills that could be more effectively utilised if brought together in tackling marketing issues.

Adopting the stance that we don't have to pander to outside interests has got us into trouble. If our work engaged with reality, and the scientific marketing approach was getting somewhere, then the ivory tower stance is justifiable. The trouble is that our lack of agreed definitions, our pretence that woolly constructs like trust or satisfaction are absolutes, our ability to ignore *hundreds* of extraneous variables in our modelling, while suspending any disbelief, is collectively breathtaking in its pseudo-scientific ignorance. Would a better approach to be to get off our hard science high horse, roll up our sleeves and engage with the reality of market places? By seeing the world as it actually is rather than as we want it to be we might have a better chance of understanding and explaining it.

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Figures

Figure 1: Sodium reacting with water

Fact: sodium reacts vigorously with water

2Na +
$$2H_{2} 0 \longrightarrow 2Na OH + H_{2}$$

Theory: The periodic table and valence theory

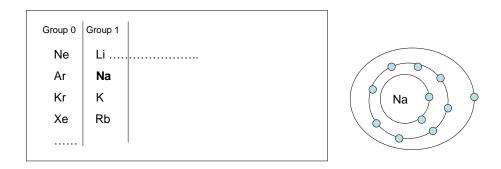


Figure 2: Marketing and chemistry compared

Marketing	Chemistry	
Some agreed Some disputed	Largely agreed	Facts/ evidence
Some have power and practical usage eg diffusion of innovations Some have poor evidence base and weak external validity	Educated guesses refined to fit the evidence. Broad predictability at the core. Debates at the margins	Theories/ principles/ explanations

Figure 3: Horses for courses – different philosophical nuances for different problems

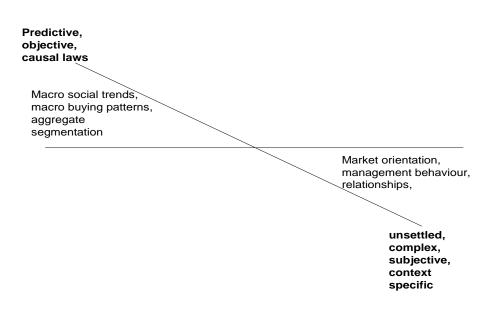


Figure 4 How Bart et al. could have conducted their research

