

Three cheers for Kenneth Boulding!

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Abstract: This presentation examines three reasons to cheer Boulding's contribution to economics. The first is that his approach to the practice of economics is based on a cautious and open confidence in the tools of economic analysis, which is on the one hand, pluralistic, and on the other hand, suited to the contemporary complexity of the economy. Second, Boulding offers a picture of the economics textbook which is radically different from most contemporary offerings, both in its approach to economics and in its content. Third, Boulding's theoretical work offers new insights into the evaluation of green jobs programmes. These three apparently disparate themes are unified by Boulding's underlying commitment to systems thinking and to theories of the individual unit consistent with uncertain emergent macro-level outcomes.

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Boulding's image of the economics textbook: a commentary¹

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Introduction

Boulding's essay (1988)² is a gently persistent critique of contemporary economics textbooks, and by extension, of economics. Boulding's thesis is that: 1) economics textbooks ought to present visions (or 'images') of the economy; 2) he can offer reasonably confidently (an attempt at) a true image of the economy; and 3) among contemporary attempts, "no existing textbook of the last generation...not even my own" (113) presents this image. However, the essay aimed to defend much contemporary economic practice, albeit with some modification.

The essay has two main themes: one, the nature of the economy; two, the tools used to act informedly in it. In Boulding's view, an economics textbook should, simply, contain economics; and it should inform students about how the economy works. It would do that by presenting (where possible) true images of the economy, using some combination of theory and data. Economies are complex systems, which are difficult to comprehend; but contain a set of core 'events', such as production, valuation and revaluation, distribution and redistribution, accumulation (investment), circulation and above all, exchange. The second theme of his essay concerns economic methodology, in which Boulding offers an image of the economist as cautiously confident user of a range of useful but limited tools. Boulding echoes many of his previous works and discusses issues such as aggregation and balance sheets.

¹ This chapter has benefitted from comments by participants at a UWE seminar, 27 January 2011. The usual disclaimer applies.

² All references to Boulding are from (1988) unless otherwise stated.

This chapter examines Boulding's essay. It does so from the perspective of economics education. We take the view that an economics textbook embodies material about the economy, economic theory, economic method and an approach to being an economist; but it also expresses an approach to education. Specifically, via the textbook the writer aims to realise educational goals, which are prior to their choices on the content and process of teaching. Thus, the chapter considers Boulding's essay in the light of its underlying educational goals, its implications for content and teaching practice. The chapter also echoes Boulding by not focusing on economic theory. Readers focused on theory should consult Wray's excellent (1997) commentary on Boulding's theoretical insights, and elsewhere in this volume.

This chapter proceeds as follows. It will consider Boulding's comments on the nature of the economy, and on the nature of economics and economists; and their implications for the economics textbook. It will then discuss the educational aspects of Boulding's essay, including his comments on teaching technique, and the implicit philosophy of education driving his commentary.

The economy

One of the striking features of Boulding (1988) is the relative absence of economic theory and economic analytical technique. This is striking in comparison with contemporary treatments, which launch into theory, perhaps via a very brief discussion of the nature of the economist. It was the case that introductory texts began with discussion of the nature and scope of economic method; but even these sections have gone. Even then, though, the *economy* was largely absent. Not completely, of course: economics textbooks have always used examples; and indeed, one of the

consequences of the growth in the economics education literature following the recruitment crisis of the 1980s has been to emphasise the role of examples in stimulating engagement and communicating theory. The theory comes first though.

A feature (although not uniquely) of English is that there are different words for economy and economics. This has mixed consequences. Advantageously, the theorist ought to be clear not to reduce the economy down to their understanding of it. Perversely, though, the separation allows the theorist to neglect the economy in favour of economics and to pursue intellectual puzzles with no relevance to reality. Further, the economist can act as if separate from their object. It is clear that for Boulding, none of these criticisms applies. Though he does define economics as the study of the economy, he (1966b) chastised the economics profession (via the prestigious Richard T Ely lecture) for neglecting sectors of crucial importance, such as services and automobile production, and rejects the “positivistic fiction of a dispassionate, objective observer wholly removed from the field of observation” (Boulding, 1949: 4).

It is therefore of immediate significance that Boulding’s starting point is the *economy* and its essential natures, activities and features, rather than any core *theoretical* principle(s). Boulding’s position is challenging to conventional approaches which arguably prioritise technique over real-world application and relevance. In terms of an economics textbook, Boulding’s approach would entail that a large proportion of the early section of such a book would be devoted to discussing the nature of the (local and global) economy. Questions of technique or theory would be postponed.

Reflecting much of his other work (principally Boulding, 1956b), Boulding views the economy as a complex system. The economy – or elsewhere, *econosphere*

(Boulding, 1966a) – is a complex sub-system of the social system of the world (or *sociosphere*) (which is itself a subset of the *biosphere*). Systems theory is Boulding's *philosophical ontology* – his theory of the way the world works in broad terms. A complex system has many implications for economics: for example, because the system includes both elements and connections between them, the whole of the system is greater than an aggregate of its elements. That notion comes through strongly in Boulding's concerns about the fallacy of composition of aggregates; and in his emphasis on balance sheet analysis (1966c) (see below). Further, he explicitly refers to closed systems (119), drawing on Boulding (1956b) in particular, where he also discussed the operation of open systems, defined as self-maintaining structures (see also Boulding, 1966a: 276) and to *homeostasis*, which, as discussed at length by Wray (1997), refers to a desired state of the balance sheet.

For the teacher of economics, the notion of the world as a complex (sub-)system entails a number of challenges. Very early in the textbook and course there would need to be a discussion of the nature of systems. This may be, for the student necessary and illuminating (Boulding, 1956b). However, it also involves learning a new, initially abstract language of entropy, open and closed systems, positive and negative feedback, energy, matter and information exchange, throughput and the like. This language might challenge the instructor as much as the student and entail considerable unravelling. As an added set of challenges, underpinning Boulding's economics are elements of biological analogy (economic aggregates as populations (1988: 118-9)); a social theory (trends and herd behaviour (121) and custom, habit, tradition, and ritual are important in economic life (1949: 7)); and psychology (preferences are learned (121)).

Overall, the complexity of beliefs supporting the economics may present a challenge to the tutor. The author of an economics textbook then faces a dilemma: explain at length the underpinning social theory; or leave the reader rather ignorant about key concepts. For Boulding, who wants economics to be useful, and wants to transmit knowledge to future generations, the first course of action would seem necessary. However, it would require great skill on the part of the writer to communicate these concepts in an engaging and sufficiently accessible way.

Economics and economists

In studying the economy, economists necessarily develop theories. Boulding (1988) says relatively little about theory. Many of his other theoretical insights are discussed elsewhere in this volume, so will not be discussed at length here. However, it is worth reiterating Wray's (1997) analysis that concepts such as liquidity preference and endogenous money play important roles in Boulding's macroeconomics, and that Boulding endorsed views redolent of recent Chartalist-inspired theories of monetary and fiscal policy.

In addition to the economy and economic theory, however, Boulding (1958) defined economics in terms of what economists are or, from Viner, what economists do. Further, Boulding holds that there are skills which are unique to economists: "there is something, however humble, which can properly be called skill among those who recognise themselves as economists" (1958: 4). Thus, an economics textbook ought to provide knowledge about economic methods and provide an opportunity for economists to develop their skills by working with economic systems (or some facsimile of them). Furthermore, though, Boulding talks of the desirability of "the state of mind [economics] produces" (1949: 12). That begs the question as to the

nature of this state of mind. My view is that it has two main elements: a set of ways of thinking, such as in terms of systems; and a cautious confidence in the powers of economics and its methods.

On the one hand, Boulding is a believer in the progress of economics towards true images, although he admits that “[t]his proposition, I must confess, is an act of faith” (1966b: 2). This is not a faith blind to the reality of economic analysis as he sees it: “Progress in economics is going to depend on its ability to break out of these low-level systems, useful as they are as first approximations, and utilise systems which are more directly appropriate to its universe” (1956b: 96). By this he means that economics methods, though useful, do not reflect the ontology of complex systems and instead are trapped in an atomistic worldview. However, Boulding warns against relying too much on technical expertise, as “these elaborate procedures [which] may easily produce a sense of subjective certainty which is quite unwarranted by the uncertainties of the actual system” (1966b: 10). Overall then, economists must apply their theories and methods but do so in a sophisticated cautious way. No method is infallible. That approach permeates Boulding’s discussion of the skills of the economist. On every occasion that Boulding advocates a method, he also warns of its limitations.

One of the most fundamental skills of the economist is to identify their sphere of influence, i.e. the identification of what is economic (and the abstraction from the non-economic). This act is ‘framing’, which is identified by the QAA (2000) as a key skill of the economist. For Boulding, “...the exercise of *any* skill depends on the ability to create an abstract system of some kind out of the totality of the world around us” (1958: 9) (emphasis in original): thus, for the economist to display their other skills, they must first demonstrate the skill of framing an economic question. Usually

that entails zoning in on “...economic life itself, in the narrow sense of that part of human activity that is concerned with buying, selling, producing, and consuming,” (1949: 7) echoing Boulding’s consistent focus on exchange.

So, Boulding wants to distinguish ‘economics’ either as a way of thinking, or by focusing on an area of complex, multi-faceted human lives (cf. Lawson, 2003). It is necessary to identify which part of human action to study (114). However, he also held that economists should be broader in their use of other disciplines (Boulding, 1966b); and he sees a convergence of natural and social science methods (Boulding, 1949: 4). Therefore, it would be a mistake to see Boulding’s definition of economic as creating barriers between disciplines. Contrary to the apparently strict distinction between economic and non-economic, he demands that “...the student in economics should get some idea of what is not economic, as well as what is economic” (1988: 132). Overall, then, in framing an economic question, the focus of the economist should be narrow *and* broad. Boulding’s approach raises interesting questions for framing: all frames would be fuzzy, contingent abstractions.

This approach presents a challenge for the teacher of economics, at two stages of the educational process: at the first, the initial engagement with the student, there is a task to explain what the subject is about, without doing so rigidly. Subsequently, in the building of a model, the student must consider what to include in it. A final pedagogical challenge is that, according to Perry’s (1970) developmental psychology, students are initially comfortable with dualist thought: in this case, the notion that object *x* clearly is, or is not, economic. Boulding’s fuzzy boundaries are a challenge to this dualist thought. Moving students to more ‘relativist’ thought is difficult and must be managed carefully.

Following this framing, the economist's other skills enter. For Boulding these skills are a mixture of technical expertise and habits of thought. Principal among them is using data effectively. The *Appendix* to Boulding demonstrates an approach to economics which begins with the clear presentation of historical economic data showing key aggregate indicators such as GNP and distributional measures.

Aggregate data are a solution to complexity (121): they make the multi-faceted object comprehensible via the "orderly loss of information" (119), and provide inputs for models of, say, unemployment, which Boulding claims have been successful (1958: 23).

That is not to say that Boulding naively puts faith in aggregate data, which are often problematic. Boulding acknowledges the inadequacies of GNP as a measure of wellbeing and seems to applaud attempts to develop alternatives to it (122). GNP and price indices are flawed because of heterogeneity in the object (122). Despite his advocacy of historical data, Boulding notes the limitations of historical statistics in changing economies (116, 122). These problems, combined with general problems of classification (114) and specific issues such as the problem of valuing intangible assets (117) make Boulding, as enthusiastic about data as he is, also cautious. "We should always bear in mind that numbers represent a simplification of reality" (Boulding, 1989: 96). Aggregation indices should be treated as "evidence and not as truth" (1988: 122).

The fallacies of composition (1949: 10) and of aggregation were a consistent concern to Boulding and were the source of macroeconomic paradoxes, such as thrift. As discussed by Wray (1997), Boulding's solution was to use balance sheet analysis. Balance sheets encapsulate many elements of Boulding's approach. They clearly distinguish stocks from flows, which for Boulding is crucial; they provide a simple

way of capturing complex data. They provide a ‘flashlight photograph’ but are able to capture the history of the organism. Hence they reconcile static tools with the dynamic world, another theme in Boulding’s work. Balance sheets also reflect Boulding’s advocacy of static descriptions of an economy via valuations (115); and comparative statics methods: a series of flashlight photographs through time (166). Crucially, balance sheets also provide a basis for modelling heterogeneous individuals which is consistent with the emergent properties of the system.

So, aggregation is a useful skill of the economist, but a rather narrow one if it merely involves adding up. Consequently, part of the art of economics is identifying which aggregates are significant and which parts of them are interesting (120). That raises questions about the general problem of classification; and also about the appropriate level of abstraction chosen by the theorist. Presumably choosing good classifications which are sufficiently concrete but abstract enough to be tractable is another skill of the economist. For Boulding, “One of the most important skills of the economist, therefore, is that of simplification of the model” (1958: 19) – which he claims has been done principally through aggregation and partial equilibrium analysis (1958: 19-23). Further, the skill of the economist is in recognising that though numbers are a useful simplification, but only if their meaning can be made intelligible and if they can be harnessed to enhance our vision of the world (1988: 114). Though mathematical ability is important – Boulding also identifies a command of difference equations as a core skill of the economist (1958: 27, 30) – the ability to manipulate or generate numbers is not enough. Boulding’s concern here echoes contemporary concerns about whether economists are too focused on mathematical and statistical elegance and are (consequently) unable to communicate effectively.

Boulding's approach also applies to a range of conventional economic concepts and methods such as equilibrium. Boulding (1949: 8) criticises the excessive importance of the concept of mechanical equilibrium in the social sciences; yet claims that even in dynamic economic systems, the notion of equilibrium has been supremely useful in economics (1958: 14) and that it "is a notion which can be employed usefully in varying degrees of looseness" (1958: 14). More broadly, Boulding claims that balancing alternatives at the margin is an important skill of the economist (1988: 121). Similarly, although he also disavows the notion of the utility maximiser (1949: 5; 1956a: 83-85) he identifies the theory of maximisation or rational behaviour as special skills of the economist (1958: 27ff.)³

All of these tensions demonstrate the perils of being an economist and the skills necessary to be effective. For example, Boulding holds that partial equilibrium allows us to "by degrees...explore its [the system's] whole topology" (1958: 20) but warns that it can be a problem "if it taken as an end in itself" rather than as a path to general equilibrium (1958: 21). Thus, the economist may usefully employ equilibrium but must choose the right 'degree of looseness'; also, the economist must be alive to the possibility of making the wrong assessment. In complex systems, such misjudgements appear likely, but also may have significant consequences. So, the economist must recognise the peril of their situation; but act anyway.

The last paragraph suggests economist as hero. Though Boulding (1958) explores the dynamic contrast between an 'economist ethic' and a 'heroic ethic' – underlining the role of ethics within economics – this is almost certainly a misrepresentation of Boulding. He does suggest an imperative that economists are

³ Although, as Wray (1997: 460) notes, Boulding (1971) did not regard marginal productivity theory as adequate to explain distribution, which he regarded as determined by investment and financial processes.

useful. Economists, as engaged individuals, should grapple with issues they consider important (cf. Robbins, 1932): “...the act of model-building ... is not unrelated to the empirical interests of the model-builder, and the usefulness of a model depends on the degree to which it helps in interpreting the complexities of the empirical world” (1949: 5).

What are the implications of Boulding’s approach to economics for the writer of an economics textbook? The economist clearly needs a range of skills: framing, abstraction, the ability to use data and statistical analysis, to use tools such as equilibrium, and to be able to construct a picture of the whole economy based on partial information and great uncertainty. The economist should combine these tools with intuition in the pursuit of useful knowledge. Thus, an economics textbook must either spend a long time early on discussing the tools of the economist, or sprinkle the book with discussions of these types; and provide examples to illustrate and exercises to assess students’ skills in these areas. In fact, the book probably should do both. However, it is crucial that in order to apply these skills, the budding economist needs to employ the appropriate mindset: of the engaged humble flexible problem-solver. The economist must recognise the limits of their subject and of the tools of analysis and capacities of mind it develops. Pedagogically this can present problems: the student can struggle if they are told that tool x is very useful, but mainly in context y , and that in this case, tool z ought to be used too. However, if such discussions are postponed, as Sutton (2000) discusses, the curiosity within students may be drummed out – as may their humility.

Teaching and learning economics

The chapter now turns to the (largely implicit) educational thrust of Boulding (1988). To reiterate: teaching approaches can be understood as containing three elements: the *what* (content, curriculum), the *how* (process, teaching technique) the *why* (goals of education). Typically debates about economics education have focused on content-based initiatives and process-based initiatives (see Clarke and Mearman, 2003). The above discussion outlines much of what Boulding might propose for content, and he addressed process, which will be discussed shortly. Clearly both are important (Helburn, 1997). However, prior to both are the goals of education.

Following Clarke and Mearman (2003), these aims of education can be usefully divided into ‘liberal’ and ‘instrumental’ sets. Under a liberal perspective, education is intrinsically valuable because it enhances the analytical, comparative, and critical faculties of the person, creating in them an intellectual autonomy. Instrumental education is directed towards more specific learning goals, such as the ability to solve specific problems, the retention of particular pieces of knowledge, or the development of certain skills. *Instrumentalist* education may be directed at broader social goals such as the belief in a particular ideology. Whilst the liberal-instrumental dichotomy is somewhat problematic – and, in the spirit of Boulding, is best regarded as a fuzzy distinction – it is helpful in understanding both economics curricula and Boulding’s educational philosophy.

In his first paragraph, Boulding holds that an economics textbook should contain economics. Thus a textbook should inform students about how the economy works (113). Later, he says the textbook should “transmit knowledge structures” (123). By ‘knowledge structures’ he seems to mean knowledge of the economy – and indeed he warns against merely “transmitting a lot of ritual that is useful for passing examinations” (123). The discussion above about the economy suggests that Boulding

has specific notions of what understanding students ought to have; and that this understanding is based on ‘events’ such as exchange, and systems notions such as entropy. However, knowledge structures could be a much more complex term. As we have seen, Boulding also stresses the skills of the economist, which include theories and methods. However ‘knowledge structures’ are defined, it suggests that education is straightforwardly about delivering specific instrumental content. However, Boulding (1949: 12) writes: “...I should like to argue the necessity for the study of economics not only for its conclusions and methods, but also for the state of mind it produces” (1949: 12). That could be read instrumentally – as the state of mind could be directed towards pre-determined ends. Further, Boulding’s concern to transmit knowledge from old minds to new ones (123) suggests the instrumental aim of producing new economists.

However it is also anti-instrumentalist: it says that there are goals other than conclusions or methods which are important. Additionally Boulding notes: “...one often finds students who know all the right words, who can pass examinations, but have no feeling for the subject. The skill has not nucleated into an organic whole” (1958: 8). So he again de-emphasises learning of facts and stresses the development of capacities. Further, he hints that education can be transformative: “...the very act of thinking about power in our lives and experiences creates a process of revelation and self-analysis that may even make us look at ourselves in a new light” (1989: 259). In arguing this, Boulding also alludes to liberal capacities of mind.

At this point it is useful to revisit Boulding’s notion of the skills of the economist and to examine the nature and purpose of these skills. The skills discussed above have a virtue in themselves, perhaps ‘cultural capital’: “The invention of sport is a clear testimony to the worship of skill” (1958: 2). However, a driving concern of

Boulding is that economics and economists should be useful and usefulness is potentially open-ended, suggesting liberal education. Moreover, the skills being developed are not the final objective, but serve other, open purposes. As already mentioned, Boulding is clear that these wider purposes will be driven by the economist's interest –what they consider important. However, these interests are not pre-determined by the educator.

The skills themselves give us clues. As discussed above, these skills include framing, abstraction, the effective use and analysis of aggregate data, the simplification of complex systems into more simple ones; and then more specifically such skills as partial equilibrium and marginal analysis (Boulding, 1958). Further, Boulding cites “The ability to work with systems of general equilibrium [as] perhaps one of the most important skills of the economist” (1958: 15). If this seems highly specific, and although Boulding speaks complementarily about Walras, it seems that he means general equilibrium more broadly than any specific theory. Indeed, it could be read as advocating that students spend some time thinking about systems in the ways which were discussed earlier. More generally, Boulding (1988: 122) argues that equilibrium should be taught because it is a useful fiction (albeit approximable); and importantly, he holds that students should know that. Further, he draws from Smith (perhaps highlighting the importance of understanding the history of economic thought) the important distinction between market and long run equilibrium. He stresses that students ought to know this distinction (122). This position is quietly radical but is entirely consistent with Boulding's methodology discussed earlier in which conventional tools and concepts are advocated, but with caution. Educationally, Boulding is encouraging students to examine tools and concepts critically.

If these appear odd ‘skills’, another term for them might be ‘threshold concepts’ (Meyer and Land, 2003). The threshold concept is one which, once understood, allows the student access to higher level understanding. Threshold concepts are increasingly regarded as crucial in economics teaching and inform many arguments for curricular rationalisation. Other threshold concepts in Boulding would be scarcity and entropy, for example. Threshold concepts are dynamic in that they build intellectual capacity. In that regard they might be regarded as consistent with liberal education; or, if they are highly specific, they might prevent open-mindedness by locking students in to particular modes of thought.

One example of the danger of learning based on thresholds is excessive mathematisation. Once schooled in mathematical technique, there is a tendency (because mathematics is regarded as being approved of and therefore its adoption is perceived as a successful strategy) for it to be used as a default. Again, Boulding is not opposed to mathematics or statistics; however, he is cautious about it. The economist must use such tools carefully. Boulding writes:

“It is clear that the building of models is not a purely mechanical process but requires skill of a high order – not merely mathematical skill but a sensitivity to the relative importance of different factors and a critical, almost an artistic, faculty in the selection of behaviour equations which are reasonable, tentative hypotheses in explaining the behaviour of actual economies” (1958: 16-17)

This is a rich quotation: it shows multiple types of skill, including criticality, artistry, and sensitivity (judgement), with the goal of explaining actual economies. Relevance and usefulness are identified as crucial. The goals of education in Boulding appear to be a mixture of specific facts and other knowledge; competency in technique; habits

of mind; and the development of skills. They suggest a mixture of liberal and instrumental goals of education.

Liberal educational targets the development of capacities. Though ‘facts’ may be learned, and techniques mastered, it is almost that these learning outcomes are incidental, or at best are vehicles for achieving the wider goals. Boulding’s concern with true images and with getting the images as correct as possible (for instance, he warns of the problem of leaving out too many variables because the economist is not familiar with them (1966b: 11) suggest he does not fall strictly in this camp. He explicitly wants economic knowledge to be useful, although acknowledges that so far economics has not been (1966b: 9). There are two main issues here: one is whether Boulding aims at capacities rather than outcomes; the second is whether Boulding as educator is prepared to change outcomes, or even more radically, to relinquish control of the process.

On the first question, we have already seen that Boulding can be read as being concerned with capacities. His overriding concern is on the stocks within the economy; the student’s mental capacities are their own personal intellectual stock. That suggests liberal education. Further, although Boulding stresses usefulness, this is not necessarily instrumental. Indeed, this theme of useful intervention suggests that Boulding’s project was a critical one. As the theoretical interventions discussed by Wray (1997), Boulding appeared critical of prevailing economic orthodoxy and aimed to reshape economics. Further, Boulding’s (1989) analysis of economic power had potential to reshape key areas of economics teaching, for instance in the area of market structure. Moreover, several of the teaching suggestions made by Boulding (1989) indicate a concern to foster critical thinking skills in his students. For example, he asked students to consider a variety of definitions of power. He invited students to

think about power, in a potentially liberating way: "...the very act of thinking about power in our lives and experiences creates a process of revelation and self-analysis that may even make us look at ourselves in a new light" (1989: 259). He even asked students to do a review of his book (1989: 260) and to be as "as critical as they could..." (1989: 260). These appeals to critical thinking skills are key to developing the intellectual autonomy sought by the liberal approach.

However, this view is contradicted by his warnings of the danger of critical thinking:

"thinking about power and its complex manifestations may not simply lead to a better understanding of the abstract complexities of society, but may have an effect on one's own image and identity. Perhaps a warning label should be placed on the cover...." (1989: 259)

Further, Boulding goes on, even more strongly, to say that "If the view of the world expressed in the book, therefore, is wrong, it could be dangerously wrong, and students perhaps should be warned of this" (1989: 259). Boulding may simply here be expressing a concern about being wrong, perhaps bearing in mind Keynes' warnings about people being slaves of defunct economists, and about it being better to be roughly right than completely wrong. Alternatively, Boulding may regard power as a concept of such importance that to get it wrong would be a serious problem, perhaps because of the resultant actions students may take if they are too strongly affected by its discussion. Thus, despite Boulding's willingness to challenge conventional economic concepts, he does not appear to embrace radical pedagogies such as Freire (1972) or hooks (1994). Further, even though Boulding stresses learning by doing, and therefore might embrace active, experiential, work- or problem-based learning, he might consider action research approaches a step too far. Further, Boulding's

comments suggest some resistance to the liberal approach. That approach holds that even if what they learn is wrong that is acceptable, because the critical capacity will have been created.

In Boulding's defence, one might argue that he simply understanding of the perils of working with impressionable minds. Earl (2000), Lapidus (2011) and McIntyre and van Horn (2011) all recognise the problems of challenging too quickly and too strongly students' core beliefs early in their careers. However, Boulding's claim that a textbook should "transmit knowledge structures" (1988: 123) suggests a teacher-centred approach which is at odds with contemporary student-centred philosophy.

Related to the question of criticality is the role of pluralism in teaching (see Garnett and Mearman, 2011). To what extent should an economics textbook present a single view, or should it embrace multiple perspectives, and debate? Several authors have argued for pluralist curricula on the basis that it may illuminate the world more effectively (Fullbrook, 2003); or that they generate skills such as those of critical thinking (Freeman, 2009; Mearman, et al, forthcoming). Significantly, in the opening of paragraph of (1988), Boulding expresses the hope that economics could be consensual (around truth). This aspiration towards truth is a theme of Boulding's work. However, the complexity of the world suggests that truth is elusive and that monistic approaches are less likely to capture it. Rather, a range of approaches may be required to describe and explain a complex reality. That view suggests that rival theories could co-exist.

There is some support for this view in his (1958) concern about the (non-communicative) relations between East and West in the Cold War (redolent of the paradigmism identified by Garnett, 2009). Further, there is evidence that Boulding

sees multiple perspectives as important to understanding: “As a moderate Keynesian I deplore the illinformed (sic) attacks of the extreme laissez-faire economists of the von Mises’ (sic) school but I must also confess that some of the questions they raise are disturbing” (1958: 5). As we have seen above, Boulding finds utility in conventional economic concepts, plus those drawn from classical economists, and as Wray (1997: *passim*) notes, from a variety of non-mainstream thinkers. There is further evidence though that Boulding considers controversy important. He thought that a consensus would “emerge out of a well-conducted controversy” (113). This might imply that Boulding favours a teaching approach based on controversy, but in the manner of a good conversation. He stresses that economists are part of debates which form an economic [conversation] akin to “family quarrels” (1958: 4), implying a closeness between the parties, and communication. Indeed, perhaps predating the contributions of McCloskey (*passim*), Boulding suggests the *need* for conversation (1958: 5-7).

Many of the above points have implications for teaching style. It is significant that on his first page, Boulding draws attention to the presentation of data. Data should be presented via graphical analysis of statistical data - because our imaging process is spatial and temporal (113). In this claim Boulding is making explicit statement about the theories of knowledge, cognition, and learning. He supports his claim by the deployment of time series data in his *appendix*. Boulding also recognises the importance of using classroom exercises to engage students: for example he (118) discusses a classroom exercise which can be used to illustrate circulation. Beyond this claim, Boulding stresses the importance of learning by doing. He argues (1958: 7) that the definition of the skill of the economist is difficult abstractly and needs to be done via demonstration, adding “[t]here is no substitute for the simple demonstration and really no way of learning but by trying, and failing, and trying again until the skill is

built into an organism” (1958: 7). Pedagogically it is important to ask about the nature of this learning by doing. It may be mastery of given technique by repetition. If that is the goal of the exercise, this would appear to be a limited view of education; however, if the learning is done in order to encourage the building of flexible capacity, that leads us more towards liberal educational goals.

Conclusion – the economics textbook

The economics textbook should contain economics. Economics is the study of the economy as a complex system; and the theories, methods, and skills of the economist. The skills of the economist include a mindset of cautious confidence towards established economic theories and methods. These components of economics have immediate implications for the textbook itself and for the teacher using it. Both have to communicate effectively a deep complex of concepts, yet sufficiently rooted in the reality to be useful and engaging. The textbook also actualises an approach to education, which may only be implicit but is crucial to the content and way of delivering the curriculum. This chapter has utilised the distinction between liberal and instrumental aims of education. It has been argued that Boulding’s approach suggests mixed goals.

Thus an economics textbook using Boulding’s template will entail several differences of approach and structure from the conventional. The Boulding model would place more emphasis on describing the economy as it is, which in turn implies that much of the early part of the book would be devoted to discussing the general nature of systems. After this, the nature and scope of economic enquiry – a topic which used to feature prominently in economics texts, but now neglected – would be

discussed. The economist is a cautious practitioner who combines a variety of methods with ethical positions in the pursuit of useful explanations and interventions, perhaps through policy. Once this is all established, the book would turn to economic theory, but the theoretical framework laid out would stress many very different concepts from the conventional. Of particular importance, as discussed by Wray (1997) is balance sheet analysis, which provides the economist with coherent microfoundations for a macroeconomics of complex systems.

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