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Planning Theory or Planning Theories? The Hydra Model and its Implications for Planning Education

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Abstract

This paper critically examines the idea that planning theory experiences major theoretical shifts. Through a consideration of contributions from several academics, it is shown that different theoretical standpoints in planning persist and coexist. A model is proposed to aid understanding of this situation: the Hydra Model. This model views planning as a discipline in which several standpoints maintain a competitive interaction. This is positive: it is the best way to promote lively dialogue and to develop new understandings. However it is considered negative for planners to adopt a single standpoint. Theories are presented as tools for good practice, not as something to which planners should commit. In aiming for the emergence of this type of planner – an individual capable of flowing from one theory to another according to a discretionary view of particular situations – some suggestions for planning education are presented.

Keywords: Paradigms, Interdisciplinary, Theory, Polyrationality, Planning Curriculum, Invariance

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Introduction

In recent years much emphasis has been placed on the need for planning to expand its boundaries both from a conceptual and a practice-based perspective. In particular, the 'revival of strategic spatial planning' in the 1990s and 2000s has seen a renewed emphasis on the strategic and spatial dimensions of planning (Commission of the European Communities, 1999; Healey, 2007; Salet and Faludi, 2000). This evolution can be situated in relation to longstanding debates about the 'spirit and purpose of planning' (Bruton, 1974), predominantly the issue of the extent to which planning should be a regulatory activity concerned primarily with physical issues, or whether it should have a wider remit in managing diverse social, environmental and economic trends as these are manifested in space.

In the 1960s and 1970s, the aspiration to achieve 'comprehensiveness' in relation to the management and guidance of such trends and forces was seen to require interdisciplinary working to secure horizontal or 'inter-sectoral' coordination between different policies. The recognition of the need for an integrated approach to land use and transport planning was one of the most salient examples of this. However, in practice, the desire to achieve policy coherence through strategic spatial planning by using space as the reference point for policy not infrequently met "fierce opposition from other and usually more powerful policy fields", and the formal/statutory status of spatial plans did not overcome the relative lack of "implementation capacity" vested in the spatial planning sector as compared to other policy sectors (Albrechts, 2006, p. 1490).

Furthermore, in the changed political-economic context of the 1980s, when many urban areas in western countries were affected by the consequences of economic restructuring and neo-liberal theory was in the ascendancy, there was a widespread retreat from strategic spatial planning. By the end of the 1980s, however, a 'gap' in strategic planning capacity was being felt increasingly in many countries, with rising concerns about spatial fragmentation, urban sprawl, and the environmental consequences of a lack of strategic foresight and management capable of fostering sustainable spatial development. In Europe, the sharing of ideas on spatial planning through processes such as the development of the European Spatial Development Perspective (ESDP) (Commission of the European Communities, 1999) and the 'Guiding Principles for Sustainable Development of the European Continent' (European Conference of Ministers responsible for Regional Planning, 2000), provided a fillip to strategic spatial planning in a number of countries. This was particularly the case where the scope of planning had been 'pinned-back' to the consideration of issues of land use management primarily at the local rather than strategic level (Sykes and Motte, 2007).

The increased use of the term 'spatial planning' in a number of countries at this time, sought precisely to convey a more integrative conception of planning which went beyond a 'narrow' physical/land use focus to consider how different public policies, programmes and other societal activities interacted in and used space. As Albrechts (2006, p. 1492) observes, currently "a territorial focus seems to provide a promising basis for encouraging levels of government to work together (multi-level governance) and in partnership with actors in

diverse positions in the economy and civil society". A key dimension of the planning reforms in England in the mid-2000s, for example, was their promotion of a 'spatial planning approach' which conceived as needing to go beyond 'traditional' land use planning to bring together and integrate policies of the use and development of land with other policies and programmes which influence the nature of places and how they can function (Department for Communities and Local Government, 2005). Research into the new planning system has emphasised the importance of building links between spatial planning processes, strategies, and outcomes and other key local strategies and programmes (Department for Communities and Local Government and Royal Town Planning Institute, 2007).

This implies the need for a collaborative approach to planning which involves different partners, interests and professions coming together to debate possible futures for a locality. In such a process strategic discourses of different interests are ideally opened to include all interested parties, generating new planning discourses, allowing participants to gain knowledge of the positions and values of other participants, and creating capacity for collaborative action to change current conditions (Healey, 2006).

The need for planning and planners to develop a capacity to 'plan together' with others, and acquire competence at navigating and appreciating the positions and claims of different groups and discourse communities (including other professions), is therefore presented as being of fundamental importance if the renewed promise of, and confidence in, strategic spatial planning is to be fully realised. Informed by the context outlined above, this paper reflects on the role of planning education in preparing professionals to cope with the challenges implied by the contemporary situation.

This paper is structured in six sections, including the Introduction. The next section will address the concept of theoretical revolutions. It will be suggested that urban planning does not experience such moments in its evolution. This is important for this discussion because it explains why several main planning theories coexist in the discipline. The concept of invariance will be used in the third section to propose an explanation of why planning does not experience theoretical revolutions, and then the 'Hydra Model' will be formally introduced. In the fourth section we will advocate the need to be critical towards theoretical standpoints in urban planning that pretend to be dominant, or more relevant than others. In the fifth section we will propose some practical suggestions for the development of the planning curriculum based on the previous considerations. The paper will conclude with a brief review of the Hydra Model, and a series of questions related to future developments and applicability of the model.

The Resilience of Theories in Planning

It has been proposed that the development of a scientific discipline is a process in which theoretical revolutions take place (Kuhn, 1970). There are a number of classic examples, for instance the implications in physics of Einstein's Theory of Relativity, and subsequently Quantum Physics and the problem of probabilism versus determinism. The objective of this section is to briefly analyse whether urban planning is exposed to this process of consecutive

revolutions. We propose a negative answer to this question. The term ‘revolution’ cannot be used to describe with accuracy what occurs in the evolution of urban planning. We will suggest that what urban planning experiences is a Hydra-like phenomenon.

A note on terminology is necessary prior to further discussion. We will adopt the general terms ‘theory’ and ‘theoretical standpoint’ to address an organised scheme of knowledge that makes sense as long as a certain set of validating assumptions are accepted. This is a loose definition that aims to be applicable both at the paradigm level of theory-making (in which fundamental hypotheses are established) and at a ‘lower’, more close-to-practice, level.

According to John Muller, Kuhn’s model is a “singularly erudite contribution” to the development of scientific thought (Muller, 1998, p. 287). Putting it simply, Kuhn proposed that scientific disciplines have consensual views on their values, methods, standards and generalisations. These theoretical standpoints help scientists to undertake their work because they provide a fundamental frame of reference. These standpoints provide a basis that allows scientists to make holistic sense of the available knowledge, and how to undertake research in order to expand it. Kuhn considered that, when the evidence resulting from scientific inquiry makes a certain standpoint unsuitable, a shift takes place and a new standpoint replaces the old one. The new standpoint has then integrated the new information, and has coped with the theoretical, ethical, and practical challenges imposed by the findings. Science can return to a situation of ‘normality’. An example: when it was accepted that it is the planet Earth that rotates around the Sun, and not the other way round, a new theoretical standpoint for physics was considered necessary. This represented a fundamental shift. After that, substantial research was dedicated to understanding how planets move around the Sun, the shape of their trajectory, and their speed, etc. This is what Kuhn called a period of ‘normal science’: the objective of it is to expand accepted knowledge, not to question the validity of the fundamental assumptions.

Planning is quite different from natural sciences such as astronomy because it integrates concerns that form part of the social sciences realm. However, planning is also different from general social sciences. According to Friedmann (1998, p. 247):

> In the so-called disciplines, discourse is of course mostly about theory, and sociologists, anthropologists, geographers, psychologists and all those other '-ists' risk being ostracized from their respective clans should they be bold enough to seriously venture into policy applications. Social scientists live for theory! Ability to theorize establishes the pecking order in their disciplines. But it is not the case in practical professions such as planning.

Actually the great challenge of planning is precisely the fact that it is a profession that simultaneously: *i)* uses knowledge rooted in natural sciences – necessary, for example, to plan roads and the physical layout of cities; *ii)* uses knowledge rooted in social sciences – necessary, for example, to understand the social implications of a new road; and *iii)* aims to provide a contribution on what to do, when to do it, how to do it, and (at last but not the least) why to do it.

Andreas Faludi (1982, p. 81) presents paradigms in planning as the "distinct perspective(s) from which problems and solutions are being defined". He identified three of these theoretical standpoints in the discipline. These are the 'object-centred', the 'control-centred', and the 'decision-centred' paradigms. This coexistence of standpoints in planning shows that Kuhn's model in its true sense does not apply here. In planning, theoretical revolutions do not take place because quite contradictory theories actually coexist. Thus Sandercock (1998, p. 103) argues that: "unlike Thomas Kuhn's account of scientific revolutions, in which, eventually, the new paradigm replaces the old, I would argue that all...paradigms of planning are alive (and reasonably well)". Similarly, as Allmendinger wrote (2002, p. xiii), "Kuhn's model takes a linear basis in that theories evolve through time towards better and more accurate accounts of reality. In planning and the social sciences generally this process is not linear – we have an accumulation rather than an evolution of theories." In this line of reasoning it is relevant to address Kevin Lynch and Lloyd Rodwin (1958). They considered that planners were becoming too ambitious in their attempts to integrate interdisciplinary views in the discipline. According to these authors, this could only lead to perplexity. In their words:

> City and regional planners operate primarily upon the physical environment, although mindful of its complex social, economic, or psychological effects. They are not experts in all the planning for the future that a society engages in, but only in planning for the future development of the physical and spatial city: streets, buildings, utilities, activity distributions, spaces, and their interrelations. Although cries of dismay may greet such a reactionary and 'narrow' view, the currently fashionable broader definitions lead in our judgment only to integrated, comprehensive incompetence... [The planner] does not pretend to be a sociologist, an economist, an administrator, or some megalomaniacal super-combination of these.
>
> (Lynch and Rodwin, 1958, p. 203)

We can guess that these two authors would not subscribe to the ideas that will be argued for below. It seems that they would prefer a much more straightforward, 'narrow', understanding of what planning is. The proliferation of theories in planning might then be seen as problematic and negative. It might show that planning theory has failed to deliver proper answers, and that planning practitioners are expected to be in a state of intellectual perplexity. Planners were, according to Lynch and Rodwin (1958) losing the capacity to understand who they are, what they should be doing, and were becoming 'comprehensive incompetents'. However, this proliferation of theories in planning might show something quite different. A dominant urban planning theory would be an undesirable situation because it would represent a 'research programme' that has managed to achieve monopoly in the discipline (see Lakatos, 1989). In this line of reasoning we can say that planning theory is doing well, it is escaping from monolithic standpoints and from subservience to "self-maintaining circular belief systems" (Gellner, 1985, p. 90).

This supports the Hydra hypothesis. The Hydra is a mythical creature with many heads. The parallel is quite obvious then. This creature has more than one head that commands its actions. Urban planning also has several major theoretical views that simultaneously exist

and they all have a contribution to make. Naturally this generates passionate debate and exchange of ideas – but that should be seen as a good thing. When the discipline experiences an important development, what normally occurs is the emergence of a new theoretical standpoint, not the suppression of the existing ones: the Hydra gets another head. As a consequence the debate gets even more lively, interesting, and relevant.

The Dynamics of the Hydra Model

Peter Hall (1988) has described the nineteenth century slum-city and its consequences on residents' lives. The terrible health conditions and the moral decay which existed in the slums shocked the Victorian society. When, for a set of social and historic reasons, people's opinions about a situation converge, the resulting decision-making processes are relatively simple. Despite persistent differences in people's views, a situation like the one described by Hall was conducive to a general ideological convergence. Modern urban planning was taking its baby-steps then. Naturally, urban planning in that stage of its development did not have the maturity to have multiple heads. This only becomes possible when a discipline starts to expand, to absorb a diversity of perspectives on a variety of subjects, and to develop conflicting lines of thought on central issues.

It should be realised that the relative importance of a specific head might be the result of academia being vulnerable to the power of culture, space, and language. For example, English is the contemporary academic lingua franca. It was argued that this is diminishing the reach of voices from non English speaking academics (Kunzmann, 2004). The message of a certain head might be the result of gender discrimination because academic practice and academic production reflect and reproduce gender issues. For example, the possibility of women participating in academia is very important. If women are not engaged in academia, it is likely that the nature of academic research will be affected by 'sexist bias' (Monk and Hanson, 1982).

Figure 1 represents the primal situation: there is one prevailing theoretical standpoint heading the techniques, methods, and sets of information that constitute the base of the discipline. This makes it easy to decide what kind of ideas people are willing to support, therefore what specific action should be undertaken.

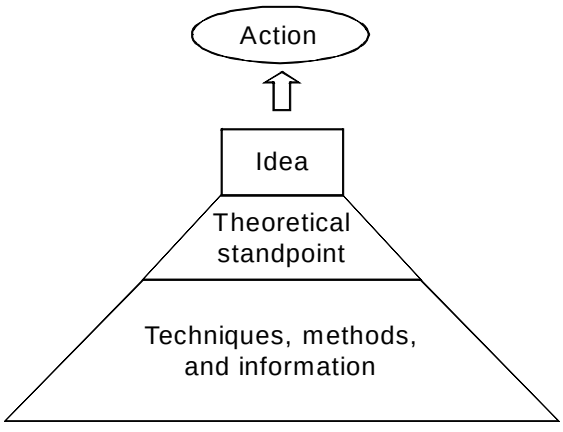

Figure 1 A discipline in an early stage of development

When planning started to experience substantial theoretical development, this primal state of simplicity could not be maintained. Academics and practitioners realised that they had fundamental differences of opinion between themselves. For example: according to Faludi (2000) there are two 'ideal-types' of plans: 'project-plans' and 'strategic-plans'. Project-plans are determinative instruments made to organise city shape evolution, and these plans are merely a blueprint of the intended city end-state. Strategic-plans are indicative planning instruments made to improve decision-making processes, and decision-makers' constructive involvement in planning practice. Faludi argued that to evaluate a project-plan it is necessary to analyse the level of conformance with the plan that is being achieved: whether the city is changing, or not, towards the expected shape. In contrast, in evaluating a strategic-plan, it is necessary to analyse whether the plan is facilitating decision-making, in other words, whether the plan is improving performance.

It is implicit in the strategic-plan approach that urban form does not have critical value: if it did, the plan-makers would be much more concerned about the objective physical results of the planning process. They would want a specified level of conformance as well as a certain level of performance. In our view, both aspects are important (see Tewdwr-Jones and Allmendinger, 1998, for a critique of collaborative planning as a form of process-oriented planning). These authors consider that collaborative planning theory has three main weak points. Firstly, they pinpoint several inconsistencies in its theoretical foundations, e.g. whether consensus should be considered "possible or even desirable in a world of increasing difference" (Tewdwr-Jones and Allmendinger, 1998, p. 1977). Secondly, these authors consider that collaborative planning theorists and practitioners tend to impose their values on people who might not necessarily agree with those values. This is in contradiction with the desire to have a democratic decision-making process that would enable consensus and harmony among actors. Finally, there is the overt focus on process rather than on outcome. The excessive concern with process and the empowerment of intervening actors can lead to "sclerosis of action" (Tewdwr-Jones and Allmendinger, 1998, p. 1977).

Talen and Ellis (2002, p. 37) proposed that "the construction of a theory of good city form [should] be rescued from its marginalized position in the ambiguous subfield of urban design and elevated to an equal rank with process-oriented theories of planning". If planners believed, for example, that the compact city is always better than sprawl, they would be worried that somehow during the strategic decision-making process a non-concentrated urban form would be supported by the decision-makers. This represents a typical problem for planners: it is difficult to adopt a certain approach and discard the others. Planners know that there are usually merits in coexisting approaches, and that it is difficult to marry these in such a way that only the good qualities of each approach are adopted. Using again the example provided by Faludi (2000), it is not easy to anticipate where conformance should be considered more important than performance, and vice-versa.

The decision on whether the focus should be on planning process or on its outcomes is a complex one, it has been suggested that in the recent past neither tendency has really dominated the other (Fainstein, 2000). However, other authors claim that more emphasis

should be given to the substantive aspects of planning. Building from the work of Fainstein (2005), Dear (2000) and Campbell (2006), Fincher and Iveson (2008, p. 5) claimed that:

> It is of some concern that planning scholarship and practice have overwhelmingly paid attention to matters of process in responding to diversity. The normative foundations of urban planning and policy ought not be restricted to these matters of process, as important as they may be. To put it bluntly: to create more just cities, planners need a framework for making judgments between different claims in the planning process, as well as for facilitating them. That is to say, planning frameworks must enable planners to make calculations about 'what should be done', not just about 'how it is done'.

As this is a very important, maybe central, discussion, planners need to have a theoretical view about it, and a practical view too. A contribution to the discussion on the 'good city form' versus planning process was provided by Talen and Ellis (2002). These authors state that "the planning profession needs a renewed focus on substance rather than process and specifically a strong, well-articulated theory of good city form" (Talen and Ellis, 2002, p. 36).

When a new theoretical standpoint emerges that is widely regarded as better than the existing one, then the discipline can continue to be represented using Figure 1. A discipline can potentially experience the rapid replacement of an inappropriate theoretical standpoint by a new one. In that case it will continue to have just one theoretical standpoint. However, that situation should be seen as exceptional. Academic theories tend to persist (Boissevain, 1974). That should not be considered as necessarily a bad thing: it is a natural reflection of the diversity of views that people tend to have. In this case the discipline may have two (eventually several) theoretical standpoints – see Figure 2. The discipline starts to shape into the Hydra format.

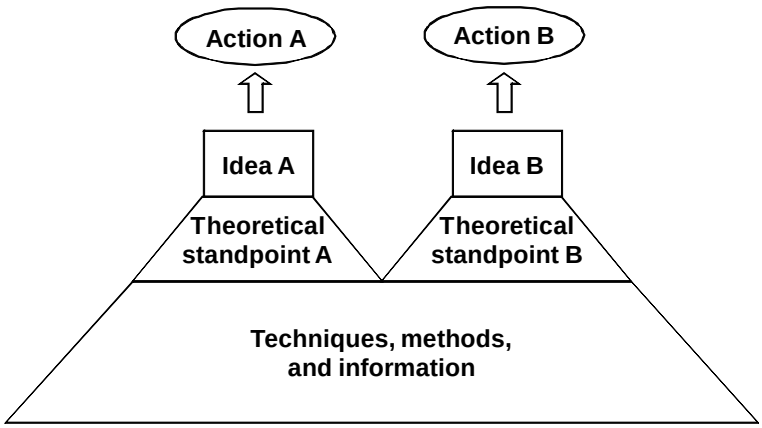

Figure 2 A discipline with two theoretical standpoints

In the case represented in Figure 2 a complicated situation for planners exists. As people do not necessarily agree on fundamental aspects, it is likely that they do not share the same opinion on what to do. That is represented in the figure through the duality Action A versus Action B. Again the example provided by Faludi (2000) is useful: planners attached to project-oriented approaches will propose very different plans than strategy-oriented planners.

The central question here is why people have fundamental differences of opinion in planning. There are many ways to answer this question. We will support our answer using the following concept: invariance. The argument formulated by Bill Hillier (1996) provides important insights into the meaningfulness of this concept. He claims that:

> Just as the a priori given for the notion of regularities is that we know the difference between order and randomness, the a priori given for taking this into theorisation is that regularity on the surface implies some systemic process below the surface, such as the structure of that system is in some sense invariant. A theory is an attempt to model these invariants in a system of interdependent concepts.
>
> (Hillier, 1996, p. 75)

An invariant is then something that does not change, that – provided a set of conditions that validate it – always works in a specific way. In the case where a certain individual believes that an invariant has been identified, and if the arguments that support a conflicting view do not convince him or her, that individual will continue attached to his or her former theoretical standpoint. The compact city proposal is a possible example of this (Commission of the European Communities, 1990). An individual who believes in the invariant sustainable properties of the compact city will probably not support a decision-making process that might end up considering that urban sprawl is the best solution. This individual believes that the compact city has an invariant property: it is the best solution to guarantee sustainability. This individual will invariably support the compact city if sustainability is the objective.

Consider another example. Patsy Healey (1990) has supported the planning-through-debate or collaborative planning approach. This author was advocating the invariant positive properties of this decision-making approach in the contemporary pluralist society. For our discussion, what is important is that individuals can identify invariants in very different settings. The type of invariants that an individual is attached to will define the line of thought that he or she will support. As previously shown, people can believe that invariants exist in such different things as decision-making approaches and compact urban forms. This is important because it shows why academics and practitioners so frequently have very different perspectives on what to do about the city.

Drawbacks of ‘Preaching’ – Towards a Better Approach

As Lewis and Melville (1978) argued, the adoption of a theory is also the adoption of a political role. For these authors the “use of universal concepts [e.g. mathematical symbols], rather than historically specified ones, has the effect of eternalising the present, of denying that the future could be anything other than a continuation of the existing order” (1978, p. 87). In that sense the belief in a theory based on mathematical formulations – despite its apparently ‘scientific’ and non-political nature – it is a profoundly political, conservative, choice. What is problematic is not this fact in itself, but ignoring it and its implications when choosing a theory to support decision-making. For Forester (1999) the existence of power relationships in planning is a given, therefore it is important for planners to think about how to act in the face of power. Planners need to reflect critically on the political implications of the

theories they subscribe to because all theories are embedded in specific political agendas, and they necessarily promote specific power relationships. Theories related to urban planning induce specific bias in the way that the city and its problems are perceived, approached, and 'solved'. Theories are connected to the invariants that individuals understand as the most reliable; therefore the invariants which we believe in are connected to our political choices. Having said this, we must think about what is the ideal role of planners in decision-making processes. This takes us to our first assumption:

Assumption 1: The planner must be capable of interacting and be helpful among decision-makers and communities disregarding their backgrounds, interests, and cultural beliefs.

This is one of a set of three assumptions that we will propose. The problematical word in the statement above is 'helpful'. The decision-makers can be aiming at a development strategy based on, for example, market-oriented objectives which are against the interests of a defenceless, deprived minority. In this situation what it means to be 'helpful' is not clear. Should the planner be 'helpful' to the actors who will promote economic growth, or be 'helpful' to the minority? The concept of public interest should be integrated in this discussion; the planner is supposed to be helpful in promoting the public interest in his or her participation in decision-making processes. However, it is not simple to define what the public interest is (Campbell and Marshall, 2002).

The temptation of leading theorists is to say what the public interest is, and to encourage planners to think as they think they should. The reason why they developed their own theories is because they believe in them and in the fundamental invariants that they are based on and foster. It is consequently natural that theorists try to be as engaging as possible. Using the Hydra Model, when a theorist leads one of the heads, it is usual – and should be seen as positive – that he or she tries to make the best out of that 'head'. It is through that extreme conflict of ideas that the debate can become truly meaningful and new ideas can emerge: if the leading theorists did not believe in their own theories, how could practitioners give them credit and take them seriously?

Planning education can be a period in which future planners learn how to think according to a specific theory and a specific notion of public interest, as defined by a specific leading theorist: maybe learning how to do strategic plans and decision-making sessions through participatory, debate-based approaches; or maybe learning the necessary technical skills to make cities more compact. For debate and dialogue between different theoretical standpoints to be meaningful, it should be sufficiently robust to allow different perspectives to be clearly articulated and contrasted. However, one thing is to say that the debate should be meaningful. Another thing is to expect that planners actually assume rigid positions in professional practice, while uncritically behaving as obedient disciples of leading theorists. This leads us to the second assumption:

Assumption 2: If the planner is trained to believe in a specific theoretical standpoint, (s)he will try to support it through professional practice: this is the 'preaching' attitude.

This second assumption is related to planners' identity. If the planner thinks that what makes him or her 'a planner' is the capacity to reproduce in practice specific theories and skills that he or she has learned in academic training, then we might say that the planner has a 'preaching' attitude. The planners with this attitude (rather like the missionaries in the past who went to the *primitive* world to show to the natives the *truth*) will probably be a source of problems. As argued by Morphet (2005, p. viii), planners must be aware that "planning's contribution can be viewed by others as fragmentary, rule-bound and with practitioners who need to be managed rather than welcomed". Planners cannot accept this as a promising future for their role in society, as their role will be one based on confrontation and on the imposition of their ideas.

Some planners have taken the preaching attitude so seriously that Jon Davies (1974) named them 'Evangelistic Bureaucrats'. In his own words, it is:

> this confrontation between citizen and official which gives the edge to the discussion of that particular type of official I have called the Evangelistic Bureaucrat. If this type of official legitimates his schemes not by reference to the actual consumer, but either in terms of his own self-proclaimed and self-induced charisma or by reference to a range of putative consumers whose wishes and wants he himself can, in impunity, define, then how can we deny or control him?
>
> (Davies, 1974, p. 3)

These are important reflections that we must take into consideration when the issue is how to prepare future planners for professional practice. These reflections demand an epistemological viewpoint which is aware that more than one important theoretical standpoint exists in planning.

According to Egon Guba (1990) there are four major theoretical standpoints in science: positivism, post-positivism, critical theory, and constructivism. Positivism has been criticised by post-positivism, both were criticised by critical theory, and constructivism has criticisms related to all the remaining standpoints (Guba, 1990). Planners need to be aware of the weaknesses of each standpoint and not to feel confused when these weaknesses become evident. At the same time, when a certain planning process is undertaken by a certain institution and the presuppositions of a certain theory are implicitly or explicitly assumed, the planner should be prepared to deal with that (and also with the practical problems resulting from the choice of theory). It is predictable that if an institution is deeply attached to positivist beliefs and quantitative analysis, and if the planner tries to force a participatory planning procedure, deeply embedded in critical theory or constructivists' arguments, problems will occur. Planners can be relegated to the periphery of the decision-making processes if they do so. This shows how important it is that planners have some quantitative knowledge and skills: this will enable them to provide a meaningful and practical contribution in these kinds of situations and places. We will return to this issue again. However, the contrary can also occur: if the institution is attached to a participatory planning process and if the planner insists on the need to support decision-making through a basic reliance on positivism and 'scientific reasoning', it is probable that he will be accused of being autocratic.

This discussion addresses the question of values. The values that are used to evaluate a strategy depend not only on the academic and ideological foundations of individuals, but also have a role in the problem-construction process. Indeed if planners think that they should be 'value-free' then they probably will accept as a 'problem' only a well-defined construct, preferably entirely structured by politicians. However, if the planners consider that values are an important part of their area of professional concern, their definition of what is recognisable and acceptable as a 'problem' will probably be a wider, more ill-defined construct. They will probably accept that problem-finding procedures, institutional structures, democratic practices, and technical reasoning are all part of what should be their domain of reasoning and activity.

It is important to mention that the planner should be able to comprehend, in a discretionary way, the limits that are considered as acceptable and ethical for his or her action in a given time and institutional environment. The planners' objective should be to improve planning outcomes, not to become unemployed. Davidoff (1965) argued that each planner should become aware of his values and only work for 'clients' who pursued the same values. This is not only a utopia for many planners because of the monetary demands of everyday life, but also because it assumes that an institution like, for example, a local authority, could be designated as a single 'client'. This is misleading. A local authority is an institution designed to carry out democratic practices, it cannot be understood as an individual 'client'. That is a startling simplification. In fact a local authority is a mosaic of individuals with several functions and responsibilities; an arena of multiple forms of knowledge, values and beliefs trying to interact; a source of problems to find and problems to solve; a network of institutional sub-structures and dependencies where several modes of reasoning are present and maintain not only institutional, but also informal interactions; and an environment where any of the major traditions of planning thought can have different relative influences. Friedmann (1987) provides a historical overview of traditions of thought in planning which shows the richness of alternative possibilities in different traditions.

Assumption 3: The preaching attitude will impede the planner from focusing on the unique, complex, and multifaceted characteristics of each community and decision-making process.

This last assumption summarises the problem of adopting the preaching attitude. The point we are trying to make is that 'planning-preachers', instead of analysing what should be done in a discretionary way, will try to understand how to conform settings to, and make actors in processes to behave according to, their pet approaches. The problem of sticking to invariants is therefore this: it invites the planner to become a professional with tunnel vision and low capacity to use his or her skills and knowledge in a discretionary way. At the core of this is the question of trust: do planning schools trust their students to be capable of thinking and working in a discretionary way, or is it better to indoctrinate them to reproduce recipes? This leads us to an implication of this discussion.

Policy implication: The planner should be capable of moving in a discretionary way from one theory to another using them as working tools, and not as dogmatic features. It is then necessary to prepare them to do so.

The way to do this is to make planners aware of the theoretical richness of their discipline. The planner should be capable of understanding what the different heads of the Hydra have to say, and of thinking about their narratives as contributions towards good practice. Instead of believing in a specific theory and its foundational invariants, the planner would benefit more from understanding the diversity of standpoints, and through this obtain inspiration for his or her professional practice. As stated by Davy (2008, p. 308), although "the real estate developer, the city planner, and the community activist walk the same streets, they might as well live on different planets". Our view here is that it is acceptable that the real estate developer and the community activist live in different worlds, but it is not acceptable that the urban planner sees them as alien. Somehow the planner must live simultaneously in the worlds of these two people. The way for planners to inhabit more than one world is to develop their capacity to be 'polyrational': we will define this as the capacity to flow freely from one form of reasoning to another. The theory of polyrationality "suggests that we may watch other rationalities and listen to different voices, as soon as we are prepared to let go a bit of our own rationality" (Davy, 2008, p. 310). In our view this requires two skills from planners: firstly, a certain capacity to see the relative value of each perspective on a certain issue; secondly, to have achieved (or at least being aiming at) a certain level of expertise in planning theory and practice.

It has been suggested that relativism and tolerance towards all sorts of lifestyles and mentalities is a result of democracy (Fukuyama, 1992). Relativism creates what Fukuyama has called 'chestless men': individuals that want to be recognised as good and unique despite being patently mediocre and utterly centred in their selfish well-being; individuals without ideals or the desire to have them, always able to accept that anything (no matter how strange it is for them) is tolerable. Above all these individuals are tolerant, and they expect that others tolerate them too. This perspective presents a very unattractive vision of relativism, however a fairly relativist attitude towards ideologies can be a very wise option for an urban planner.

The Dreyfus model of expertise considers that individuals, when learning to do something, can go through five stages (Dreyfus and Dreyfus, 1980). These stages are:

- Novice
- Advanced beginner
- Competent performer
- Proficient performer
- Expert

There is a significant qualitative jump from the competent performer to the last two stages. The proficient performer and the expert are much less dependent on rules and codified approaches than those in the previous stages. In particular, the expert has such a well developed capacity to use his or her skills that a holistic, non rule-based, understanding of the situations starts to play a very important role. For a novice it is crucial to have rules to follow, it is those rules that make it possible to, for example, start the engine of an aircraft and to pilot it safely. After reaching the fourth stage the individual goes beyond the rules:

flying *just happens*. (See the report written for the Office of Scientific Research of the United States Air Force by Dreyfus and Dreyfus (1980) for better understanding of the five stages.)

This model supports an interesting critique to the concept of 'expert systems':

> The rules for expert systems are formulated only because the systems demand it. They are characteristics of the systems, but not of the real experts. Research shows that heuristic expert systems, being rule-based, are unable to go further than level three in the learning process...In terms of the Dreyfus model they are no more than 'competent systems'.
>
> (Flyvbjerg, 2001, p. 20)

This provides relevant insights for our discussion. The attachment to a specific theoretical standpoint impedes the planner from having a holistic view of all the available standpoints that might contribute, with relevant insights, to the situation, community, or decision-making process on which he or she is working. In other words, the attachment to a theoretical standpoint is a type of rule-based approach that makes the planner become quite soon an 'expert' in a very limited area of activity within planning, and probably no more than moderately 'competent' as a planner with a comprehensive view of his or her profession. That might be self-reassuring in the short term because it is easier to achieve expertise in a small area of knowledge than in a wide one. However it does not seem to be a preferable option. The view that demands from individuals a certain loyalty to standpoints is therefore negative. It blocks the natural flow of the individual who wants to perform as an expert: that individual needs to have freedom to use theories as tools, not as boundaries. As expressed by Jon Davies (and not without abundant criticisms directed towards planners), comprehensiveness constitutes "what is perhaps the central feature of the ideology as well as the technology of planning" (1974, p. 101). To become an expert in planning it is therefore necessary to understand its central feature: the need to view how things connect in a comprehensive way. Consequently, to achieve proficiency in planning individuals cannot become attached to any of its sub-fields or to become rigidly connected to a specific viewpoint.

Friend and Hickling (1987) recommend that decision-makers should try to acquire information while deciding what to do and by what means. They propose that this is the best approach to reduce uncertainty regarding what to do next. They also propose that making small decisions contributes to the reduction of uncertainty. A decision-making process that is conducted in small incremental steps provides better confidence on the merits of each (small) decision. There is wisdom in this recommendation because too frequently people leap to hasty conclusions about what their opinion is and what should be done; and then they are forced to take a (large) step back because new evidence shows that their opinion is clearly not the best.

Ideological commitment can be seen as a 'big decision' and as an unreliable option. As a consequence, planning schools should not train their students for this form of commitment. For example, Flyvbjerg and Richardson (2002) consider that the Habermasian theories of

discourse ethics and communicative rationality are idealistic. The communicative planning movement is then based on idealism. They add that an idealistic point of departure is a "weak basis for planning theory" (Flyvbjerg and Richardson, 2002, p. 47). Now consider that this opinion will gather very strong support and planning practice experiences an important change due to this situation. What then is a professional planner trained by a Habermasian planning school supposed to do? Our proposal to avoid this predicament is to understand planning theories as 'heads' of the Hydra Model.

Some Practical Suggestions for Planning Education

This section presents some suggestions for planning education based on the previous considerations. We are not trying here to draw a comprehensive policy strategy, but just to show some examples of practical implications of our thoughts. Three suggestions will be presented. A concrete proposal will follow the presentation of the suggestions. This proposal will connect the three suggestions in a feasible challenge that some planning schools might be willing to accept. This proposal can be seen as an example of a pedagogical initiative that those who are sympathetic to this line of ideas and are considering making changes in their schools' curricula might find interesting to analyse.

Suggestion A: Mathematical and quantitative subjects should have higher prominence in urban planners' academic curriculum

Planners now understand that making plans is much more than having a vision for the built environment and to change reality according to that vision. Now planners consider that it is fundamental to listen to multiple voices in the planning process. This is a good thing: planners do know how to listen. But do planners know how to talk to those who speak? While planners know that it is necessary to pay attention to the contributions of people from multiple fields – including quantitative fields – many planners do not have the capacity to understand quantitative work. They believe that it is important to know how to listen to scientists, but they do not see themselves as having the capacity to use scientific skills. There is nowadays an emphasis on qualitative and philosophical-oriented academic content, which is a natural reflection of the development of the discipline. The presence of quantitative methods in the planning curriculum shrunk because scientific reasoning was considered biased and narrow, and unable to cope with the complexity of the 'real' world (see, for example, the review provided by Friedmann, 1987).

That scientific reasoning is a biased and somehow narrow form of understanding the world is probably a true assumption. However it is also probably true that it is very embarrassing for a planner to be unable to challenge the (biased and narrow?) ideas of a scientist because the planner does not understand what the scientist is saying. This becomes particularly problematic if the rest of the audience members – precisely because they do not understand the scientist too – assume as very profound and correct what the scientist says. It might also happen that the planner feels invited to antagonise the scientist because of the difficulty experienced in understanding a scientific approach to a planning problem. However the scientist might have a very positive contribution to make, and the planner needs to be able to

realise that. It is here where the Hydra Model can reveal its potential: in improving the capacity of the planner to see a situation from many perspectives. It is then negative for planners not to have scientific skills. This lack of skills creates a cognitive barrier for the planner that should be able to see the world also from the scientist's standpoint.

This lack of mathematical knowledge becomes particularly problematic when the decision-making process concerns transport planning. The design of transport networks requires complex quantitative analysis and mathematical skills (see, for example, Ortúzar and Willumsen, 2001). As a consequence individuals who work in transport-related fields tend to have strong quantitative skills. These skills are not within intellectual reach of most contemporary urban planners. However there is a general consensus about the importance of transport networks in defining urban patterns, and about the relevance of mobility in contemporary daily life (Hanson, 2006). Mobility is generally considered by decision-makers a very important aspect for economic and societal development (e.g. Department for Transport, 2004).

A hypothetical dialogue between a transport engineer and an urban planner will provide an insightful example for this discussion. Assume that the transport engineer is advocating a new road scheme to improve the road capacity in a certain city, and that the planner is against that scheme. How can the planner engage in argument with this engineer? Table 1 presents some possible questions that the planner might want to ask the engineer. The questions are in a defined sequence: they form a scale. The first question on the left uses a style that is quite familiar for many urban planners interested in planning theory. It is nowadays accepted that emotions have an important role to play in planning issues (see, for example, Hoch, 2006). However it is not to be expected that a transport engineer will have an answer to it. Therefore the engineer can provide an answer to the question, but he or she neither has been trained to use philosophical skills in abstract, nor to think about aesthetics and emotions in particular. In summary, this question drives the engineer out of his or her area of knowledge not only in form, but also in substantive terms.

Table 1: Styles of questions in a dialogue between a planner and a transport engineer

Transport engineer statement	Question in planning theory style	Question in philosophical style	Question in quasi-technical style	Question in technical style
We developed a transport planning model for the proposed road scheme. We can guarantee that the scheme will improve the capacity of the network by 170%.	Do you realise that a scientific approach fails to take into consideration emotive and aesthetic forms of reasoning?	Can you explain why do you consider it desirable to invest in infrastructures that might promote hypermobility?	The parking area will increase their capacity by just 30%. Don't you think that there is a discrepancy between 170% in extra road capacity and 30% in extra parking capacity?	Can you explain how you calibrated the volume-delay functions of that transport planning model?

The second question also uses a philosophical style. As it is a question that addresses aspects directly related to the transport engineering domain of activity, it is to be expected

that the engineer has an answer for it provided this individual has a philosophical bent. Engineering is not an area dedicated to philosophical reasoning. As a consequence the answer might be a very good one, but what is fundamental here is that engineers are not trained to undertake philosophical discussions. They can do it, but they are not trained to do it. This question drives the engineer out of his or her area of knowledge in terms of form, but not in substantive terms. The fourth question is a very technical one. It asks about the volume-delay functions of the transport model and how they were calibrated. This requires a very technical answer, it points directly to the engineer's core area of knowledge. The third question is less technical. It is the kind of question that an engineer is expecting to answer when talking to an educated audience without detailed knowledge about transport systems.

In summary, these four questions were presented to support the point that technical professionals such as transport engineers have:

- Core knowledge areas that are rarely used to communicate with professionals from other areas, and with public audiences, because they are very technical.
- Knowledge areas that are normally those which professionals from other knowledge areas, and audiences, drive the discussions into when talking with them as 'experts from the field'.
- Philosophical subjects that are connected to their profession; the technical professionals might or might not be interested in addressing them.
- Subjects that are not only philosophical in their nature, but also need to be addressed in a philosophical form. The likelihood of a technical professional being interested, or prepared, to address these subjects is small.

The problem stems from this analysis: planners are becoming very philosophical, and losing technical skills. How can they interact then with transport engineers in a productive way if they are not equipped to understand their core concepts? How can planners expect to conduct dialogue, and promote collaborative forms of planning, if they cannot use the mode of reasoning of the people who design transport systems – one of the most important infrastructures of contemporary cities? How can planners accept a transport model if they do not understand the mathematical concepts that were used to make it run? How can planners expect that engineers will be happy to work with them, if the only thing they have to say is peripheral to their professional motivations?

In summary, we are advocating here that planners will improve their professional practice and 'planning performance' if they become capable of using as many ideological standpoints as they can, and also the specific modes of reasoning that are preferred in each standpoint. Planners are nowadays prepared to drive philosophical discussions, to undertake collaborative forms of planning, and to include ethnic and minority-related aspects in their activity. They are becoming capable of understanding the value of emotions in what they do professionally (e.g. Hoch, 2006). However, planners are losing the capacity to challenge quantitative arguments on their own grounds. This seems to us a limitation that should be overcome through the (re)implementation of several modules with complex mathematical content in planning curricula.

Suggestion B: Planning students should have shared disciplines and design/research projects with students of other fields of knowledge

It is a well established assumption that what concerns transport engineers is roads and traffic flows, what concerns economists is the market, architects the design of buildings, and so on and so forth. This seems to us a strong simplification. There is much more to it. It is obvious that the transport engineer knows more about designing streets and roads than about designing buildings, at least much less than architects do. But a transport engineer might be the first person to say that the priority at a certain moment is not to improve the transport systems of a certain area, but to improve its social housing conditions. This should not be viewed with surprise. Too frequently in academic literature statements can be found of the kind:

> for the engineers the most important [issue] is where the cars will run through the city, but if you organize the whole city only with this kind of preoccupation, the cars will run well, but there's no city. [Each specialist seems to think what's most important is] their own strategy, their own ideas, yes, and so this job dealing with the masterplan was especially interesting in that confrontation between all the specialists.
>
> (Forester, 1999, p. 188)

We profoundly respect Forester's work, but we disagree with this stereotypical view of 'specialists' as people uncritically playing a narrow-minded role. This seems to us a caricature. Figure 3 provides a symbolic representation of our perspective on this issue.

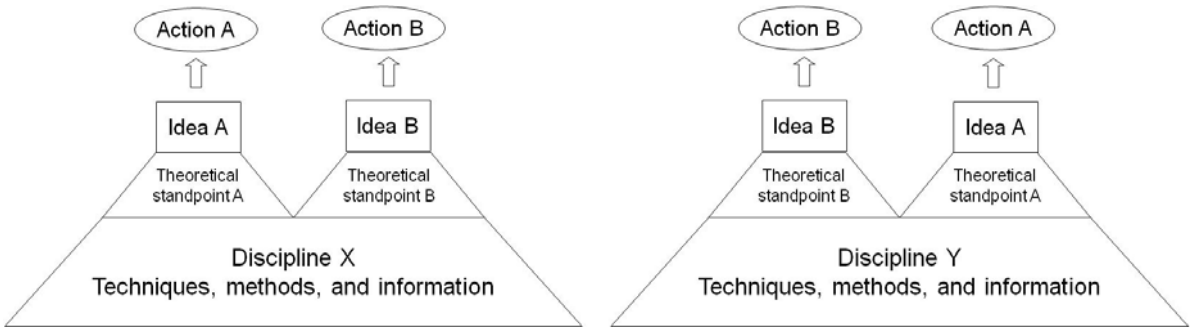

Figure 3 (Inter)disciplinary divergence and convergence

On the left-hand side of Figure 3 a person (or a group of people) is shown who formally belongs to a certain discipline X and who supports a certain action A. We will call this person, or group, XA. Then we have XB. This person or group belongs to the same discipline X, but they stand for action B. We can assume that both are architects. Moving to the right we have a person (or a group of people) that formally belongs to a certain discipline Y and that supports a certain action B. They will be YB, and the remaining ones will be YA. People belonging to discipline Y will be social workers. Assume that action A is improving the physical environment of a deprived neighbourhood. We can imagine social workers and architects supporting that the bad shape of the houses is causing negative effects on the

neighbourhood. XA and YA can agree on what to do because they share the same viewpoint, even though they do not share the same academic background.

Action B can be a people-based measure, e.g. supporting families and providing help to teenage mothers. We can imagine architects realising that this is what a certain neighbourhood needs at a certain moment, much more than measures that will directly interfere with the physical environment of the neighbourhood. These would be XB. But we can also easily imagine a social worker saying the same, this would be YB. In other words, it is not really the discipline what defines one's proposals and ideas. What defines these are one's viewpoints.

Having said this it is relevant to understand why people so often actually play the role of the stereotypical professional, who will just express concerns directly related to the core area of his or her profession. As addressed in Suggestion A, there is a certain area of knowledge (in substantive and formal terms) where professionals feel more comfortable. For a transport engineer it is certainly much more comfortable to explain the volume-delay function of a transport link than to explain how emotive-aesthetic modes of reasoning have contributed to the design of his or her model. It is consequently natural that professionals avoid interfering in issues that might move them away from areas of intellectual comfort. The way to make people be able to say that "despite being myself a transport engineer, I think that what matters in this neighbourhood is to directly support deprived families" is to build confidence in them as students. The same goes for a planner when he or she will say "despite being an urban planner myself, I think that the volume delay functions of the traffic model are overestimating the time spending for peak-period traffic levels, and that is why in my view you are asking for too much resources for this project". We believe that the best way to promote this *interdisciplinary assertiveness* is to make students interact early in their education, and frequently, with people from other, very distinctive, disciplines. This would represent a challenge for planning students, as they would be asked to deal with quite a large amount of information during their training years. As explained earlier by reference to the Dreyfus model (Dreyfus and Dreyfus, 1980), it is easier to attain levels of expertise in a small field of knowledge than in a comprehensive field. However, the central feature of planning is its aspiration to a comprehensive understanding of the world. In that sense, the earlier the students are introduced to a transdisciplinary learning environment the better: that gives more opportunities for them to learn how to become 'experts' in crossing disciplinary and cognitive boundaries. This should allow planners to perceive 'intellectual comfort' in quite a broad area of knowledge, therefore enabling them to interact confidently with people from a number of backgrounds.

Suggestion C: Planning students should have easy access to international exchange programmes such as Erasmus

The drawbacks of being unable to move from one theoretical standpoint to another have been extensively addressed throughout this paper. It was put forward that it is necessary to make planners able to 'move'. In this last suggestion we are proposing that this mobility should not only be intellectual, but also physical. Planning students should have easy access

to study in different schools of planning in different countries. The reasons for this are twofold. Firstly, because the experience of a different culture is necessarily enriching for the novice student of planning: it is an opportunity to learn about different social practices and urban designs, cultural perspectives, and teaching approaches. Secondly, because it might present the student to a new language, which is particularly important today: English is now the academic lingua franca. If that is the case, and if we accept that narratives are key features in planning, it is critical that planners do not lose the knowledge embedded in local narratives because of language barriers (see Kunzmann, 2004).

It is startling to observe the number of editors on planning journals who come from the Anglo-American world (see Yiftachel, 2006) as well as the relative number of publications written by Anglophone academics (Stifte and Mukhopadhyay, 2007). If planning students start to travel in academic exchange activities designed by their universities, this will mean stronger institutional and personal collaborations between diverse nationalities. This will most certainly enrich planning theory and practice, as well as students' lives. It will also give a voice to the academics who are not Anglophone, they will be able to show to Anglophone students (and lecturers) their views on planning. As addressed before, this will make the Hydra Model richer because it will add more diversity of opinions and perspectives.

A practical proposal: interconnecting Suggestions A, B, and C

The objective of this sub-section is to propose something practical. We see this proposal as a challenge for planning educators who are interested in experimenting with new approaches. We will focus on two countries: the United Kingdom and Portugal. Other examples with different countries could have been presented; many other possibilities are available for implementing our proposal.

Planning in the United Kingdom is done by 'planners'. The idea of a professional class entirely devoted to the activity of planning did not find support in Portugal. In this country, planning is normally done by civil engineers and architects (note that geographers, sociologists, economists and some other classes are also responsible for important contributions).

In Portugal, anecdotes depicting the sharp mathematical intelligence of the engineer in contrast to the lack of quantitative skills of the architect are common among engineers; anecdotes depicting the lack of aesthetic and social awareness of the engineer are common among architects. Civil engineers have generally more power than architects because their professional class association (Ordem dos Engenheiros) is shared with many other engineering graduates (e.g. electronics, computing, forestry, mechanics) and its foundation dates back to 1936. The architects' professional association (Ordem dos Arquitectos) was only founded in 1998. In summary, in Portugal there is a somewhat problematic power relationship between these two professional classes.

If British planning students were to have the opportunity to go to Portugal and spend a term studying simultaneously in a civil engineering department and in an architecture department, they would become aware of several things. They would experience how life is in a different

country, which is a common, and reasonable, aspiration among British youth. They would also understand how the academic world works in a different country and, on top of that, how different professional classes train their undergraduates abroad. Finally, they would be working with two professional classes that maintain an interaction which is not without friction and disagreements. The best way to make this an integrated, and structured, experience would be to ask the students to develop there an integrated transport planning project. Figure 4 shows the sketch for a possible exercise.

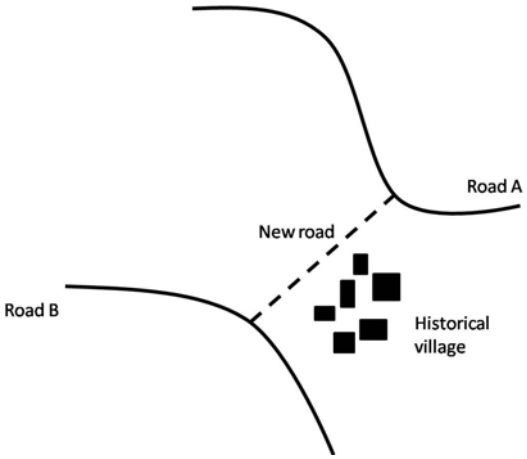

Figure 4 A possible exercise for travelling students

The exercise would be to work on a project involving a new secondary road that should connect two main roads. A historically important village would be in the vicinity, demanding strong awareness of the importance of heritage. The objective of this exercise would be to: *i)* calculate the expected traffic of the new road; *ii)* to design and calculate the capacity of the junctions; *iii)* to understand the principles of road design and construction through the presentation of a basic engineering project; *iv)* to harmonise the construction of the road with the village through the presentation of a basic landscape architecture project; *v)* to demonstrate awareness of design features that dissipate the conflict between the road and the village; and to *vi)* develop a framework of analysis that would allow the student to evaluate whether the benefits of the proposed road are important enough to justify its social, economic, and aesthetic costs.

This is not an easy exercise. It would require the students to meet and work with people from both a civil engineering and an architecture school. The points *i*, *ii*, and *iii* constitute part of the knowledge domain of civil engineering. The points *iv* and *v* constitute part of the knowledge domain of architecture. To successfully cope with the exercise the students would have to immerse themselves in knowledge areas of two different disciplines, which is a very valuable experience. However, the most relevant point is *vi*: here, both an architecture and an engineering school are prepared to provide an answer, however their decision-making methodologies and values tend to be quite different. As a consequence, the planning students doing this exercise would have to develop a theoretical standpoint of their own that would allow them to cope with a complicated, potentially contradictory, set of teachings and directives. After the experience, the students would come back to their schools in the United

Kingdom. Through a series of meetings with their supervisors and colleagues a sense of order should be re-established – especially in the event that students felt they did not find a way through the proposed problem. We are sure that the students could learn many lessons from such meetings undertaken again in a familiar environment.

In our opinion, this exercise is potentially extremely valuable and should be seriously considered as an available possibility for British planning students. This would also benefit their educators, as new contacts would take place between academics from different countries and backgrounds. Non British students and educators would benefit likewise from being exposed to different cultures and academic institutions.

Final comments

The complexity of decision-making processes in planning is nowadays greater than ever. In our view, planning schools are not helping students when they deliver to them theories to which they should commit. Planners should not believe that what defines their identity is the commitment to a specific planning theory. That would lead the planner to confusion quite soon: it would not take long for a new theory to come and challenge the foundations of the previous ones. Instead, what should define the planner is the capacity to support decision-making processes in a multitude of circumstances and settings, and with a clear mind. The rapid transformations of the contemporary post-modern world require professionals to be capable of flowing from one theoretical standpoint to another, and from one policy framework to another without experiencing intellectual confusion. Planners need to know how to deal with post-modernity without experiencing the typical post-modern crisis of identity. The capacity to use theories as tools, not as something that we have to commit to, is our answer to the question of how to achieve that.

We would like to state that we are not proposing a veiled post-modern standpoint in which fear of ideological commitment is the main issue. What we propose here is that the planning curriculum should cover a wide(r) range of issues, skills, theories, and modes of thinking – and to trust our students more and their capacity to make discretionary decisions. As a consequence, the planning educator should avoid the temptation to ‘indoctrinate’ students. We believe that the role of the educator is to expand the capacities and knowledge of the students. To make students believe that they have to adopt the viewpoints of their educators is a mistake to be avoided. To support this claim was the objective of this paper.

The Hydra Model is our conceptual proposal. According to this model, theories should be seen as standpoints. Each standpoint provides a unique perspective on a certain issue. Only through considering many perspectives at the same time will the planner be able to understand each planning problem in its multiple dimensions. This means that a detached approach to each one of the theoretical standpoints is necessary. This detachment allows the planner to use the standpoints in a discretionary way according to the unique characteristics of each planning problem and community.

Planning theorists disagree on many issues. According to the Hydra Model, this is positive. Each head of the Hydra has a different voice and supports a different theory. There is no

reason to see this as a problem, or as a source of confusion. Each head of the Hydra represents a different group of people, different organisations, social movements, and power relationships. It is positive that feminists focus their attention on minority groups and women's issues while market-driven theorists address the need for economic competitiveness. This multiplicity of voices within the discipline of planning is what allows the planner to operate in the 'real world'. If, for the planner, feminist ideas, or market-driven theories were totally alien, how could he or she engage in a constructive decision-making process with people from those theoretical backgrounds? This diversity within planning theory is the strength of planning theory, and what enables practitioners to have a non-fragmented understanding of practical problems.

We are aware that this proposal, if accepted as the real politics of the profession, would lead to implications that we cannot anticipate from where we stand at this moment. The ultimate implication of the Hydra Model is that the model should be considered itself as a perspective, a contribution to better planning theory and practice. The model should and must be challenged and exposed to theoretical scrutiny, and we should be detached from it. As a consequence, we would like to conclude with a few questions. Hopefully, this will promote a debate.

The first question is the problem of ethics. How this model will influence the ethics of planning professionals is an issue that must be addressed. Can we trust in the discretionary judgement of individual planners, or is it safer and better to actually 'indoctrinate' them? Another issue is whether planning students are capable of coping with a polyrational approach. Is this an enterprise that will lead future planners to 'comprehensive incompetence' (Lynch and Rodwin, 1958)? A few practical issues should also deserve attention. Assuming the Hydra Model as a valid point of departure, what exact kind of planning curriculum should be implemented? Are universities prepared for change, or is their institutional inertia too strong for these modifications to take place? And what about leading planning theorists? How would they see a model of this kind being promoted? Would they see this as a direct confrontation to the validity of their constructs? Finally, are local authorities and companies prepared to (and interested in) employ(ing) planners educated according to this model? To what extent is a planner trained in line with the Hydra Model not too flexible and over-skilful, and therefore potentially unpredictable? In that sense, can we say that an 'indoctrinated' planner would be seen as a more trustworthy human resource?

We have tried to address the structure and dynamics of the Hydra Model and some of its implications for planning. Hopefully this will provide a small contribution for the development of the discipline. The assessment of these ideas needs not only academic scrutiny, but also an evaluation from the practitioners and their employers. We believe that when planners are simultaneously involved in theory and in practice, in quantitative and qualitative methods, in philosophical ventures and in the development of tools, planning will have become one of the most exciting professions.

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