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You Want Me to Do What? Teach a Studio Class to Seventy Students?

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Abstract:

Amidst widespread recognition of the need to enhance the student experience, built environment educators are facing increased pressure on their time and resources for teaching. Studio-based education, in which students apply ideas to a real site, has been seen as key to a well-rounded education in the built environment and planning professions. At the same time, traditional methods require a high degree of tutor time to be spent with students, which is increasingly impractical given resource constraints and increased class sizes.

Drawing on research exploring the challenges posed by sustainable development and participatory processes in ecological planning, a core second year studio-based module at The University of Manchester was re-designed so as to meet these challenges.

Key elements of the redesign include: use of the hands-on toolkit, Ketso, for creative thinking and synthesis of ideas within and across groups; mapping and layered spatial analysis; simulating aspects of community consultation, without directly contacting the community; effective use of Graduate Teaching Assistant time in giving feedback and assistance to students; and including an individual reflective learning journal as part of the assessment.

The innovations trialled in this module enable an interactive studio experience with a high degree of feedback to be created for large classes. Feedback from students has been very positive. The innovations in the module re-design described in this paper jointly won the 2011 Excellence in Teaching Prize of the Association of European Schools of Planning (AESOP).

Keywords: Professional Skills Development, Education for Sustainability, Large Group Teaching, Studio Pedagogy, Planning Education

Introduction – Practical and Pedagogical Challenges in Teaching Master Planning

In recent years, the popularity of Manchester University's four-year undergraduate degree in Town and Country Planning, offering a Masters degree and accreditation by the Royal Town Planning Institute (RTPI), has resulted in a steady increase in student numbers. International undergraduate students have continued to rise year on year and now comprise approximately 10% of the overall total. Larger classes and diversity of student intake, however, have posed a set of challenges to the pedagogical approach, particularly when students begin to specialise in the practical aspects of town and country planning in year two. Students have a wide range of educational backgrounds, levels of confidence, leadership skills and expectations from teaching.

A studio based approach has traditionally been seen as a fundamental component of planning education at The University of Manchester. The studio class offers an opportunity for students to apply what they are learning about planning to the analysis and development of options for a real site. This applied work draws together the planning concepts of sustainability, place-making, people, heritage and urban design. There are opportunities to consider environmental and social issues, policy implications, history, aesthetics and the future of a place. A design aspect brings to life the concept of 'making places' and acts as a powerful stimulus for integration of concepts and ideas (e.g. Muller *et al.*, 2005; Orr, 1994).

In the early years of planning education at The University of Manchester, a studio class ran through each year, and was attended by all students each semester. Design-based studio was seen as the backbone of the degree, and lecture modules supplemented the main learning in studio. This approach has been replaced with more focus on non-studio based modules and a higher emphasis on policy and social theory.

Design and place-analysis skills of planning are still woven throughout many of the modules and each year of the degree. The main studio module is now held in the second year, and is entitled the 'Settlement Project'.

Until 2007, this module taught students master planning using traditional studio-based methods, which are typical for groups of roughly twenty-five (or fewer) students (or larger groups with a high number of academic and professional staff to teach intensively to small groups). The pedagogical approach drew heavily on architectural education, with high levels of one-to-one studio and tutorial support for students. As student numbers grew, it proved increasingly difficult to sustain effective teaching and maintain the quality of the student experience based on this model.

Dispensing with the studio type of learning altogether was not an option that we wished to consider. Other planning educators have similarly struggled with this tension between the resource intensiveness of traditional studio teaching and the need for efficiencies in staff time, yet remain convinced that: 'the studio is 'the 'glue' that brings the planning curriculum together through the development of professional and personal skills' (Higgins *et al.*, 2009, p.27).

The Settlement Project is a core module for all students in the department, and usually also attracts several 'study abroad' students and some students from other disciplines across the University, especially Environmental Studies. Today, the normal module size is between sixty-five and seventy-five students. It was important to streamline the teaching, marking and assessment to make the module time effective for the tutors, whilst providing a high quality learning experience.

Alongside these practical concerns, planning theory, practice and research has undergone a paradigmatic shift since the 1990s from rational, quantitative planning to a more collaborative approach (e.g. Healey, 1997). Environmental concerns and moves towards a sustainable agenda have been enshrined in UK planning (e.g. Office of the Deputy Prime Minister, 2005; Communities and Local Government, 2007). Sustainability is also one of the four 'core ideas' of the UK's only body responsible for the professional certification of planners, the RTPI, as set out in their *New Vision for Planning - Delivering Sustainable Communities, Settlements and Places - 'Mediating Space - Creating Place'* (2001). These core ideas are:

- spatial - dealing with the unique needs and characteristics of places;
- sustainable - looking at the short, medium and long term issues;
- integrative - in terms of the knowledge, objectives and actions involved;
- inclusive - recognising the wide range of people involved in planning.

(RTPI, 2001, p.2)

Given this context, the module required a redesign. This was done drawing upon work by Tippet *et al.* (2007), which explores the challenges posed by sustainable development and combines participatory processes with ecological planning. The innovations in the module redesign described in this paper jointly won the 2011 Teaching Excellence Award of the Association of European Schools of Planning.

Redesigning the Studio Module

The main challenges for the redesign were:

- time effectiveness for tutors;
- creation of high quality learning experience, with a high level of formative feedback on work;
- development of practical skills and engagement with a real site;
- being responsive to the current context of planning, including teaching sustainability and developing skills in interdisciplinary and collaborative working;
- increasing student satisfaction;
- and working in a context of resource scarcity.

Building on the core components that were seen to be working well from the earlier format, the redesign focused on the teaching processes. Key elements retained from the original module design included: requiring students to undertake spatial and ecological analysis; a requirement to develop master planning options for the whole site as well as detailed plans for a few areas within the site; and alternating between use of digital technology and hand-drawn design and analysis skills. The module is designed such that each week includes a traditional studio session (with paper maps, trace paper and coloured pencils) and a computer session, where students transpose ideas and develop further analysis and design using software tools and information available on line. The links between the two and the value of being able to work and think with these different types of tools are drawn out by the tutor in discussions with the whole group in the sessions.

The research that informed this redesign centres around two questions – ‘*How can we imagine a sustainable future?*’ and ‘*How do we enable groups of people to work together effectively to plan and achieve such a future?*’. Action research in North Manchester that led to a sustainability vision for the River Irk Valley and a former landfill site, Moston Vale, has led to the development of a new mode of participatory ecological design. This enables participants to ‘think like an ecosystem’ and to apply this thinking to the planning of human settlements. The theoretical background to this research is the paradigm shift from reductionist to systems thinking, and its implications for the interactions between human settlements and natural systems (Tippet, 2009). Planning for sustainability is embedded into the teaching process and assessment of the module.

A key aspect of professional development is learning to learn, especially given the need for practitioners to adapt to different contexts and to learn from their experience in complex situations. Reflective skills are seen as essential in the ‘Assessment of Professional Competence’ of the RTPI (2011). This builds on earlier recognition of the vital role that learning to learn from experience plays in developing skills and professional competence in any field (e.g. Argyris and Schon, 1974; Pedler, 1996; Revans, 1982). As well as developing individual skills of reflection, effective practice in the built environment requires professionals to span boundaries (Williams, 2002) and to work across disciplines and areas of interest (Young, 2010). An action-orientated learning process encourages genuine enquiry and learning from peers (Price, 2001). It is particularly useful in place-based and environmental modules, where the challenges are complex and the interactions of many actors and issues need to be taken into account (Dodge *et al.*, 2008).

In addition to cross-disciplinary working, planning and environmental practitioners need to be able to work with a range of stakeholders and community members in exploring and developing options for the future. Community involvement in planning and delivering services has been embedded as a requirement in government policy (e.g. *Local Government and Public Involvement in Health Act 2007* and in the requirement for a ‘statement of community involvement’, Office of the Deputy Prime Minister, 2005, p.16).

A key aspect in the redesigned module is the use of a 'toolkit for creative engagement', Ketso®, to encourage group interaction and the gathering and synthesis of ideas both within project groups and between students on the module. Ketso has been developed from fifteen years of work and research in rural and urban regeneration (Ketso, 2011; Tippett, 2004, Tippett *et al.*, 2007). Ketso's visual communication draws upon the ideas developed by Tony Buzan in Mind Mapping® (Buzan, 1983; and Buzan and Buzan, 1993) and Edward de Bono's work on creative thinking (1990; 1992; 1999). Howard Gardner's work on multiple intelligences (2000; 2003) influenced the design of the kit, so that it allows for an interplay of written and spoken words, movement of pieces and the use of images.



Figure 1 Close-up image of a Ketso® toolkit

It is a hands-on kit that facilitates community planning and engagement (Tippett *et al.*, 2009c). In the context of this module, Ketso is used to facilitate more effective group work, peer-support and learning within student groups. Its use is part of the pedagogical design, and also offers students the opportunity to learn to use a toolkit that can later be applied in their professional practice.

Particular elements for the redesign included:

Turn an individual project into a group project. This facilitates the development of core transferable skills in negotiation and collaboration, while at the same time achieving a high standard of learning within a large group that makes traditional methods impractical. Reducing the overall number of projects, from 70 plus if each individual does their own project, to roughly 12 if students work in groups, means that the tutors can give in-depth

feedback on each project. Groups are randomly assigned for the first few weeks; this fosters interaction and aims to break the patterns of students gravitating immediately to the groups they usually work in. After the first few weeks, students can choose the groups they wish to work in for the rest of the module. This helps to reduce tensions around being assigned to groups with under-achieving students.

Students take responsibility for managing the group process and are encouraged to reflect on group work skills. Groups have to arrange their own meetings outside of the classroom, the only guidelines being protocols for respecting each others' contributions. Some regular class time is also devoted to exercises designed to support the students in managing their groups effectively and learning skills in group work. There is an official peer assessment process, whereby students' marks can be revised up or down by 10% if there is clear evidence that there was a discrepancy of effort. If such problems are highlighted during the first assignment and assessment, the tutor meets with the group to encourage them to resolve the problems before the final submission.

Use of hands-on toolkit, Ketso, for creative thinking and synthesis of ideas within and across groups. The kit enables students to work effectively together, supports their learning and helps to overcome initial communication difficulties. These processes will be useful for students in their future careers when they engage with stakeholders and community members.

Use of different components in the Ketso toolkit to guide the analysis and design process (e.g. different coloured leaves for different stages of the process, use of key themes to structure information on the 'branches' of the mind-map like structure) enables the tutor to guide a large group through a process, giving simple instructions to all students at certain times, but allowing the groups to work at slightly different paces in-between these shifts in focus. The process encourages a blend of students spending time on their own to develop ideas, followed by sharing them and building them into a group picture of thinking at their table.

The fact that the kit is highly visual and students' ideas are laid out 'on the table' into patterns and clusters of ideas means that they can easily learn from different groups, by rotating tables and comparing their emerging ideas with other groups' thinking. The Ketso kits are used by the students over several sessions, to capture their initial thoughts on the site, to develop design options and to develop ideas to enhance the sustainability of the site. As Ketso has been launched as a social enterprise to rent and sell the toolkits, this innovation can be easily replicated in different institutions.

Mapping and layered spatial analysis. Developing skills in mapping and spatial analysis is essential for developing an understanding of place (Monmonier, 1993). These skills are developed in several ways on the module. Students are requested to develop sketch maps from memory following the site visit. This echoes community mapping, which garners a sense of place from people's perceptions (e.g. Kretzmann and McKnight, 1993).

Students are asked to use trace paper to develop analyses of the site in layers: highlighting routes and paths to develop a road hierarchy; exploring areas of habitat and natural value and their connectivity in the landscape and considering the townscape and landscape. Again, students are encouraged to compare their outputs and discuss similarities and differences with other groups. This can be quite an eye-opener for students as they realise that they have interpreted and remembered the site differently. This opens up a useful space for the tutor to draw out reflections on the nature of perceptions of space.

It is important for students to learn to integrate spatial information with concepts and data that influence places, but are not geographically located. Thus, students are asked to refer back to the thematic concepts developed from earlier exercises, about existing assets and challenges, and to integrate these ideas into their spatial analysis when thinking of future options for the sites.

Simulating aspects of community consultation, without directly contacting the community. Whilst direct engagement with community members offers an extremely valuable learning experience for students, there are several reasons why this is impracticable for this particular module. A key aspect is the large number of students, which means that it would be difficult to arrange for every group to engage in a meaningful way with community members without overwhelming the community. In addition, some effort goes into providing information, maps and some useful analysis for the students to work with, so that they are able to experience a reasonably full master-planning experience in one semester and focus on the design aspects as well as analysis. This requires some set-up time from the tutors, and makes it difficult to rotate the site each year given the need for efficient use of tutors' time. Moreover, it would be a lot to ask of the same community members to be willing to meet with large numbers of students each year. This is especially sensitive in a deprived area where there is little immediate prospect of funding for improving a rather neglected landscape.

Instead, students are asked to play roles at different stages of the design process to encourage them to think of the site from different perspectives. For instance, they are handed different roles during a creative design phase of using the Ketso kits to develop ideas for the site. The students are asked to consider what would be important to them, and what they would like to see in a future design, from these perspectives. The ideas developed on the Ketsos from each group are also typed up by the students and all of the ideas are compiled into one spreadsheet for the whole class to draw on and share. Thus, the toolkit and the process allow a flow of ideas from the individual to synthesis of the whole class's ideas as a resource for design. This is analogous to synthesising ideas from a range of stakeholders and community members for use in creating a plan, and builds skills in integrating the ideas of others into a project, rather than simply focussing on ideas developed by the small group or individuals.

Balancing work in groups with commentary and review from the tutors. A class process has been designed that allows groups to develop their ideas in stages, with time set aside for

the tutor to give instructions for the stages, to circulate and give feedback on each group's work, and to provide comments on the overall process and ideas developing in the groups to the whole class. Whilst less flexible and student-led in terms of timing than a traditional studio setting, this approach allows the tutor to give instructions, feedback and observations to the whole group and ensures that all students hear key information. A bell is used to signify shifts in stages and to call for quiet for stages of feedback and instruction. This is helpful in keeping the process moving and allowing the tutor to communicate without shouting over the noise of 70 students talking.

The tutor also asks for the students to reflect on the ideas they are developing and how they relate to the different groups' work, and to step back from the content of the ideas and reflect on the process. This enables the tutor to give feedback on how the tools and techniques they are learning can be useful in their future professional development and academic learning. As this includes consideration of the nature of group work, community engagement and communication, there is ample opportunity to discuss transferable skills related to possible jobs both in traditional planning fields and other possible professions, such as environmental management, community development or project development in general. Thus the overall module design and the individual sessions combine aspects of action and reflection, following Kolb's (1973; 1984) work on experiential learning.

Effective use of Graduate Teaching Assistant (GTA) time in giving feedback and assistance to students. The use of the highly visual toolkit of Ketso, along with the mapping analysis in taught stages, allows for GTAs to take part in this review and synthesis process. The role of GTA is a daunting one. It involves juggling research along with learning to educate students at a time when the researcher might not feel fully equipped for the role. Given time and resource constraints in the UK, the training of these students competes with pressures on funding and time management issues in combining research with teaching (Park and Ramos, 2002, pp.50-51). They also struggle with feelings of self-worth and efficacy as they rarely have the opportunity to innovate within the curriculum (Park, 2004, p.355).

One GTA who assisted in several studio sessions in 2010-2011 commented:

"Using Ketso in the Settlement Project module facilitated my work as a GTA. I was not very familiar with the site for which the master plan was being developed, or the UK planning context. Also as a new GTA, I was uncertain which aspects students at this level would find challenging. Seeing information related to all of these elements laid out and organised within the Ketso framework allowed me to quickly grasp the overall picture and the students' learning needs. As a result I was able to assist them much more effectively than if I had had to start by asking, "How are you getting on?" Ketso itself is very easy to use; with minimal instruction, I was able to assist the students with any questions they had about how to proceed." (Janice Astbury, PhD Candidate at the University of Manchester).

Individual reflective learning journal as part of the assessment. Students maintain a reflective learning journal in tandem with the group work (building on the work of Moon, 1999). This assignment is for a reflective learning journal (1,500 – 2,500 words). Students are told that the journal can include drawing or mind maps, and can be hand written, but must be legible. It must include sketches and show some development of design ideas. This assignment is a development from an earlier requirement to submit a 'design log', which showed development of the students' design thinking. It now requires them to also reflect on their learning and the experience of developing a master plan. Students are told that the journal must follow the chronological order of the sessions. They are not required to write an entry after each session *per se*, but rather to put together a narrative showing evidence of the development of their thinking. The instructions ask students to reflect on what they have learned, elements they found difficult, ways in which their ideas have changed over time, and what has helped their learning.

This assignment develops their reflective capacity and encourages them to consider their own values and roles. This questioning leads the students towards thinking of other possible applications of the techniques they are learning.

The Settlement Project Case Study

Students are asked to develop a master plan for a large site with mixed uses. The particular site chosen, the lower Irk River Valley, suffers from environmental neglect and pollution, as well as being in an area consistently ranked amongst the most deprived electoral wards in the country. Manchester City Council would like to see the area regenerated (Manchester City Council and Chief Executive's Department, 2004), though this appears to be a long-term project given the current economic climate. For many of the students, it is quite an experience to visit the site for the first time and realise that there are such neglected and run-down areas a short walk from Manchester's city centre. The first field trip elicited one memorable comment that the Irk Valley was 'a site in need of a master plan'.

The specific aims for the module are:

- To complete a step-by-step master planning exercise at the neighbourhood level of scale;
- To appreciate the relationships between built form, natural landscape and social interactions;
- To gain an understanding of urban design, design guidelines and design quality;
- To devise a master plan based on viability, social and ecological sustainability and the local context;
- To present a professional-quality vision with imaginative graphics, clear information and good presentation skills;
- To develop skills as a reflective practitioner.

The anticipated learning outcomes 'bridge the gap' between planning theory and practice to prepare students for the workplace.

Students are given the following project brief:

You have been commissioned by the North Manchester Regeneration Team to develop a master plan for an area in Collyhurst covering 128 hectares, including a large area of derelict land. This can be seen as a bid to gain the contract to develop a full implementation plan. The plan should achieve the objectives for the area set out in Manchester's Unitary Development Plan for the Collyhurst area, the North Manchester Strategic Regeneration Framework and the Collyhurst Local Plan, and also goals developed by your groups during the master planning process.

Module Outline

The mixed method approach combines studio work with skills training using graphics and mapping software, lectures and field trips. Given the broad range of specialisms covered, the educational and professional networks available across the department are utilised in delivering the module. A former graduate of the department, with over thirty years' practical experience in planning, particularly in the Mersey Valley basin, gives lectures on urban design and discusses case study examples from practice. The general planning knowledge of existing planning Ph.D. students helps to deliver the technical part of the module, through assisting in the studios and computer cluster sessions, giving feedback and encouraging the students in developing their thinking. On occasion, former graduates also assist with one-off lectures. There are at least four hours of contact time per week for this 20 UK credit module, taught in bi-weekly sessions. This time allocation occasionally rises up to six hours per week during the formal feedback sessions, on the site visit and in the weeks just before the formal hand in times, to allow for more informal feedback for students who stay behind after the formal teaching time for such consultation.

All sessions are attended by one core module leader, a full time academic member of staff, and one or some times two GTAs. As resources allow, a person from practice attends the studio sessions, sometimes in place of a GTA. Thus the teaching of a class of 70 is managed with just over two people on average in a session, in just over four hours per week for twelve weeks. Of course, if more GTAs and professionals are available for the classes and resources allow, they add significant value as they are able to give more feedback and perspectives to the students. The module leader needs to make it clear that students may get differing advice from different tutors and that part of their job is to learn to exercise critical judgement of different options. Students are also able to come to regularly scheduled office hours with the module tutor throughout the term.

Two teaching spaces are used each week. One large room with flat teaching space and moveable tables, which has traditionally been used for Planning students, is shared for many different modules and thus has to be booked for the class. Students take their work with them and bring it back to class each week. The second room is a computer cluster with

enough computers for all of the students to have a computer, and a large screen at the front for the tutor to demonstrate and show slides on. When possible, the rooms are booked for three hour sessions to allow students to stay behind after the official teaching slot to finish the work they are doing.

An indicative outline for the module is shown below.

Settlement Project Module Outline	
Week One	
Lecture	Introduction to the module Introduction to master planning
Field trip to the site	Coach and walking trip to the site and surrounding area Students are asked to prepare by reading the Manchester Strategic Regeneration Framework and the Collyhurst Local Plan
Week Two	
Studio	Community mapping and community involvement role play using Ketso toolkit (developing understanding of the site) Groups are randomly assigned
Computer cluster	Photoshop in the context of the module Register for Digimap, individual work on computers Type up Ketso ideas for sharing amongst whole group
Week Three	
Studio	Bubble diagrams of functions and connections Analysing the movement system and ecological context
Computer cluster	Downloading base maps and developing historic ground figure sequence To save time, the historical maps and older figure grounds (pre digitised maps) may be provided by the tutor Further work exploring the ecological context (this class may be split, with environmentally orientated students doing more on ecological context and planning orientated students doing more on figure grounds)
Week Four	
Studio	Analysing townscape and landscape Work should be done in final groups - opportunity to change groups Develop project plan and timeline for remainder of project
Computer cluster	Developing analytical maps, introduction to keys, use of colour and symbols Turn the early analysis work into digital maps for first submission
Week Five	
Studio	Introduction to the RoundView framework of sustainability Develop further ideas for future project and sustainability using Ketso
Computer cluster	Development of wider context maps Further ecological analysis, including review of wider environmental context and gathering of environmental data Type up Ketso ideas for sharing amongst whole group

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	Work on first submission
Week Six	
Studio	Develop initial sketch ideas and options for the first submission Continue to work on posters for first submission (these can be hand cut and pasted onto boards, but require attention to layout and headings)
<i>Presentations</i>	<i>First submission - group presentations, formative feedback</i>
Week Seven	
Lecture/Group work	Elements of Urban Design Reflections on Master planning and international experiences Review of group work – what is working well, challenges and ways to overcome them, review of project plan and timeline for remainder of project
Computer cluster	Opportunity to revise work based on formative feedback from first submission Principles of graphic layout, using Photoshop for creating a plan
Week Eight	
Studio	'Planning for real' type workshop with modelling clay – exploring 3D design and changes for the future Further design work
Computer cluster	Introduction to SketchUp (not necessary for all groups but can be useful to introduce it for the technically minded students) Developing master plan Discuss page layout, colour schemes, graphic images Review information needed and possible final board layout
Week Nine	
Studio	Ecological design and sustainability reviewed, developing design ideas for the site, assessing ideas against sustainability guidelines Develop master plan
Computer cluster	Develop master plan Design final poster boards Further opportunity for feedback from tutor and GTAs
Week Ten	
Studio	Testing and finalising master plan ideas Sketch designs of detailed areas
Computer cluster	Continue work on master plan Review of principles of graphic communication
Week Eleven	
Studio	Continue work on master plan. Tutor available for feedback.
Computer cluster	Continue work on master plan. Tutor available for feedback. <i>Submit individual assignment – reflective learning journal</i>
Week Twelve	
<i>Presentations</i>	<i>Final presentations of poster boards and summative feedback</i> <i>Submit final report, poster boards and peer assessment sheets</i>

Students arrange additional group meetings outside of the classroom. A high proportion of this module is assessed by group work (85%) and a group work protocol is used to encourage equal contribution across the group. The protocol is reinforced during class time with discussions of group process and the need to learn to work as a team, as a core professional skill. Students are strongly advised to keep records of their group meetings, including attendance and minutes.

The first lecture introduces the principles of master planning. A field trip to the site in the first week introduces the site and shows students the larger context in which the site sits.



Figure 2 Trip to see the site

A second lecture, roughly half way through, presents several examples of urban space to reflect on the design principles being taught in the class. International examples of master planning provide the basis to explore the idea that master planning is a political process as well as a technical one. The examples vary, and have included master planning in Bangladesh and post-earthquake Chile (both presented by PhD students as guest speakers).

Resources for the project plan and the computer classes are made available on the e-learning platform provided by The University of Manchester. These include local plans relevant to the area, several key policy documents, and examples of master plans and graphic presentation of ideas. Computer skills training integrated into the module takes students through the stages of downloading maps, and producing figure ground maps, townscape and landscape and ecological analyses. Key information about how to download maps and develop the graphic materials using the software is made available to students between classes, so they can direct their own learning outside of the classroom.

For the exercises in the first few weeks, the tutor places the students in groups. The environmental management/studies students and exchange students are distributed as evenly as possible amongst the otherwise randomly assigned groups. Group sizes are kept as close to a maximum of six as possible, with a minimum of five. Students stay in these groups for several sessions, but are allowed to change groups before the core assessed work begins (with the same restrictions on sizes). It is hoped that the early random mixing of groups will introduce more students to each other, and encourage them to work with people they do not know, while allowing them freedom to choose their groups for the main part of the module work. This reduces, but does not eliminate, complaints about 'free-riding' since students are given the option to choose who they work with.

The first studio class aims to develop an understanding of the site. The first exercise is for students to develop a map based on memory of their impressions of the site, working in groups and then rotating to see how the other groups have remembered the site. Tutors ask students not to use Google maps from their phones or any paper maps for this exercise.

This is followed by using Ketso to analyse the existing assets of the site, and to develop a few creative ideas for future options. Key themes are given on the Ketso workspaces, to ensure that students consider the site from a holistic perspective. This is achieved using the EASEL framework, an acronym for **E**conomics, **A**ctivities, **S**ocial, **E**nvironment (built), and **L**andscapes and Ecology, that was developed through research with community members in North Manchester (Tippett, 2004). Using EASEL's simple structure for every group allows students to consider the site from many angles as well as to compare ideas between groups. They can easily see the number and types of ideas that other groups have clustered under the same themes.

Following the analysis of existing assets and some creative thinking, students swap tables to review what different groups thought was positive about the site and to see a range of these initial creative ideas. They are asked to use icons and comments cards to show what they think is important on the other tables and add questions and comments. They then return to their tables to see what comments were left for them, and are asked to consider the problems and challenges of the site, and to develop solutions to these challenges.



Figure 3 Students using Ketso to develop ideas

Students are then asked to consider as many options as possible for the future of the site. A simple role play is introduced as an exercise. Each student is handed a strip of paper with a different role written on it (such as dog walker, person in a wheel chair, teenage boy, twenty year old person on benefits, woman with two children, person with mental health problems, elderly blind lady). They are asked to consider what might be missing in terms of their earlier analysis of the site (assets, problems, and so on) from that person's perspective, and what new elements or future options may be important to that person. This exercise usually engenders an interesting discussion, which can be guided to help the students realise that they need to learn to ask others what is important to them, not just presume that they will be able to work it out from their own (necessarily) limited perspective.

In a plenary feedback session, students are asked to reflect on why this particular order for asking questions was chosen, and how they might have responded differently if they had started with the problems instead. This enables a discussion about power and voice, especially concerning the different results that nuanced questioning generates: should planners go to a community and ask what the problems are, or begin by asking people about what they like about their area and what assets they have? The former sets up the professional planner as an expert with answers; the latter encourages a more creative and capacity building approach from the community members (Tippett, 2004).

In the second and third studio class students are asked to produce analytical maps using trace paper and sketch maps: developing 'bubble diagrams' of functions and connections, analysing the movement system, or road hierarchy, considering habitats and ecological connections on the site, as well as how it fits into a broader ecological context, and drawing

upon Lynch's (1960) concepts to analyse the 'image of the city' or the 'townscape and landscape'. These maps are developed into digital files and coordinated into a rough draft of a poster displaying the site analysis.

Drawing analytical maps is the stage where students first begin to work in groups directly on the material that provides the basis for their assessed grades. Students are asked to reshuffle into their chosen final groups for assessment purposes by the third studio class. The extensive use of Ketso and interactive group discussion in earlier sessions means that they have had a good opportunity to learn how they work in the teams they were randomly assigned to, and have had an opportunity to meet new people or get to work with people they are not accustomed to working with. Once in their final groups, students use a Ketso grid to map out the key stages of the project against the deadlines and to discuss the roles and responsibilities of each team member to achieve these goals.

The fourth studio class introduces the 'RoundView' framework for sustainability and decision making, which is based on the Natural Step (Robèrt, 1991, 2000; Holmberg, 1998; Martin, 2008) and which was developed through recent action research by Tippet *et al.* (2009a; 2009b, 2010). The RoundView provides a scientifically grounded framework for a 'change in direction' – to inspire, inform and engage people in the creation of changes and practices that lead society towards a truly sustainable dynamic. Many of the students have already been introduced to The RoundView during their first year, so this acts as a review. The students who have already been introduced to the framework are given slightly different exercises, to encourage them to remember teaching from their earlier modules whilst the new students are being taught the principles for the first time.



Figure 4 RoundView guidelines being taught using hands-on teaching graphics

During the session, students brainstorm about the key sustainability challenges for the site and ideas for enhancing sustainability as they relate to each of the core guidelines of the framework. This deepens their learning about the framework and helps the students develop more ideas regarding the site's possible futures. The groups compare their ideas by swapping tables, and this usually demonstrates to them that there are several possible ways to move towards sustainability, even on one site.

One future innovation may be to incorporate thinking about more than one level of scale into this creative exercise. This could help students see the wider context that the site fits into. Innovative sustainability solutions may be triggered through a consideration of interrelated scales. One method could require the students to complete some very brief exercises around creative visioning for the site during the teaching of the RoundView. Students can then work to apply these ideas in more depth, working in groups at different levels of scale. This exercise would use the same framework for organising ideas as for the earlier analysis and visioning exercise (EASEL), to deepen the students' understanding of the multi-faceted approach required for integrated design. Using the same structure and language of design allows for easier integration of the new design ideas with the earlier analysis and development of options.

One or two groups would develop ideas for sustainability at the neighbourhood level of scale (for the site). These students would collate and synthesise the ideas from all of the groups in the earlier exercise. Collating these ideas would be facilitated by the use of Ketso leaves for capturing ideas in the first exercise around brainstorming ideas for sustainability, so they can be synthesised and further developed on a new felt workspace. Further groups would work variously at the landscape level of scale (organised around the whole river valley), at the city-region level and at the regional level. It might also be useful to have a group working on the project level, developing detailed ideas for a particular area or aspect of the site, such as energy systems or water harvesting. This exercise would be used to introduce the systems thinking principle that effective intervention requires consideration of at least the levels of scale above and below the core focus (Fraser, 2010; Gibson *et al.*, 2000; Hjorth and Bagheri, 2006; Checkland 1992).

Students would consider existing assets that could be used to help achieve sustainability at these different levels, as well as future possibilities. They would swap groups several times so they can compare and contrast key issues and ideas across levels of scale. By asking students to reflect on what is similar and different at the different levels, this approach may help to reduce the occasional self-limiting occurrences of students not engaging fully with the creative process, remarking that "we have already thought of future options for the site".

During the early computer cluster classes, students complete exercises which build their skills in digital graphics software (Photoshop) and acquaint them with the possible sources of spatial information for the site. Information about these sources, and the spreadsheet of ideas typed up by the students from the Ketso exercises, is shared on the University's e-learning platform for all students to draw on.

The first hand-in comprises a draft poster board of the analysis work, a series of sketches of future options for the site, and a formal five minute presentation to the entire class. This provides an ideal opportunity for the tutor to give verbal feedback to the groups, doing this after three sets of posters in a row are presented. This enables the tutor to draw out the similarities and differences and to compare the ideas in the different submissions. Through the contrast and comparisons, students learn from each other, see areas of excellence and areas in need of improvement. As they discuss each others' ideas, they develop an understanding that judgement, as well as technical ability, is a key skill for planners. Students are asked to improve on their work based on this feedback in the computer cluster class which follows this submission.

A change that is being considered for future years is to split both the formative and summative feedback sessions into two, requiring students to attend just one of them, in response to students' comments that this is a long and tiring session (taking several hours). This might allow for more time for students to do their own peer assessment of work, and to assign grades to the different submissions, including their own, in their groups. They can later compare these to the actual written feedback and grades given, which might help them engage more fully with the critical assessment.

Following the feedback, a brief exercise reviewing the group process and the action plan created earlier is also included, both to endeavour to reduce tensions in the groups that may have arisen and come to light in the first submission, and to encourage students to carefully plan their remaining weeks before the final submission.

The studio after the first submission explores three dimensional design, using modelling clay to understand the forms of the site, and also to make the point that it is much less costly to try options and make mistakes with small lumps of clay than with real landscapes. Students are encouraged to draw on the creative ideas and analysis developed in the earlier Ketso and mapping sessions. They are asked to consider the existing assets as developed in the early analysis to make sure that their proposed designs do not destroy the strengths that make the site distinctive. They are asked to consider how spatial arrangements may affect the ideas proposed for sustainability, and how the options developed might actually look on the ground.



Figure 5 Students working with modelling clay to model future options for the site

The next studio continues the design process, further developing options and alternatives for the site. Students review their developing design ideas for the site against the ecological and sustainability criteria introduced earlier in the module, and to ensure that they are incorporating the ecological and historical context in the design process. The final studios develop, test and finalise the master plan ideas as well as detailed designs for sections of the site or components of the plan (such as green infrastructure, road layouts and water management).

These plans and detailed designs are developed into high quality graphics in the final computer sessions. Principles of graphic communication are introduced (e.g. Tufte, 1990), along with examples of good graphic communication and examples of ways to present master planning posters.

Assessment and feedback

Students present their project work to the whole class on two occasions and are thus able to receive both formative and summative feedback. Verbal feedback is given by the tutor directly following the presentations session, followed by more detailed written feedback. The Ph.D. tutors (and occasionally an external tutor with professional experience) actively provide a supportive role in the studios by giving continual feedback as the students discuss their ideas in their groups.

The importance of the individual reflective learning journal is signified, as it forms an integral component of the overall mark. As this is written in chronological order, it allows students to see the real progress that they have made to their learning in a mere twelve weeks.

The weight given to the three-stage assessment is as follows:

- **Formative feedback (group work) – week 6** The first submission comprises a group presentation (five minutes per group), a draft poster board summarising the analysis of the site and sketch diagrams developing draft options for the future of the site. This is worth 15% percent of the mark. Students are also required to submit a peer assessment sheet, which is used to flag problems and triggers a group meeting with the tutor and a formal warning of possible changes to the final mark if significant discrepancies in levels of contribution are evidenced.
- **Summative feedback (individual work) – week 11 or 12** Students submit their individual reflective writing learning journal, which is also worth 15% of the final mark.
- **Summative feedback (group work) – week 12** Students are required to present their final submission in the form of three A1 poster boards, showing respectively: analysis of the site, the full master plan and detailed designs with analysis of the master plan. These poster boards are accompanied by a five minute presentation from each group and a group report of 1,500 -2,500 words that develops these ideas in more detail. This is worth the remaining 70% of the mark. Students submit a further peer assessment sheet for the group work with this assignment.

Feedback on the new module design

Student feedback

Feedback has been gathered from anonymous module assessment questionnaires, informal discussions, as well as from the reflective journals over the last three years. Overall, feedback has been positive.

Qualitative feedback from the module suggests a reassuring degree of student satisfaction:

“The module was interactive, enthusiastic and informative”

“Useful skills learnt for the future career as a professional planner”

“Constant feedback was very beneficial”

“Highly realistic and an interesting use of new learning”

“The teaching was good and I felt that I benefited greatly”

In response to the question, what helped them learn, comments included:

“Very hands-on about doing and learning by doing”

“Feedback gained from Joanne for the presentations benefited everyone”

“That it relates to real life practice”

“To work as a real planner, to do both individual and group work”

“Interesting group work”

“Using alternate versions and methods of looking at and understanding a subject”

“Having lab work, studio work and lectures made learning more fun”

“Liked the flexibility – felt that we could really add our own personal touch to the posters”

Some negativity was expressed regarding the overall amount of work when compared to other modules – group work is thought to be more demanding throughout the module, rather than leaving the students to their own devices and timelines. Several individuals would prefer to work on their own and felt that their marks were affected by being forced to work in a group. The majority, however, recognised the value of working in a team to develop a more comprehensive approach to the site than would have been possible on their own.

A new approach was added in the third year of running the module in this fashion, following feedback about frustration with a lack of attendance of some students in the workshops and class, which was negatively affecting contributions to the group work. Five ‘pop quizzes’ were added. These can be called at any time the tutor chooses during the class time. Failure to hand in a signed slip of paper with the answers (without a sound excuse such as illness or mitigating circumstances) results in the loss of 1% per quiz from the student’s final mark. Thus up to 5% can be lost for lack of attendance in class. These pop quizzes also enabled the tutor to give instant feedback on the students’ understanding. Simple multiple choice questions range from information about the site (e.g. how many travellers’ sites or listed buildings there are within the site’s borders) to the components and aspects of master planning (e.g. around the purposes of figure ground drawings). As the answers are given directly in class, there is no need to mark the papers, only to tally them against the names in the register. Verbal and anonymous feedback on this new development was largely positive, with several students commenting that this at least gave some incentive for the less conscientious students to come to the workshops.

Negative comments have also concerned the timing of the module (group work was made more difficult in 2010-2011 due to a late Easter holiday that fell shortly before the final assignment) and the fact that the large group work assignment has often come at the same time as several other group work assessments in other modules, making scheduling group meetings difficult.

Although taxing, the Settlement Project is generally seen as a class that gives the students a chance to develop their practical skills and apply the ideas they are learning on other modules, deepening their understanding. It is seen as a learning experience that enables them to develop as professionals. This view has been reinforced by individual feedback to the tutor from students in subsequent years, who have commented on how much they

learned in the module and how much they have used that knowledge in their subsequent studies, in particular for several in their design-orientated dissertations.

Feedback on the use of Ketso

In 2010-2011 data was collected in particular about the use of Ketso in the teaching process. The feedback was very positive, as summarised in the graph below.

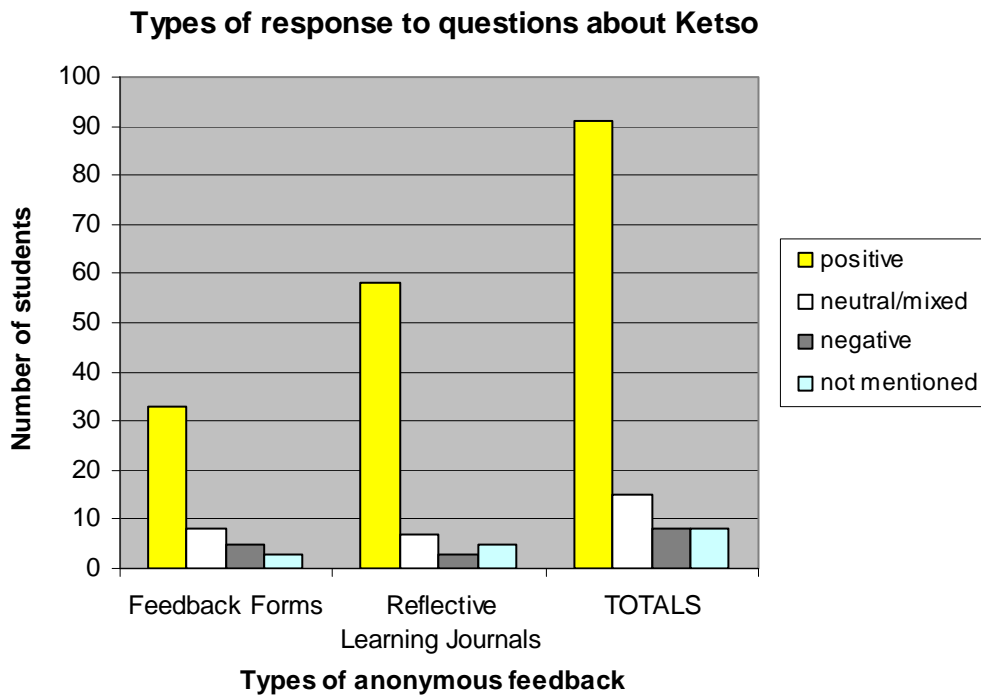


Figure 6 Graph showing feedback about use of Ketso in class

The use of Ketso as part of the design process proved to be a key innovation in this module. It pulled together teams and changed the way that students approached master planning the site.

A small number of students felt the use of the toolkit treated them like children (perhaps due to its colourful and hands-on nature). This comment was echoed by a few students for the modelling clay workshop, which points to a need to better frame the value of using ‘play like’ tools to develop serious questions and creative thinking. A few students mentioned that they did not like the use of a bell to signal for different stages of the process, one saying it made them feel “like a parlour dog”. The tutor finds that the use of such a device is essential for managing such a large class and for calling for quiet for stages of instructions and feedback without resorting to shouting above the noise of so many people talking.

Qualitative feedback about Ketso included the following responses:

“This brainstorming session was extremely useful, we found ourselves thinking about aspects of the site that we hadn’t even considered...One of the things I was amazed at was that we had so many ideas, as a group we were bouncing ideas off each other

taking one member's idea and developing it, and this made me very optimistic about the future of the module and strengthened my positive attitude which has continued throughout the module."

"I found it very useful personally as coming from a different country sometimes I will struggle to put my thoughts into perfect academic sentences when conversing with the lecturers or peers, but having to write down just key words about the site made it so much easier for me. It was a very interactive and creative activity to build up our thinking about the site."

"Previously I have found that working within new groups can be tedious and often unproductive, Ketso was successful in overcoming these issues. I can understand the value of working in a group on projects such as this, as other people contributed to the discussion allowing for broader and more diverse ideas."

Reaction from the Graduate Teaching Assistants

As mentioned above, the skills of former and existing Ph.D. students helped to deliver particular elements of the module. A new GTA on the Settlement Project during the 2010/11 academic year was making the transition from teaching small group seminars (typically 10 - 12 students) to co-managing a large class. With a background in architecture and heritage, but no prior experience in master planning, Ketso enabled this GTA to make connections with the class and play an active role in helping to shape the contours of the group discussions. Having a focal point around the individual felt workspaces meant that questions and comments came naturally. The process was mutually beneficial. Students learned from the particular skills the GTA brought in paying sensitive attention to existing heritage. Yet the GTA also learned from students, particularly their approach to solving problems. Reflecting on the class afterwards, she wrote:

"Having attended Dr. Tippett's research presentations and considered her journal articles on the RoundView and participatory planning, I could observe the real changes in thinking processes at first hand. The students took charge and embraced a positive approach to problem solving rather than simply focusing on the negatives. Before the end of the studio using Ketso to develop a project plan for the group, most groups had easily worked out a task load for each member and were arranging to keep each other up-dated using social network media, which I found impressive. I did not feel pressurised at all and had confidence that the students would reach a successful conclusion."

Conclusion

Watching the final projects come together and being able to give feedback to a room of seventy plus students is challenging and rewarding. The sessions themselves require a degree of energy and attention to the group process to synthesise key learning for the whole room. The final group presentations clearly demonstrate the progression of the students over

the course of the semester. They experience the integrative process of creating a master plan, and have an opportunity to develop a range of transferable skills through the process. The skills learned include: communication, synthesis of ideas from a range of disciplines, applying the principles of sustainability to a real site and working in a group on a challenging and complex project. Feedback to students emphasises the fact that they will be able to use these skills in their future careers, even if they never draw a plan again.

The assessments demonstrate student application of theoretical ideas of design and sustainability to a practical project. The process of feedback and review enables the students to see their reflective and creative skills develop. The reflective learning journals are particularly worthy in this regard, as students internalise lessons from embedding different approaches to learning. By reflecting on their own learning habits, they should usefully be able to apply these to their professional practice as well as the more abstract ideas concerning urban design, stakeholder engagement, place making and planning for sustainability that they encounter in the rest of the degree.

The hard work of designing a module to allow students to experience a studio project and to gain feedback throughout the module to guide their learning has paid off over time. These ideas can be widely replicated in teaching in the built environment, particularly where resources are tight. Ideally, students should not be denied the opportunity to work on a real site and apply theories in practice because of pressures on tutors' time and the move towards larger classes. The innovations trialled in this module enable an interactive studio experience, with a high degree of feedback, to be created for large classes.

Hopefully this article, as well as the open resources and workshop plans available on the [Ketso website](#) will make the ideas developed on this module more widely available to built environment colleagues, to enable more of such modules to be taught.

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