THREE PATHS THROUGH THE FOREST: AN EXPLORATION OF THE TEACHING-RESEARCH NEXUS

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INTRODUCTION

There are varied and sometimes conflicting views over the relationship between teaching and research in higher education. This frequently manifests in a complex and oftentimes contentious association between them, including whether it has a positive, neutral or detrimental impact on the quality of students' learning, and where academics' priorities should lie. There is evidence to suggest that national research audits can isolate research from teaching,[1] at both institutional and individual levels.[2] It has also been argued that there is no simple functional relationship between quality of research and quality of teaching at an institutional and departmental level, where teaching and research are often organised separately and with limited thought given to how they might be linked.[3]

This paper explores three different constructions of the teaching-research nexus: research "informed" teaching, research "through" teaching, and research "of" teaching. It questions how they can best affect positive contributions to students' and academics' higher education experience. A central argument lies in the conception that both research and teaching revolve around "learning," by both students and teachers, and the paper critically reflects on research projects within each interpretation. A key concept within the nexus as explored here is the direction of travel constructed between teaching and research.

RESEARCH "INFORMED" TEACHING

In research "informed" teaching, discipline-specific research contributes to the content of the curriculum – even if conducted independently. This research may be undertaken by an academic, who then incorporates it within their teaching. One significant value associated with this approach is that students' learning embodies the most recent developments within the discipline, and is therefore progressive and at the forefront of knowledge. This is the most conventional conception of the teaching-research nexus; however, it is one of questionable significance. In their meta-study, Hattie and Marsh conclude that the correlation between teaching quality and research productivity is effectively zero.[4]

Writing in the context of built environment disciplines, Griffiths identified two ways in which research informed teaching might manifest: firstly, where the curriculum is structured around subject content, selected on the basis of specialist research interests of teaching staff; secondly, where the curriculum places emphasis as much on understanding the processes by which knowledge is produced within the field as on learning the codified knowledge that results from such research.[5] His concern with the former is that it may reinforce traditional transmission-orientated approaches to teaching. Consequently, this can result in a one-way street between research and teaching, thereby limiting students' agency within the process. Furthermore, in the first scenario it could be argued that this approach reinforces the division between research and teaching and the conception of them as two independent activities, whereby teaching benefits only from the product of research, and not the process itself. Research tends to be practiced and redirected outside of the practice of teaching, potentially to the detriment of teaching quality.

The term itself, research informed teaching, implies that research comes before teaching, that research leads teaching, so as to inform the content of what students should be learning, as opposed to research

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and teaching being perceived as symbiotic processes that are of equal value. Another issue associated with Griffith's definition is that the teaching curriculum is structured around content based on the specialist, and potentially idiosyncratic, research interests of the teachers – which is not necessarily the most appropriate content.

However, as Hattie and Marsh highlight, research informed teaching does not necessitate that teachers are the author of the research that informs their teaching, and that they have to generate research in order to be effective teachers.[6] As such, teachers with an enthusiastic scholarship of their discipline, although not active researchers themselves, can inform their teaching with contemporary research, so that it remains at the forefront of knowledge in the discipline. Teaching can thereby reap the benefits of a research informed approach, but without manifesting some of the tensions of the teaching-research nexus.

Over the course of several years, architecture students studying for their undergraduate degree at Liverpool John Moores University (LJMU) have been offered a project option to design a library. The studio design teacher offering the project has conducted a number of research projects in the field of library design, which include studying how these civic institutions are changing in response to the digital revolution, the crisis of public sector funding following the global financial crisis, and changing patterns of occupancy and use. This research has been utilised to inform the studio design project. When preparing background reading material for the project the studio teacher's research outputs were deliberately not included, to minimise the extent to which their findings influenced the students' creative exploration. However, the understanding of issues facing this building type gleaned through the research informed writing the briefing documentation and compiling reference material, to encourage the students to reflect on and engage with the salient issues that face libraries. Similarly, relevant research by others and exemplary precedents have informed the teaching process in studio. One striking outcome of these projects, reinforced over several years, is that students always find a primary place for physical books within their libraries, although the symbolism behind their inclusion varies considerably.
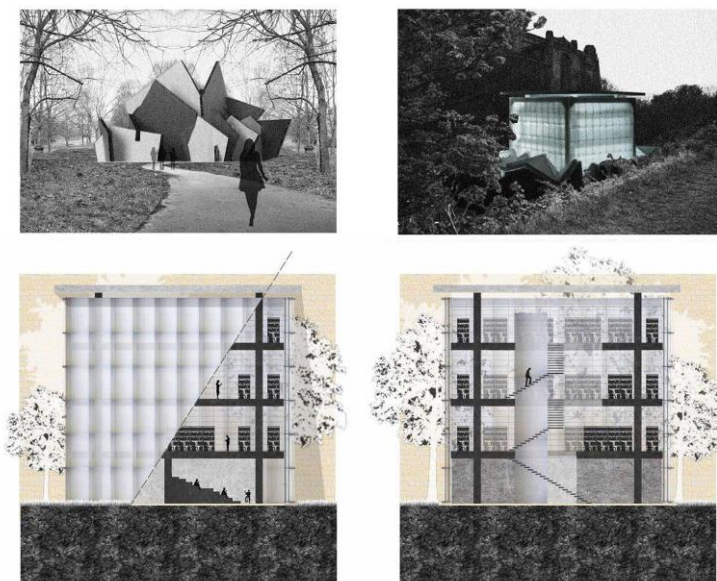

Figure 1. "Thinking Inside the Box" library project, by Level 5 student Jarrod Towson

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Time is one of – if not the – most precious resources, as more of it cannot be created. Academics' time is increasingly being torn between different demands, including teaching, research and administration. This is one dimension through which tension within the teaching-research nexus manifests. Where teaching and research are conceived as two separate activities that are isolated from each other this tension will be exacerbated, as two independent priorities strive for attention. Arguably, there must be more fruitful and engaging means through which to conceptualise and practice the teaching-research nexus. One of these is students collaborating in research projects with their teachers.

RESEARCH "THROUGH" TEACHING

Robinson describes research as the systematic enquiry for new knowledge, and questions why creativity – the process of having original ideas that have value – is often not considered to be research as a source of new knowledge in an academic sense, and producing original works often does not count as appropriate intellectual endeavour.[7] Research "through" teaching places students' creative project work at the core of discipline-specific research, so that teaching becomes the catalyst for co-producing work by students and teachers. Students' projects become embedded within wider contexts of real-world problems, grounding their work outside of the academy. Here, the conceptualisation of the design studio as a vehicle for research, through experimentation and critical discourse, can gain traction – not least as original thinking and innovation are fundamental elements of both studio design and research processes. Given that inquiry-based processes are inherent to creative exploration, research through teaching is especially suited to design disciplines.

In research through teaching, it is students' creative learning methods and the outcomes associated with them that lead research, and which drive the path that it follows. Student coursework, in the form of project-based learning, provides material for research. Their project work generates the medium for analysis and evaluation against wider concepts and issues, and it is here that the main research "through" teaching processes lie. Put another way, the students' projects are the research data. What is not being discussed here is the established practice of teachers and (doctoral) research students collaborating; rather, the much less common practice of undergraduate and taught postgraduate students working in conjunction with their studio teachers on research projects.

This approach places students' project work at the core of discipline-specific research so teaching becomes the catalyst for co-producing work by students and teachers – working partnerships with students as researchers. Thomas identifies the value of and need for activities that encourage collaboration and engagement between students and members of staff in nurturing student engagement in a richer manner.[8] Research through teaching provides an opportunity to recast the student-teacher power dynamic, so that students and teachers become equal partners in the development of research projects.

A critical factor when designing coursework to explore research through teaching is that briefs for problem-based or enquiry-based projects should be developed around a theme that is pertinent in the context of contemporary issues outside of the university, to explore a problem that has relevance beyond the purely academic. Examples of this might include housing, which faces numerous challenges over a chronic shortfall of provision in the UK, or library design, where there are myriad issues over funding, the diversity of programmes, and the nature of public engagement.

In this sense, the research through teaching approach can be aligned with Neary and Winn's concept of "Student as Producer": "… undergraduate students working in collaboration with academics to create work of social importance that is full of academic content and value…" and which "… aims to radically democratize the process of knowledge production at the level of society."[9] It is an approach that can rebalance the student-teacher power dynamic, and facilitate collaborative research which addresses real issues within wider society.

An example of a research through teaching project involved students enrolled on the first year of the taught postgraduate architecture programme at LJMU. During the second semester students engage in

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a housing design project, which takes place over twelve weeks, choosing between one of three typical dwelling types: terraced, detached / semi-detached, or an urban block. A raft of challenges face new housing design in the UK, at the forefront of which is a triumvirate of interrelated needs: to make dwellings more spacious, more affordable, and more sustainable. Each of these is important in its own right, but are they reconcilable? The students were challenged to translate these three priorities into their design proposals. As theoretical projects they were inherently permitted a high degree of intellectual and creative freedom, and consequently their designs could push boundaries in exploring what housing could be. In the first instance their project work was presented as part of a presentation at an international conference on housing, after which the studio design teacher was invited to write a book chapter that utilised the students' projects to illustrate key trends and potential solutions to the challenges that currently face new-build housing.
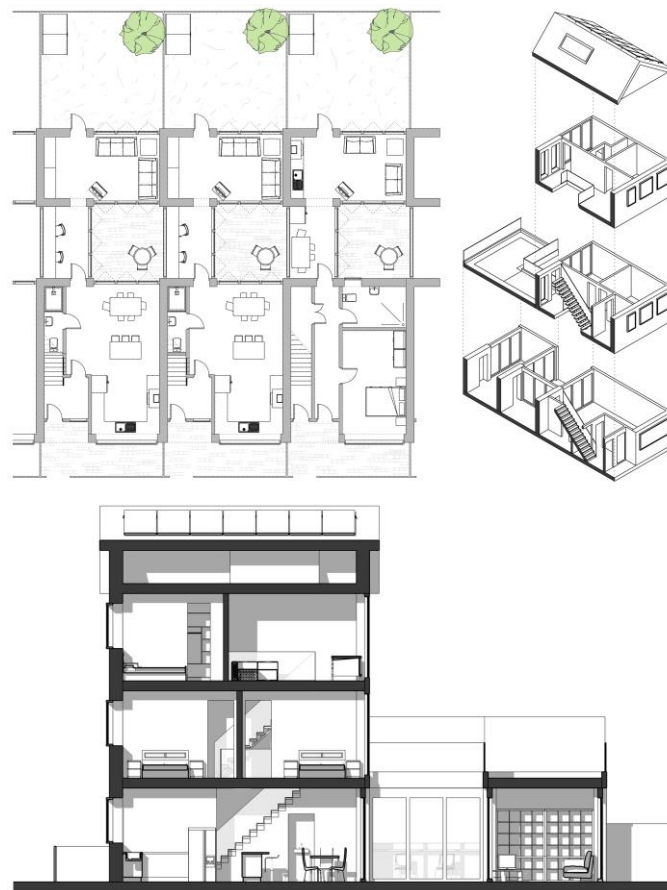

Figure 2. "The Courtyard" housing project, by Level 7/1 student Omar Shariff

One of the challenges in research through teaching, especially in creative disciplines, is that students' project work is inherently divergent. Their trajectory can be unpredictable, tangential and unexpected. Whilst potentially disconcerting for the teacher-researcher, this quality lies at the essence of what makes the process valuable as a research methodology, where the creative insight of numerous different minds exploring the same problem can reveal unanticipated outcomes and solutions.

Another potential issue inherent to this construction of the teaching-research nexus is that, like research informed teaching, the field of inquiry that establishes the topic of students' project briefs, is

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based on the specialist, and potentially idiosyncratic, research interest of the teacher. Should it be that students' coursework is directed in this way, and that students' coursework is utilised as the data for their teachers' research outputs? In a market-driven sector where discourses of students as consumers are rife, the notion of students as partners can represent a counter-narrative to the consumer model.[10] This might create a new tension in the teaching-research nexus; or it could provide an opportunity to rethink how students define the path of their own learning and higher education experience, and how their learning can positively impact society outside of the academy.

Nevertheless, students may question why they are contributors to their teacher's research, and how they benefit from it. Students' learning experiences may gain more advantage from research orientated toward enhancing pedagogic practices, to which we turn to next.

RESEARCH "OF" TEACHING

Whilst pedagogic research has gained considerable traction over the recent past, it is argued here that research in the methods and practices of learning and teaching can be perceived as having less significance and value than disciple-specific research. This undermines its legitimacy and currency, to the detriment of enhancing the quality of students' leaning experiences, creating another dimension of tension within the teaching-research nexus.

Research "of" teaching as discussed here explores the means and value of students as participants in pedagogic research. However, the nature of participation differs from that within research through teaching. In the latter, students are partners within the research process, in that their project coursework forms part of the data and methodology of the research project. In research of teaching, students participate through sharing their experiences of learning, teaching and assessment methods. This may be to understand the cognitive process involved in learning – how students learn, or to understand the impact of different pedagogic approaches on their learning experience – identifying what they value and what they do not.

Whilst those within the upper echelons of university management often place significant credence on student evaluation surveys, those at an academic level can see less value in them – questioning the validity of quantitative and qualitative data where response rates are low, or being dismissive of respondents questioning established learning and teaching methods and subject content. Dissenting teachers might argue that students are not in a position to know whether or not particular teaching and assessment methods are appropriate and of value to their learning. Research of teaching is the process of holding up a mirror to our own teaching practices, one that can reveal harsh realities, which for some may prove uncomfortable viewing. However, the students' voice can be a powerful and insightful tool within pedagogic research to enhance their learning experience, without which teachers are blind to the consequences of their actions and cannot act to improve the quality of learning.[11]

Capturing the student voice effectively can prove challenging. Online surveys are often afflicted by low response rates.[12] Distributing paper copies of questionnaires in class may return higher response rates, however transcribing the resulting data can prove very time consuming. Here, though, lies an opportunity to recruit student interns to assist with transcription and data analysis – creating an additional dimension through which to engage students as collaborators in research projects.

An alternative method for capturing the student voice is focus groups. Here, small groups of students are brought together to discuss a topic. A significant benefit of focus groups is that discussion around the subject can open up dialogue and understanding, revealing hidden perceptions that may otherwise have gone unvoiced, and views can be questioned to understand their reasoning, and challenged or reinforced by others within the group. The groups are usually facilitated by a moderator, often following a semi-structured set of questions or prompts, to guide the discussion and encourage contributions from all participants.[13] However, in pedagogic research where the moderator is also a member of academic staff, participants may be reticent to voice their true feelings, for fear of subsequent retribution or bias. Here again lies the opportunity to recruit students as research assistants,

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who are more independent in their position. They can also transcribe the discussion, and assist with analysis.

Design pedagogy is often strongly associated with a socio-constructivist approach, where meaning is co-constructed through a social process of collaborative interaction in loops of dialogue.[14] Utilising focus groups and interviews with students as part of the research of teaching methodology thereby aligns research methods with teaching methods, creating a discourse-driven research environment that is very familiar to the students, through their experience of weekly studio tutorials and design reviews. This may explain why students have been so forthcoming with their views in pedagogic research projects in the architecture programmes at LJMU that have utilised these methods, which has attributed significant value to the outcomes of these projects, as the following examples illustrate:

> *"Those feedback sheets are the worst thing in the world. Half the time I can't read the person's handwriting, and then the rest of it they haven't put it in a clear way, they have just written odd words in."*
>> Undergraduate student, describing peer notes of design review feedback

> *"I'd try and get rid of the whole feeling of your being in front of a firing squad… you think if you get the smallest thing wrong he or she starts barking at me. It just feels demoralising."*
>> Undergraduate student, describing design reviews

> *"Read it. Act upon it. Lose it. Find it weeks later. Bin it."*
>> Postgraduate student, describing what they do with summative written feedback

> *"Although they do provide some clarity I feel as though they mainly waste time that I could be using either getting feedback from the tutors or other students or working on my projects."*
>> Undergraduate student, describing group tutorials

Asking students to volunteer to participate in a research project can result in recruiting only those who are more engaged and forthcoming in sharing their views. This has the potential to skew the resulting data, by omitting the views of less engaged or more reticent students. Anonymous questionnaires may reach the more reticent students, but do not facilitate the two-way dialogue of other methods. The recruitment process and the resulting data therefore need careful consideration.

One strength in research of teaching is that methods of learning, teaching and assessment within and across programmes can be enhanced through the outcomes that emerge from research projects, and – through the same research project – teachers can produce research outputs through writing up their project for publication.

CONCLUSIONS

A key concept explored through this paper is the direction of travel between teaching and research. Research "informed" teaching can lead to a one-way street, which in turn can foster a positivist model of teaching, where students are passive recipients of knowledge transmitted by teachers. A more proactive approach, where the direction of travel is largely reversed to go from teaching to research, is research "through" teaching; students become active participants in research projects with their teachers, increasing their agency within their higher education experience. In research "of" teaching there is a similarly constructive relationship within the nexus, but here research serves to evolve teaching and learning methods, to enhance students' higher education experience.

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Research "informed" teaching:

Research → Teaching

Research "through" teaching:

Research ← Teaching

Research "of" teaching:
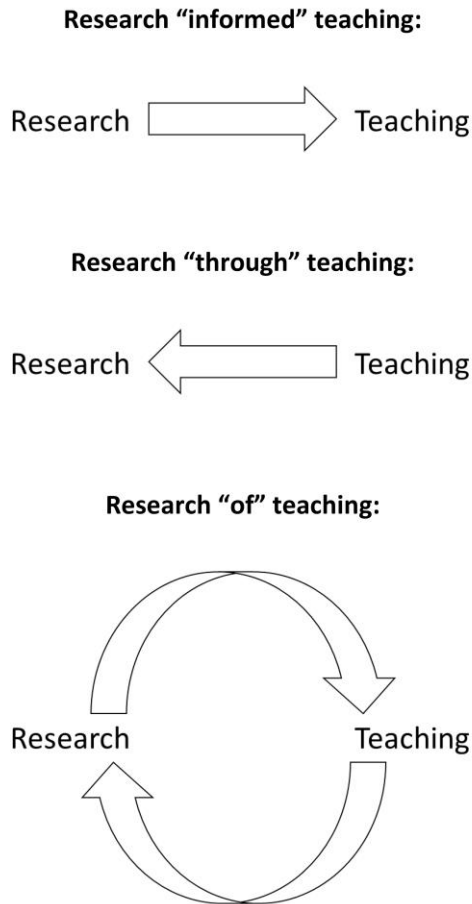
Research ⟳ Teaching

Figure 3. Three directions of travel within the teaching-research nexus

Hattie and Marsh contend that a central aim over the nexus between teaching and research, "is to increase the circumstances in which teaching and research have occasion to meet, and … for demonstrations of the integration of teaching and research."[15] That relationship can be significantly affected by the pedagogic methods of a programme,[16] as both research and learning are informed by the modes of inquiry characteristic to the discipline in which they take place.[17] As Griffiths highlights, teachers are bringing the processes of knowledge creation into their teaching, rather than the specific outcomes and methods associated with their research.[18] Arguably, studio teaching – with inquiry-centred and problem-based learning supported by one-to-one tutorials as the signature pedagogic method – is highly suited to fostering closer links between the two.

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