TEACHING AND RESEARCH: ESTABLISHING A LINK IN STUDIO-BASED LEARNING[1)]

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Abstract. The compelling ideal of modern architectural education associated with Boyer's (1990) framework is a scholarly collaboration by a relationship between teaching and research. Research enhances teaching through the introduction of new topics and methodologies. Research-based teaching stimulates better communication between students and lecturers as researchers. Students' comments and questions can improve the subject of future research. A model of research-based teaching can be structured to teach both research findings and processes. This model can be well integrated to current curriculum with emphasis on research-oriented teaching in which students take part in the research process. In this process, instructors use their research experience during their interactions with students. This paper discusses the establishment of the link between research and teaching in the built environment with cases from studio-based learning in Landscape Architecture discipline. The argument is that studio-based education should be accepted as a pedagogical method to take part in teaching research to make connections between architecture and other disciplines. This effort will position the education into a research-based setting and make proposals to re-orient curriculum so that researchers can teach what and how they research.

Keywords: design education, studio-based learning, research-based teaching, landscape design

Introduction

This paper focuses on the studio-based learning to stimulate the quantity and quality of landscape research. It illustrates the weaknesses of current curriculum of landscape architecture schools in Turkey and provides a discussion for future studies focusing on establishing a link between research and teaching. The basic question is how the landscape research projects would contribute to the quality of applicable work and teaching in landscape architecture schools. The interpretations specify that landscape architects should be more engaged in research activities to investigate many aspects of relationships between the landscape and human behavior. Outcomes of this paper will contribute to the integration of discourses in landscape architecture curriculum and the broader debate on the role of research-based activities on developing better design education.

This paper is structured in three groups: (1) investigation of problems in the current landscape architecture curriculum, (2) introducing the strategies for linking research and teaching, (3) description of proposals for structuring research-based studio courses in landscape architecture schools.

Problem 1: Curriculum development

Although faculty members in landscape architecture schools strongly believes in the importance of research in both education and design, a very limited number of schools in Turkey include at least one research-based course in their curriculum. Table 1 shows the list of landscape architecture schools in Turkey. Among 19 departments, only two include a research-based course in their curriculum.

Problem 2: Lack of research experts as instructors

Only a limited number of scholars in landscape architecture schools are capable of both conducting and teaching research. Faculty members should engage in more research activities and include students. This way, faculty will be experts in the systematic programming of research projects and curriculum development.

Problem 3: Exclusion of students from research activities

Research teams generally lack undergraduate and even graduate students. Inclusion of students to the research process might be the most effective way to teach research methods to students. Research-based courses in the curriculum provide more interaction between faculty and students, and students can then share their experiences with other students during scholarly discussions.

Table 1. Research-based courses for undergraduate students in Landscape Architecture departments

UNIVERSITY	CITY	COURSE(S)
Abant Izzet Baysal University	Duzce	Research Methods (6th Semester) Behavioral Psychology (8th Semester)*
Ankara University	Ankara	-
Ataturk University	Erzurum	-
Bilkent University	Ankara	Design Research (8th Semester) People and Environment (6th Semester)*
18 March University	Canakkale	-
Cukurova University	Adana	-
Eagean University	Izmir	Environmental Psychology (Elective)*
Istanbul University	Istanbul	Behavioral Psychology (Elective)*
Kafkas University	Artvin	-
Karadeniz Technical University	Trabzon	-
Karaelmas University	Zonguldak	People and Environment Relations (Elective)*
Mediterranean University	Antalya	-
Mugla University	Fethiye	-
Mustafa Kemal University	Antakya	-
Selcuk University	Konya	-
Suleyman Demirel University	Isparta	-
Sutcu Imam University	Kahramanmaras	-
Trakya University	Edirne	-
Yeditepe University	Istanbul	People and Environment (6th Semester)*

* Courses that teach environment-behavior models

Problem 4: Lack of common definitions: What is design-research and landscape research?

Designers have limited time to solve design problems and respond to the questions of their clients. Research, on the other hand, is a time consuming process. It may take years to gather the results of a research project, while both designers and their clients look for immediate results in the forms of drawings and illustrations. The definitions of concepts such as *design* and *research* are not interrelated in the traditional teaching and research approaches. Among faculty, there is no definite understanding of how landscape

research is conducted and which methods are essential. Topics for graduate theses and dissertations are very limited–students study the similar type of subjects, year after year. Variety is lacking in the final projects of graduate students. This is one of the reasons that a research-based curriculum would enrich the discipline. Additionally, different departments and faculties establish their own definitions that can result in communication conflicts.

Would Research-based Design Studio Be a Solution?

Landscape design education integrated with research utilizes educational theory to investigate the effectiveness of different learning approaches of students in developing new forms of design products. Specific issues include the design studio as a site for research and the connection between studio-based learning and practice-based learning.

Research-based courses are intended to engage students in real research projects, which may be very ambitious, professional-level projects leading to the acquisition of potentially publishable data. In these courses, faculty members have the chance to share their enthusiasm for research with students. Students are often motivated to work diligently for their own data, while gaining tremendous insight into the scientific process. The courses build the skills that students need in order to complete research project.

According to recent advancements, the structure of research-based courses is different from the structure of traditional teaching techniques. This means taking radically different approaches to course design, basing the syllabus on the skills and content needed for the end project rather than on a traditional focusing on the content and the subject. These interactions are well conceptualized in Healey's (2005) article on research-teaching nexus (Figure 1). In this framework, studio-based learning is related to studio-based teaching experience in which students undertake inquiry-based learning.

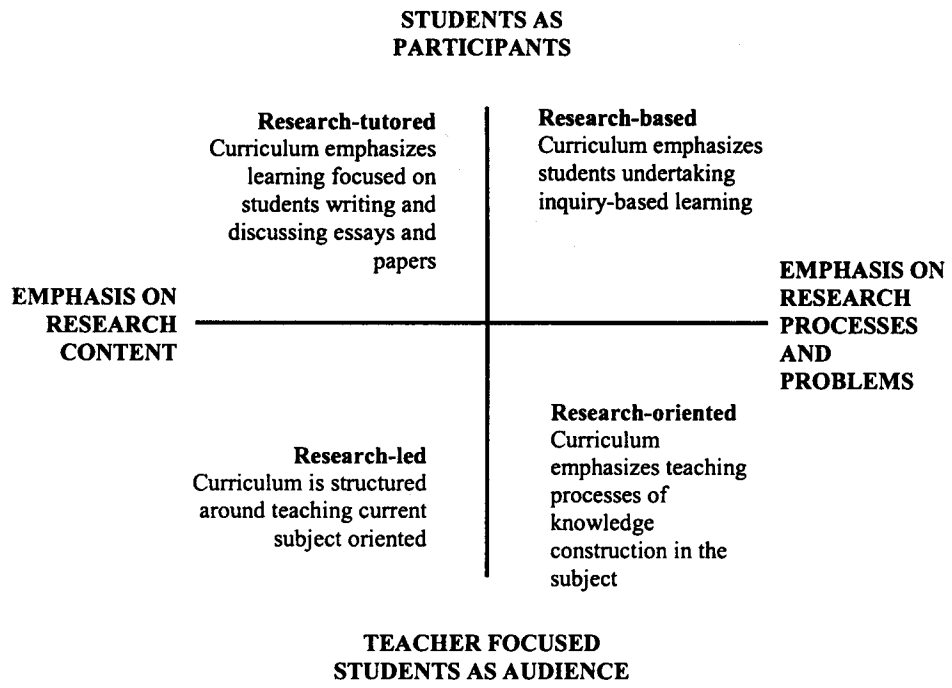

Fig. 1. Curriculum design and research-teaching nexus Source: Healey (2005)

Research-based studio teaching should teach research skills to students. The model should develop student awareness of research and develop students' ability to conduct research. Schön (1988) has proposed ideas to improve the quality of education in design studio. He argues that the process of presenting any body of knowledge as a product of scientific research is common but that the process that leads to such a product is hidden. We are introduced to the products of both research and design but have no chance to take part in the research process. In the case of design studio environments, the content is often presented as a tutorial in which students learn to make judgments. In this context, studio projects often lack ethical, political and behavioral focus. Here, the suggestion is that the design studio should provide a learning environment in which students engage in inquiry-based efforts to manipulate forms of their designs within social and cultural contexts.

The linking of teaching and design research is achieved when design students learn how research within design disciplines leads to new knowledge creation. Students are introduced to current advancements and trends in design research related to their disciplines, and faculty

encourage students to learn research methods. As a result, students ar motivated to learn through knowledge of and direct involvement in re search. What is learned in other courses is integrated with the content o studio work, along with the research process. Students learn to work a individuals and as members of a team, and they learn how research is organized and funded. One important goal of research-based studio learning is for students to feel that they are members of a university culture, within which learning, research and scholarship are integrated.

University faculty have responsibilities and duties to organize research-based studio courses. First, academic staff should be capable of using current research findings when designing and delivering courses. Faculty should be experts in conducting research and direct students in organizing research procedure, and should develop basic guidelines to evaluate both students and their research-based studio work. The evaluation methods should be flexible in pursuing and developing new guidelines for future courses and topics.

When teaching and research are conceptualized in ways that enable them to be effectively linked, there can be productive relationships between research and teaching. Hence, faculty members should design courses and organize teaching and research to ensure that students benefit from research (Jenkins, 2000).

Studio-based Learning: A Case from Ankara University

In Ankara University Department of Landscape Architecture, we have an 8-credit design studio course for the 4th year students. Design studio focuses on design thinking, problem solving and form development under the supervision of professors and includes the periodic lectures, desk critiques, and juries of preliminary and final design products. In the first weeks of the course, students collect data by conducting extensive literature reviews. During a field trip, they present their preliminary design concepts to the class and faculty to stimulate discussion on selected topics. Simultaneously, during the desk crit, the instructor critiques the quality of a student's process of design inquiry and ability to reflect on his or her own process of designing. In the last weeks, students finish their final drawings with illustrations and reports. A body of jury professors and guest designers judges the final projects. Evaluation of students is based on their progress during the course as well as the quality of the final projects. The end results are expertly drawn projects in traditional styles that are often defensible only on grounds of intuition.

Last year, in 2005, students of the design studio conducted interviews with the users of the North Campus site in Ankara University Faculty of Agriculture to develop a design theme based on the responses. Three groups of users (student, faculty and the employee) were asked the same questions in order to define the design problems of the site. The primary focus of the project was to define a fresh design scheme based on the necessities of the actual users. Designs were shaped based on both the natural topography of the land and the responses of the users. Results revealed that most of the users in all three groups defined the site plan of the campus area as problematic; they requested more seating areas and sport facilities on outdoors (Figures 2 and 3).

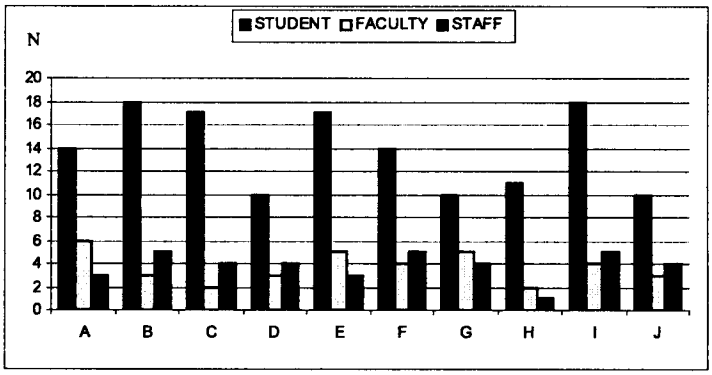

Fig. 2. Users' responses to the question: Which properties are problematic in this site?

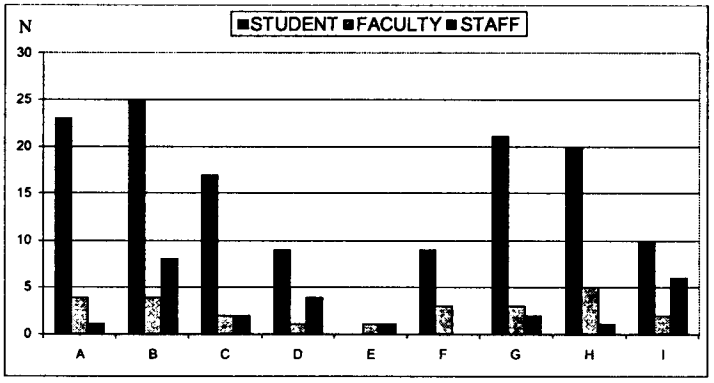

Fig. 3. Users' responses to the question: Which recreational facilities are needed in this site?

As a result of these responses, students listed a number of design proposals: a recreational axis as a main walkway; gathering spaces including seating, eating and resting places in the form of plazas; topographic changes with natural landforms to create an attractive site; increased visual and functional interaction with the surrounding facilities and structures; and distinct identity with natural landscape elements such as street plantings. The style of students is mostly natural with natural forms and curvilinear lines (Figure 4).

Landscape projects of the Faculty of Agriculture North Campus site in Figure 4 show students' tendency to include circular forms that are easily adaptable to the site. Approaches are more naturalistic relevant to the existing topography and design principles.

Behavioral Models in Developing Research-based Studio Experience

It is evident in both architectural and landscape design projects that designers give less attention to user needs and social aspects than to formal considerations. The existing research is focused more on structures than on human behavior. We may argue that there is a lack of research in the field of design teaching practices and design education. In this context, the study of environment-behavior models can be used as basic research methodologies in studio-based learning to promote more attention to human factors in design.

In this section, I emphasize environmental-behavior models that will enlighten the potential structure of research-based design studio course. These models have influenced the study of landscape architecture, and several design schools in North America include research-based design courses in their curriculum. In this process, researchers interact with their students during research activities; the results of the research are evaluated as course material.

Although research-based teaching is not a new concept in Turkey, there is scarcity in the usability of research results as course materials. Landscape design is composed of drawing techniques, basic design, plants and construction materials. Human behavior and the perception of the natural and built environment are the important concepts in the study of landscape. Nevertheless, „human" as a primary part of the environment-behavior models has not been widely accepted by the landscape community. During the teaching of studios, students usually exclude the human factor in the formation of their designs. Students have limited knowledge about the human behavior-environment systems due to a lack of courses that include or focus on the human factor, such as courses in landscape perception.

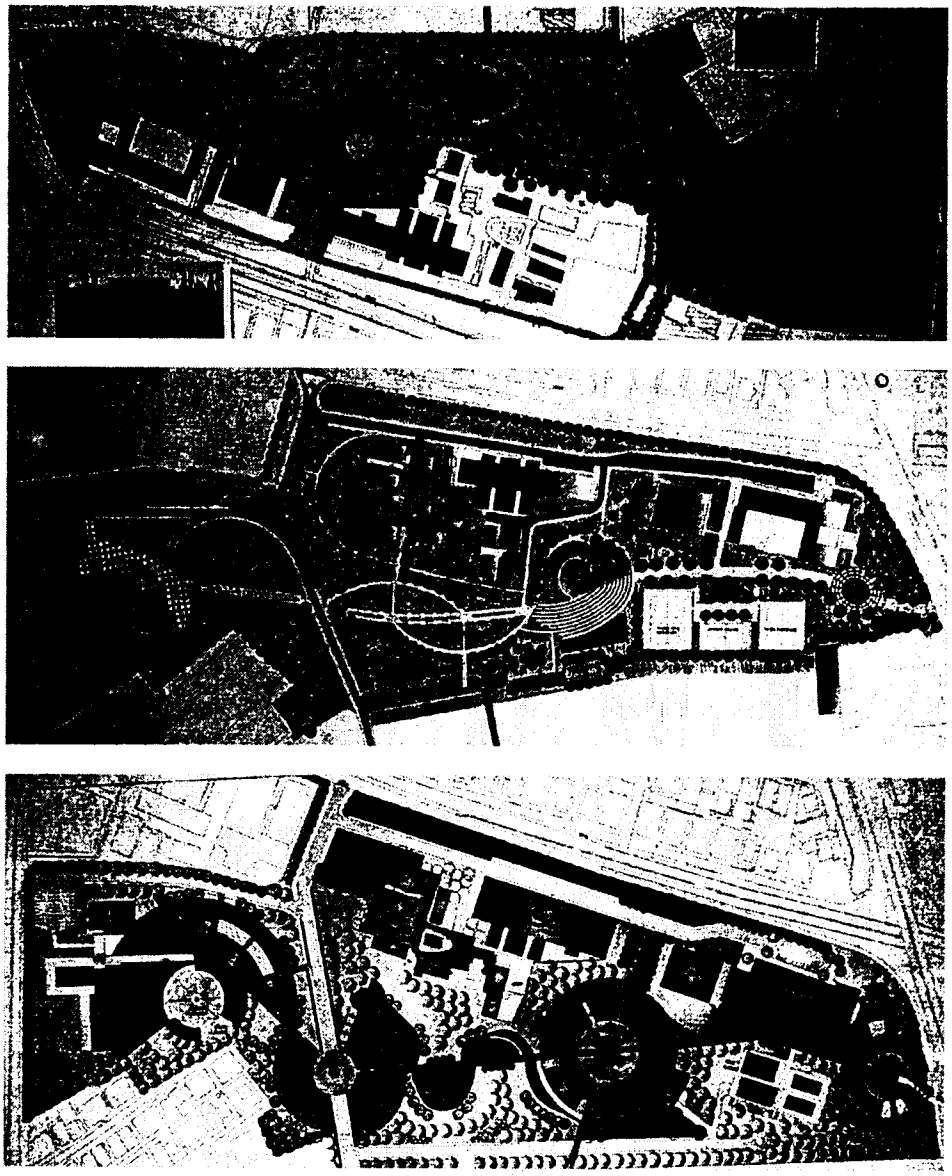

Fig. 4. Selected final projects of design studio students

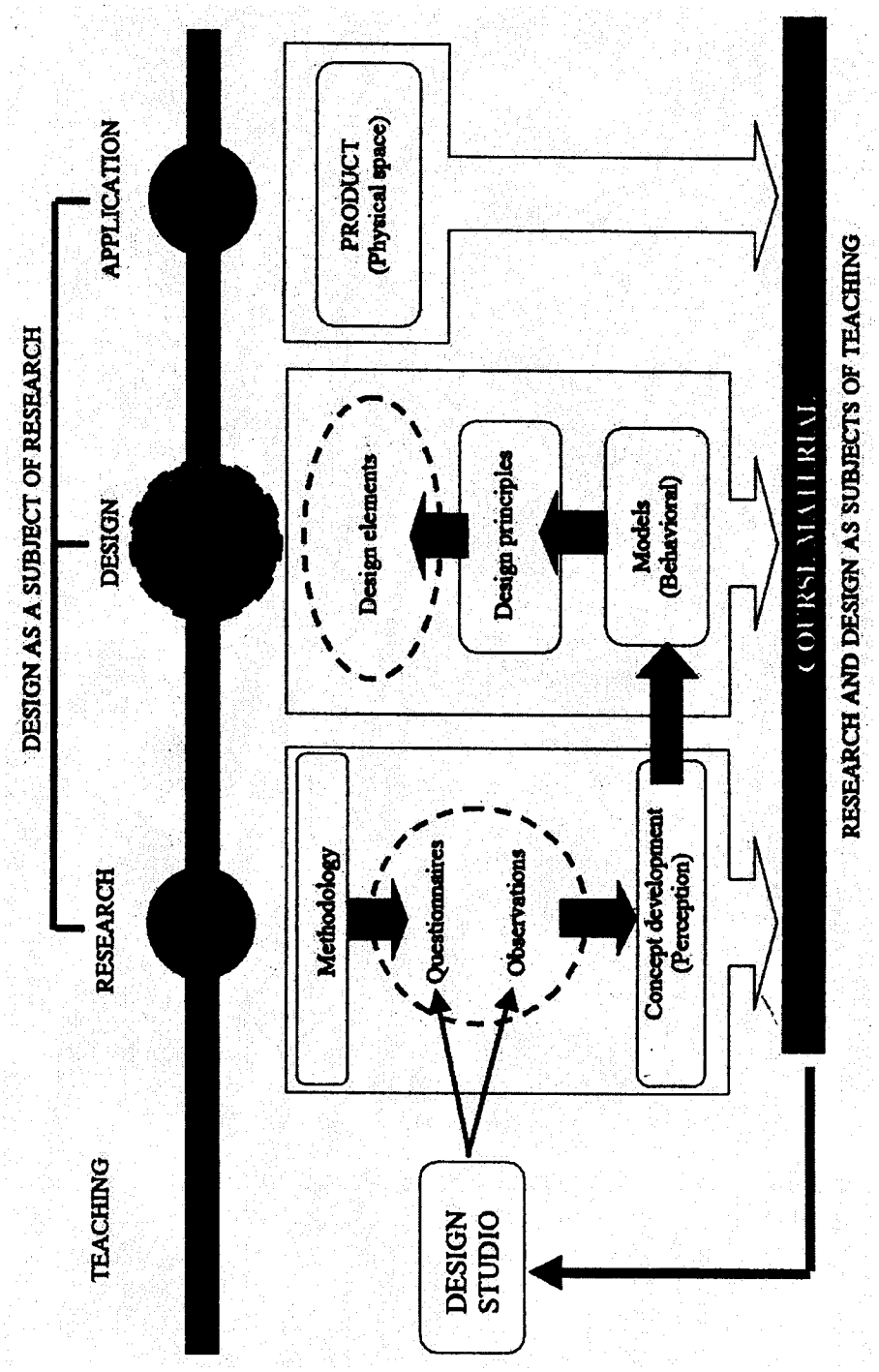

Fig. 5. Framework of establishing design, research, and teaching link

Students can facilitate methods such as simple questionnaires, systematic and participant observations, diaries, and sometimes focus groups that are defined as the ultimate tools to collect data to understand the human factor in landscape design. This process of engagement in research activities promotes more analytical thinking and effective problem-solving; students begin to ask more questions regarding the progress of their designs.

In the case of designing an urban park, literature reviews help students develop frameworks of research proposals. Students can conduct interviews with users to conceptualize respondents' ideas and comments on designing an urban park and can also conduct observations in existing urban parks to establish a scheme of user activities. At the end of the data analysis, students form the design principles. The results and processes can be integrated into course materials for teaching future design courses.

Conclusion

Research-based studio teaching has many advantages such as: (1) Establishing a link between traditional courses and research-based design studios–the concepts taught in other courses can be the subject of the studio; students direct their study (or research) based on the characteristics of these concepts; (2) Improved interaction with the real users in the field–students include ethical factors in their designs and they understand the influence of their designs on people; (3) Students start asking more advanced questions relevant to their designs; (4) Methods and research techniques learned in other courses are applied as a filed study; (5) Students will be more aware of the environmental problems–interaction between planners, c ommunity and managers will promote better understanding of both political and bureaucratic issues; (6) Students will defend their designs more effectively since they are more aware of the potential problems and questions; (7) Students will be part of an interdisciplinary design process; (8) Cultural and social issues will be included more often in landscape design.

Landscape architecture schools should focus on the development of research in the study of landscape. Along with this aim, faculty should promote more research-based activities, including both undergraduate and graduate students. This will require major changes in the curriculum and teaching methods, and may not be accepted by most of the professors, since traditional teaching methods are never easy to change.

Landscape Architecture is a design field, and design usually excludes the use of research results. The basic aim of the design process is to find logical solutions to design problems in a limited amount of time. The products of design are usually 2D and 3D drawings and illustrations. Researchers should find ways to present research results as projects presented on posters and in drawings.

According to previous investigations, most of the faculty members in landscape architecture departments in North America support the advanced role of research in improving the quality of teaching and curriculum development (Milburn et al., 2003). We have yet no specific investigation of opinions among faculty regarding their support for research-oriented teaching and design. Design schools in Turkey should establish a framework to assess scholar activities.

The landscape architecture discipline in Turkey has not yet accepted a common theoretical knowledge and still discusses the role of research in the profession. Existing research activities are usually personal. We need to extend the limits and the definition of „landscape research" by more scholarly and collaborative research activities. In this context, interdisciplinary research techniques should be a prerequisite.

Landscape architecture, as Boyer (1990) argues, should be more research-based profession. Research-based design and studio teaching promotes more scholarly activities, and as a result the scientific knowledge in the field will become more advanced. The link between research, design and teaching should be applicable in all landscape architecture schools. The framework of this type of integration is shown in Figure 5.

Notes

[1] This paper is presented at the Third Architectural Forum, Istanbul Technical University, 15–17 November 2006.

References

Boyer, E. L. (1990) *Scholarship Reconsidered: Priorities of the Professoriate.* Princeton: The Carnegie Foundation for the Advancement of Teaching.

Healey, M. (2005) Linking Research and Teaching: Disciplinary Spaces. In: Barnett, R. (Ed.) *Reshaping the University: New Relationships between Research, Scholarship and Teaching.* Maidenhead: McGraw-Hill, p. 30–42.

Jenkins, A. (2000) The Relationship between Teaching and Research: Where Does Geography Stand and Deliver? *J. Geography in Higher Education* **24**, 325–351.

Milburn, L.A.S., Brown, R.D. & Mulley, S.J. (2003) Assessing Academic Contributions in Landscape Architecture. *Landscape & Urban Planning* **64**, 119–129.

Schön, D. (1998) Toward a Marriage of Artistry and Applied Science in the Architectural Design Studio. *J. Architectural Education* **41**, 4–10.

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