

## The ecopsychosocial complexities of acute psychiatric wards

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*ABSTRACT In the past, buildings for mental health have followed experimental, uneven patterns. That hindered the creation of established design methods. The gap was addressed with a user-inclusive model, the “SCP model”. Its application to successful (awarded) psychiatric facilities indicated that staff and patients questioned this success. This hiatus between top-down vs bottom up perception of therapeutic environment, generated the need to investigate the socio-spatial context of psychiatric wards. This research aimed to promote our understanding of psychiatric space in relation to social interaction.*

*The locus comprised 2 acute wards, each evaluated using the SCP model. Parallel, they were analysed using Space Syntax to identify the social logic of their layout in terms of hierarchies, staffs control of the ward in terms of supervision and opportunities for social engagement.*

*The juxtaposition of medical architecture, an area specialising in patient-focused environments and the more generic space syntax methodology highlighted common factors being perceived differently between these two disciplines. It also identified challenges for space syntax. The latter produced inverse results when used for mental health premises compared to other building types, raising questions for the applicability in healthcare settings. However, these inverse results could be interpreted by Goffman’s theory on total institutions and listing community mental health wards as such.*

*The findings questioned the appropriateness of generic methodologies for healthcare. It highlighted their lack of sensitivity in perceiving limitations to spatial movement and human co-presence resulting from illness. Integrated approaches of evaluating healthcare settings need to be developed. Use of medical architecture, as a discipline, and patient involvement, as opposed to clinician and architect only, are essential to achieve comprehensive understanding of ecopsychosocially supportive environments.*

Keywords: Mental Health, hospital architecture, healthcare design, institutionalisation, psychiatric facilities

## Introduction

The diversity in psychiatric service provision combined with limited interdisciplinary relations between architecture and health sciences brought about an experimental, intuitive approach for the design of psychiatric buildings. The model that dominated the programming, planning and design of psychiatric facilities after the 80s was normalization theory and was borrowed from learning disabilities (Wolfensberger and Glenn 1973). This lack of a direct link between design and patients' pathology became more obvious after an array of findings on community psychiatric facilities in France and the UK (Chrysikou 2003). One of those was that even awarded psychiatric buildings could demonstrate institutional building features. This agreed with data from service users and staff in these environments (Chrysikou 2015). The implementation of normalization to mental health compromised the needs of psychiatric patients accommodated in the most acute spectrum of care-provision. The balance between privacy and surveillance constituted the major dilemma for psychiatric architecture (Smith 2002). Normalization could not address it. However, synchronous research (Sheehan et al. 2013) on UK psychiatric facilities linked the built environment to staff satisfaction, yet questioned the importance of observability for staff. Finally, there was absence of service-user involvement and vertical advocacy of staff in decision making at planning stages. This resulted in disparity between principles of psychosocial rehabilitation, architecture and end-user expectations or even the adequacy of available human resources. To address this, an alternative model to normalization was developed in UCL as a tool tailored for psychiatric facilities (Chrysikou 2014). It was named "the SCP model" and could depict the quality of the environment and its' consequences to patients' life. It employed earlier theories for psychiatric hospitals (Vavylis 1992), principles of patient focus care (MARU 1991) and concepts of Medical architecture (Davies 1988; Scher 1996), research in psychiatric environments by environmental psychologists (Baker et al. 1960; Ittelson et al. 1970; Sloan 1992) and work conducted in the broader field of disability from the end-user perspective (MacIntyre 2018). The model corresponded to key issues behind mental illness expressed by the three dominant models of care: the jurisdictional, the medical and the rehabilitation model. The SCP model comprises three parameters that correspond to a pyramid of needs (Figure 1).

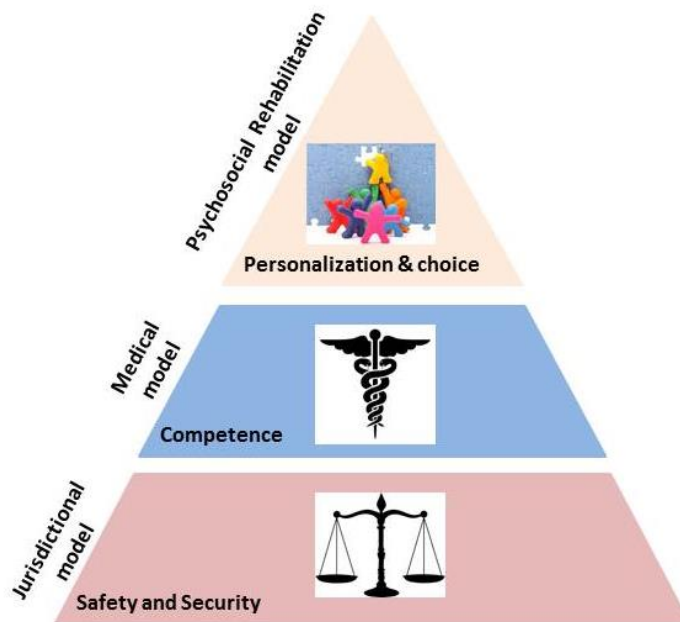


Figure 1: The SCP Model and the pyramid of needs: each tier represents a parameter of the model and corresponds to a model of mental health provision

All topics on mental health environments could be classified according to: a) safety & security, b) competence and c) personalisation & choice. These derived from the basic needs related to the priorities relevant to the main objectives of mental healthcare:

- a) harm and self-harm prevention, existence-related
- b) medical and nursing provision, competence-related
- c) social reintegration, wellbeing-related.

Yet, this bottom up and patient focused model, could not cover social aspects in depth. This requires methodologies detached from individual perspectives. So, how could the social element be introduced and therefore help us develop a more integrated framework? Hillier advocates that society and space are interlinked (Hillier and Hanson 1984). He suggests that one produces the other and vice versa and we cannot distinguish between the two. He developed the theory of Space Syntax. This theory of architectural morphology investigates socio-spatial relations. It has been used for the understanding of institutions (Marcus 1993) but never juxtaposed with the end-user perspective in mental health contexts.

Combining the approaches of medical architecture and architectural morphology, this research set to investigate the social dynamics of institutional space and the socio-spatial angle institutional environment generate, in relation to the perspectives of end-users. For the first time, the two frameworks came together. The first was designed especially for mental



healthcare and the other covers all spatial scale. By combining the two, the research investigated both patients' relation to the therapeutic regime and social relations to the spatial configuration.

## **Methodology**

The locus involved two secure acute facilities, operated by different London Trusts and chosen according to pre-set criteria and permission granting. Acute wards have been linked to poor service user experience and high staff burnout (Sweeney et al. 2014).

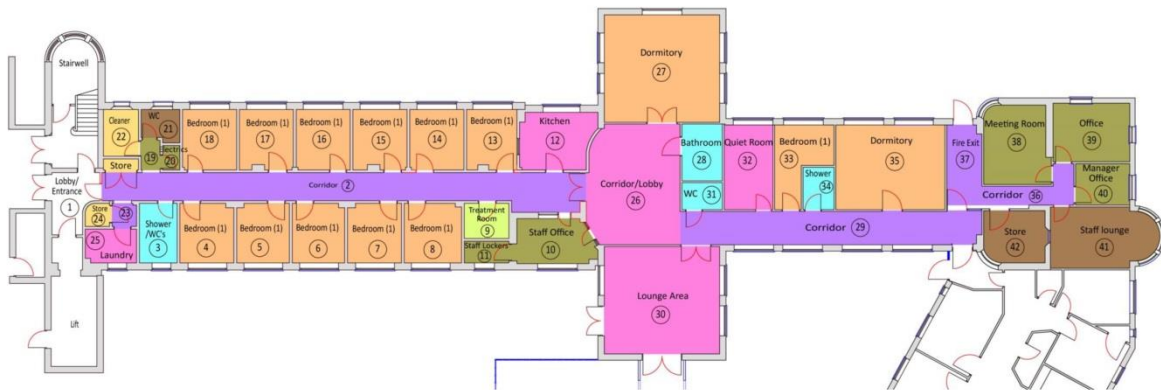
For evaluating patients' needs and the compliance to care regime, patients and staff were interviewed using semi-structured interviews of 30 and 23 main sets of questions respectively. Data on the environment and sense of place of the wards derived from a systematic architectural account for spatial organisation, therapeutic regime, building qualities that enhance health (Ulrich 1984; Zeisel 1984) such as daylighting, art, natural views, access to nature, gathered from visits, photographic auditing and plans. Regarding plans, architectural blueprints were compared on their analogies of areas per use and user group. Third, a detailed checklist of 212 building traits based on one by Robinson (1984), identified institutional physical characteristics in a comparative scale to the local norm as defined by the neighbouring or local residential buildings in parameters related to the exterior, the layout and interior design. Regarding architectural morphology, each facility has been analysed using Space Syntax (Table 1). Space Syntax tools used involved social solidarities, social relations diagrams, and integration values. The morphological analysis was performed for the interior of the facilities, using Depthmap software and blueprints of the wards. The tools used comprised convex analysis, axial analysis, visibility graph analysis and JASS Software for justified graphs.

Table 1: Methodology in relation to main research objectives

Methodology for a psychosocially supportive design of mental health facilities		
Objective (reference to main research objectives)	Methodology	Tools
Personal Milieu	Evaluation of patient's needs and compliance to care regime	Semi-structured interviews of 30 (for patients) and 23 (for staff) sets of questions
Place-making for mental health	Data on physical environment and sense of place	Visits, photographic auditing and architectural blueprints for calculation analogies of areas per use and user group
Domesticity vs institutionalism	Architectural checklist	212 traits on building exterior, layout and design of interior
Social Milieu	Space Syntax analysis	Convex graphs, axial graphs, visibility graphs and justified graphs

## Results and Discussion

Despite the UK having officially closed its psychiatric hospitals both wards were situated inside larger psychiatric complexes. Their facades bear strong visual references to non-residential architecture even though both are part of Care in the Community. Case study A (Figure 2) was part of a former fever hospital campus, yet it has been converted for mental health use four decades ago. The entire campus presents strong institutional characteristics. Ward condition is poor. In contrast, case study B (Figure 2) sits in a recently remodelled Mental Health Center. Both wards sit on the ground floor and do not have direct access outdoors.



Ward A



Ward B

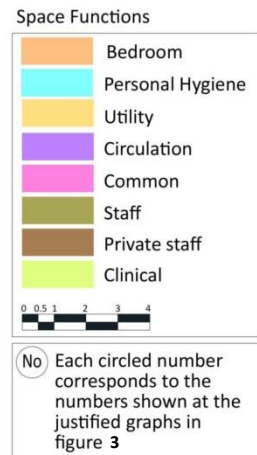


Figure 2: Floorplans of Wards A and B, color-coded according to functions

Both wards, present strong institutional character: an average of 60.85 and 54.72% according to the Institutional vs Domestic checklist for Ward A and B respectively. Moreover, they are at the institutional end or very close to it when compared to UK wards investigated using the same checklist 15 years ago (Table 2). Overall, Ward A showed wear and tear and demonstrated institutional traits such as dormitories and shared toilets, now considered obsolete. By contrast, Ward B was maintained in an excellent condition. However, its number of institutional traits was comparable to that of Ward A. This was the result of an extensive use of anti-ligature fixtures and fittings. This agrees with the National Service Framework (NSF) for Mental Health (Department of Health 1999).

Table 2: Mean institutional percentages for Wards A/B compared to earlier UK sample

Percentages of institutional features per building	
Facility	Mean
Ward A (2016)	60.85
Ward I (2002)	56
Ward B (2016)	54.72
Ward II (2002)	48
Ward III (2002)	47
Ward IV (2002)	44
Ward V (2002)	26

The research produced a significant volume of data, deriving from the checklist, architectural auditing, space syntax analysis and interviews. These generated a comprehensive series of findings regarding architectural features of the buildings, therapeutic regimes, layouts, relationship to care models and to users' preferences, plus their relationship to the data of the earlier UK study that used the SCP model and generated a comparable amount of data that could not be presented in a single paper (Figure 3).

Ward A bore considerable resemblance to institutions, yet scored close to Ward B which incorporated several elements of the state of the art technologies in psychiatric design, especially those related to anti-ligature. Thus, in the same geographical area, i.e. London, we could have two distinct models of care provision: one pre-normalization providing low stimulation, limited privacy and sociofugal design of sitting arrangements (Osmond 1970), and one post-normalisation featuring specialized psychiatric design. The latter could be described as a re-introduction of the psychiatric ward of the general hospital in the community: emphasis on infection control, anti-ligature, central nursing station, provision for various degrees of gender segregation, general hospital policies such as non-smoking policies in all hospital outdoor areas etc. This agrees with the conclusion of Kilaspy (2007) after reviewing psychiatric literature on de-institutionalisation that community services could not completely replace hospital care resulting in increasing re-institutionalisation.

The qualitative characteristics are mostly depicted by the analysis according to the three parameters of the SCP model, the architectural morphology analysis and in particular the

analysis of user hierarchies and policies such as gender segregation, smoking policy or access to the existing outdoor areas. Parallel, interviews provided important qualitative data.

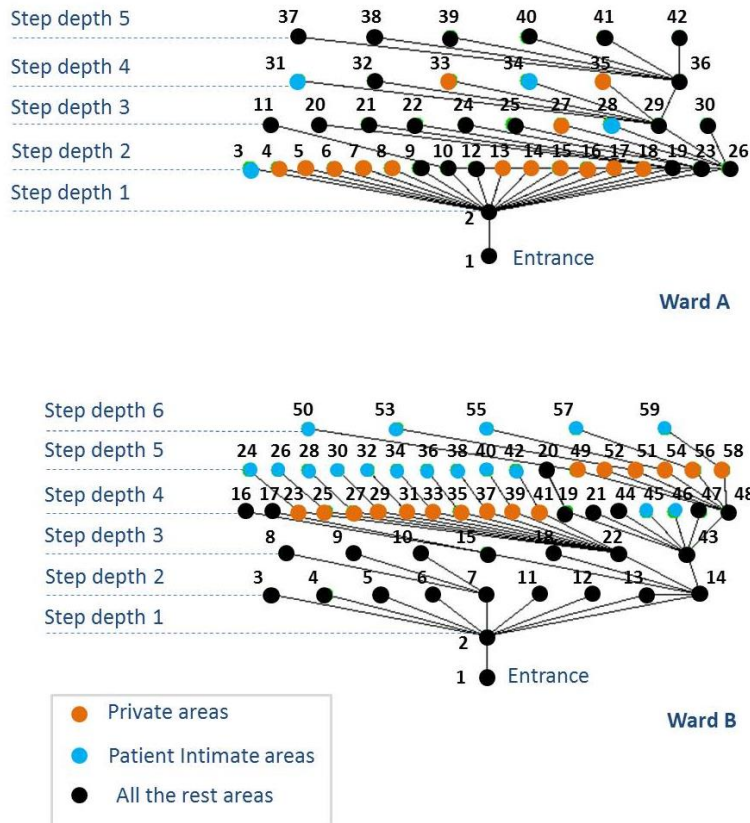


Figure 3: Justified graphs of Wards showing depths of private/intimate areas

Regarding layouts, the two Wards presented similarities and differences (Table 3). From those differences, it is worth looking at smoking policy. Ward B prohibits smoking in the campus so patients had to get escorted leave to smoke, one t at a time. This resulted in long queues, unrest and incidents of violence outside the nursing station and had been the reason behind the fire according to ward manager. This was an indication that policy and buildings in mental health facilities are interrelated, affecting the spatial use and experience considerably.



Table 3: Layout similarities and differences for Wards A/B

Similarities and differences in the layout of the two Wards			
	Description	Ward A	Ward B
Similarities	Ground Floor	+	+
	Single-storey	+	+
	Access to fully protected courtyard	+	(+)
	Centrally positioned nurse station	+	+
	Centrally positioned clinics	+	+
	Double loaded corridors	(+)	+
Differences	Office area: Offices integrated (as opposed to segregated or at the far end)	-	+
	Self-contained ward (vs dependent)	-	+
	Single bedrooms (vs sharing)	-	+
	Toilets: Individual (vs shared)	-	+
	Gender segregation: Single gendered ward (vs female only area)	-	+

From the previous point in relation to integration of the nursing station and unrest around it, we could generate food for thought for the application of Space Syntax in institutions. What would be described by Hillier and Hanson as social logic (1984) appears in this case severely compromised by rules restricting movement. Yet, Space Syntax appears to pick the location of violence outbreaks, if we do not expect these to be areas of socialisation as space syntax assumes. In both wards, the most integrated spaces appear to be the spaces outside the nursing station (Figure 4). They are also areas of very good visibility (Figure 5). And indeed, patients gather outside nursing stations in total institutions putting themselves in the surveillance “radar”. Visibility from that point might have been a brief requirement. Yet, most staff were not actually there. Patients did not gather outside the staff office of Ward B, which was at a segregated part, neither outside the entrance connecting the ward corridor to the staff only part in Ward A, which was also segregated. Patients gathered at the most integrated point. It remains uncertain whether that was a demonstration of an institutional behavior or a human need of meeting people at the most integrated point of the ward.

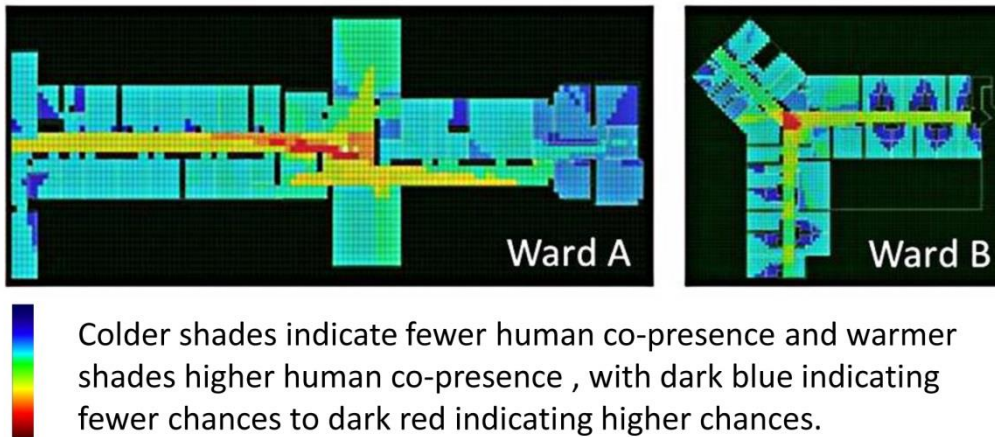


Figure 4: Integration of Wards A/B. The most integrated space in both cases is the area outside the nursing station coloured in red

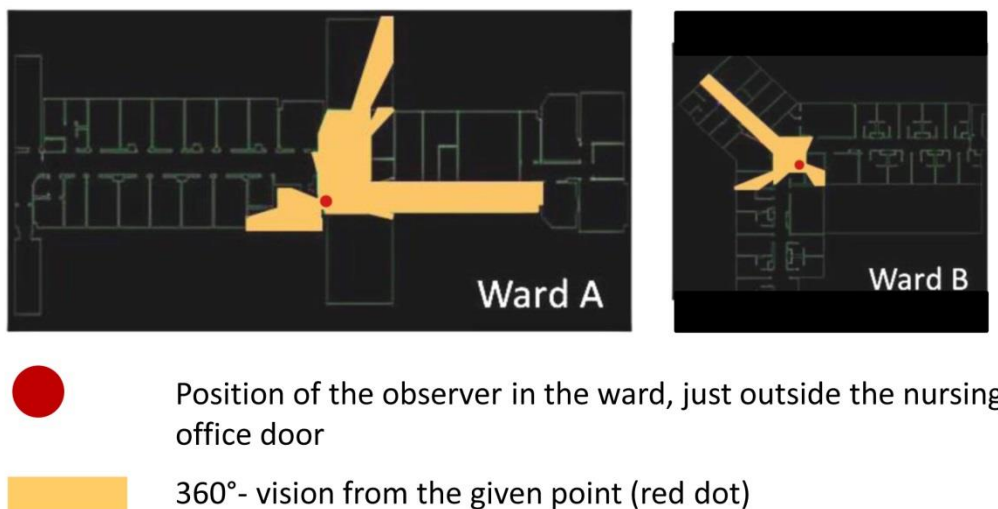


Figure 5: Visibility from the nursing station at Wards A/B

To the above we could increase the complexity of the argument by involving the visibility from the nursing station. The purpose of a nursing station is surveillance (Figure 5). However, the visibility from windows of nursing stations to the corridor had been partially blocked by staff and, moreover, staff had their backs to corridors. Thus, they lacked visual control. This questioned the centrality of the placement of the nursing station in terms of a briefing priority. Further research in wards that present high integration characteristics in activity or in social areas, such as the common room or the activity room might increase the potential for social interaction in relation to the demonstration of passive behaviours and staff and patient satisfaction might provide new insights on psychosocially supportive ways.

## Findings and Conclusions

Findings highlighted potential connections between regimes, spatial configuration and social fabric in psychiatric institutions. Architectural morphology methods indicated areas attracting people, because of layout (Figure 4). However, this derived from institutionalisation, confirming Goffman's theory of total institutions (Goffman 1961). Psychiatric hospitals have been classified as such. Yet, community psychiatry allegedly de-institutionalised psychiatric provision. The inverse effect of the integrated spaces being those who fostered anti-social behaviours, demonstrate that de-institutionalisation remains incomplete. The high scores in institutional points supported this.

Space Syntax presented strong limitations on understanding space inside psychiatric facilities, unless it was justified by Goffman's theory. However, this is something outside space syntax core theory. So, it should be juxtaposed to other tools and used cautiously, to prevent misunderstanding phenomena. This finding agrees with scholars who question the validity of space syntax for healthcare (Peponis 2017, Van der Zwart 2018). Insights from healthcare architecture field of research should be essential to outline institutional undercurrents. The combinations of both methodologies might lead to more elaborate research tools both for healthcare architecture and architectural morphology. In any case, a generic methodology of architectural theory, including space syntax, should not be used on its own because, differences on perception and on physiology that derive from an illness conflict with generalised principles. Therefore, it is imperative that the understanding of healthcare spaces needs to derive from integrated methodologies combining healthcare and spatial tools and from multi-disciplinary and patient inclusive research consortia.

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