

## Grounding the flying triangle: activity theory and the production of space

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### *Abstract*

Space is a fundamental issue in organizing yet remains unexplored by cultural historical activity theory. The growing interest for this theory in organization studies asks for reflecting on the role of space in activity. The activity system model — a triangle-shaped diagram that is often used to study organizations within this theory — is evaluated against the issue of the production of space. The episodic experience of the author in applying the model to study the design of a new healthcare facility is presented for reflection. The facility was supposed to produce a boundary crossing activity; however, the production of this shared space made contradictions emerge beyond the reach of the activity system model. Some possibilities are considered to ground the model with the dialectics of the production of space, including the triad of representations of space, space of representations, and spatial practices.

**Keywords:** space, activity theory, ethnography, organization

### *Introduction*

When I (the first author) was a little kid, my schoolteacher would ask me to draw a house and a person. After I was finished with my drawing, she would come to check: “— My dear, where is the shadow under the person? Is she flying?” Slightly embarrassed, I would draw a shadow. The shadow worked to ground the elements of my drawing to a common space, even if I have drawn them with no regard for that; the person had nothing to do with the house. Perhaps the teacher wanted to avoid leaving my imagination free to draw disparate elements that do not fit the house scene. The embarrassment I felt made me consider the materiality of visual representations at such an early age.

Recently, I faced a similar situation in my research practice. I was conducting an ethnographic study about the design of a healthcare facility (Amstel, Zerjav, Hartmann, Voort, & Dewulf, 2014), under the Cultural Historic Activity Theory (CHAT) framework (Engeström, 1987). The facility was supposed to host activities that are currently developed at different locations by different organizations. The development of the facility was based on the concept of shared space, but the organizations did not know exactly how this sharing might happen. Space as such was being used to push a convergent development of the organizations involved.

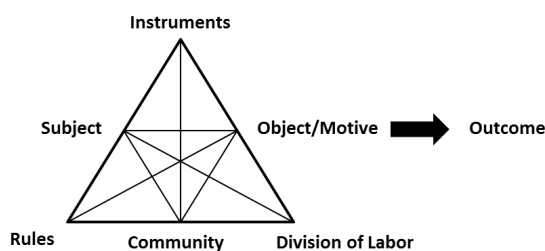


Figure 1 - The activity system model. Redrawn from Engeström (1987).

When applying the activity system model (Figure 1) to make sense of the evidence collected in the ethnographic study, many doubts arose among the authors: is space a mere instrument to transform an object, like a tool or a sign? Or is space the object of activity, in this case, the design activity? Can space be considered the fundamental underpinning of this new community in formation? If space is designed for a specific kind of work, what is the difference between the division of space and the division of labor? Do the rules embedded in space restrict or liberate body movements? Considering the agency of space to enforce such rules, can space be considered a subject of activity?

### *Space in cultural historical historic activity theory*

The answer found in CHAT literature is that all of these are possible, depending on the historical development. The categories in the activity system model are meant to be flexible enough to track changes, such as movements from one category to another, i.e. space changing from object to subject. The example given is a wall that ceases to be an object to be part of the collective subject, going through all the elements of the activity system model:

*The wall begins its life as an object to be created (1) for the owner of a house by means of hiring a carpenter. When the construction is finished, the wall momentarily*

*appears as an outcome, a product (2). For a while the owner of the house sees the finished wall as a mediating artifact, a tool with which he reaches the purpose or rearranging his living space (3). Soon enough, the wall ceases to be a tool; it becomes an aspect of the tacitly assumed community infrastructure (4) for the family living in the house and for the friends visiting it. As a designated space, e.g., as the study of the husband, it begins to define the division of labor in the family (5), and the associated rules — e.g., children are not allowed to play in the room (6). Once it has taken root at this community level of the activity, the wall is on its way to become a constitutive element in the makeup of the subject's identity (7). (Engeström, 1996, p. 260)*

How about multiple activities? How can space be grasped in their mutual relationships? It is possible to extend the above answer to explain the connection between different activities in space: the outcome of one activity can be the subject, object, instrument, rules, community, or division of labor of another (Engeström, 1987). However, in this case, space is regarded as something that flows through activities, a rather counter-intuitive notion; in the commonsense, activity should flow through space, not the other way around. Grasping space in this way can be very confusing. It is not surprising that few CHAT ethnographies explicitly discuss the issue of space (the exceptions are Engeström, 2003; Gutierrez, 1999; Leander, 2002), while so many deals with generic activities that happen everywhere and nowhere in the world (some examples are Barab, Evans, & Baek, 2004; Blackler, Crump, & McDonald, 2000; O'Brien & Varga-Atkins, 2012). Given the abstract way space is dealt by recent CHAT ethnographies, it seems like the triangle model is flying away from its self-proclaimed radical localism (Engeström, 1999a)...

### *The medical imaging center design ethnographic study*

Without clear references to deal with space in CHAT, our own ethnographic study was stuck into circles, trying to grasp something that was constantly running away. Defining space as a runaway object — an object that escalates beyond the reach of multiple activities (Engeström, 2008) — did not help much, since the ethnographic work aimed to provide practical insights for participants to cope with the situation. That space is a complicated matter they already know; the practical question is how to corral this matter (Spinuzzi, 2011)?

Maybe we were trying to apply the model too early. CHAT ethnographies are supposed to begin not by classifying evidence, but by looking carefully at disturbances (Engeström,

1999b, 2008). In the project studied, many disturbances stemmed from the attempt of one organization to accelerate the design and the construction process. This organization hoped to get more commitment from other organizations by making the new space more concrete. The facility is supposed to be hosted in a retrofitted building. Even before the user requirements and the design were complete, the organization was already working in the construction site, cleaning the building and installing basic service infrastructure. Space was dealt as an instrument to push the expansion of activities, with not much regard to their previous historical and spatial constitution (Figure 2).

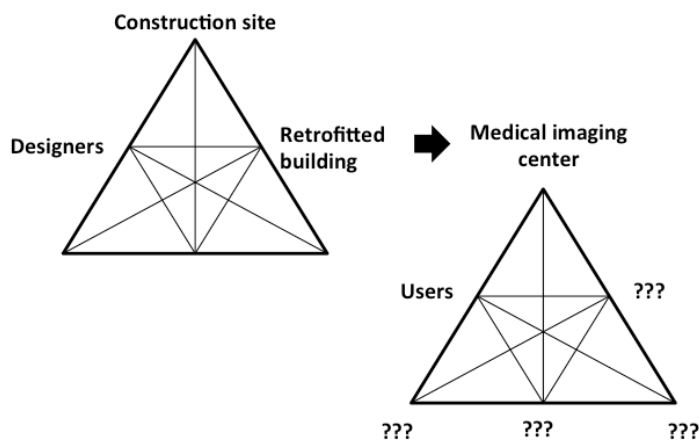


Figure 2 - Space regarded as an instrument for user activities.

Such instrumental approach to space did not work very well due to the double resistance of construction materials and the future users. The construction materials presented complex legal, technical, and social problems that could not be solved by a single organization. The end-users were initially not aware of those problems and informed incomplete and conflicting requirements. At some point, the project was lacking commitment from partner organizations so much that no decision could be made about the design. The approach had to be changed from instrumental to object-oriented, treating space as a shared object between those activities. The design was presented for criticism to future users from the organizations involved, and many changes were made collaboratively.

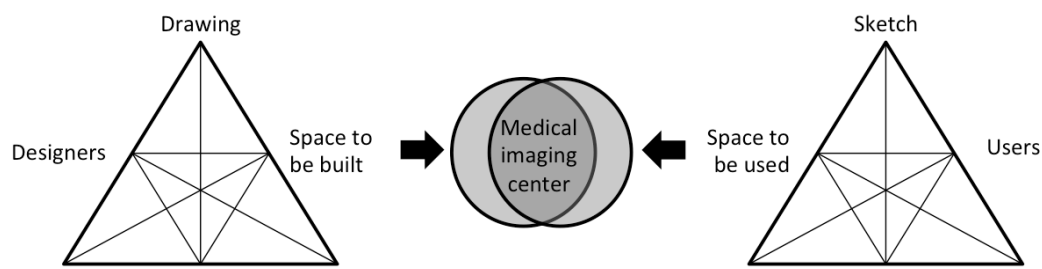


Figure 3 - Space as a collaborative achievement between design activity and user activity. Based on Engeström (2001, p. 136, 2006).

Despite this role change in relating multiple activities, as soon as there was enough agreement between them, the design was frozen (Whyte, Ewenstein, Hales, & Tidd, 2007) and space became again an instrument. These shifts between object and instrument (Hasu & Engeström, 2000) can explicate how space develops through the history of an activity, but can do little to explicate how an activity develops spatially, a central issue in the project studied. How did activities change due to the resistance of space? How the project disturbances were dealt in space? What changed in space because of them? Which tensions are accumulating since space was frozen as an instrument? What is the status of space now? Answering these questions through CHAT alone lead to a circle where space is touched tangentially.

### *The production of space and activity development*

The limitation in this partial account is that it uncovers contradictions that happen *in* space, but not the contradictions that are intrinsic *of* space. This distinction made in the theory of the production of space (Lefebvre, 1991, p. 334) allows the analysis to step out of the circle.

First of all, the space already existed before it became an object of design as a retrofitted building located in the terrain of the organization pushing the process. The building was designed for another purpose, but did not suit anymore. The increasing exchange value of the site pressed the organization to use the building in a smarter way than the temporary deposit it was. Many design problems stem from the characteristics of this space set by activities of the past, such as too flexible services and consequent weak load bearing. Further problems arose from the replication and expansion of existing spatial arrangements at the organizations involved. Some of these problems were solved by design, some not, but the systemic contradictions were embedded in space anyway, thus becoming contradictions of space. Contradictions of space keep bothering activity even if it develops further by resolving

contradictions in space, pretty much like the contradictions of the past that are still bothering the organization now even after the original activity has moved out of the building. According to the theory of the production of space, revolution — or expansion — can only succeed to stabilize if it manages to produce a new kind of space (Lefebvre, 1991).

A new kind of space means a new set of social relationships: coexistence, simultaneity, and order (Lefebvre, 1991). These relationships are reproduced and hidden by and within space. Form, function, and structure are the main analytical categories used to uncover the social relationships so concealed. The spatial is put forth by this theory to complement Marxist's historical emphasis in dialectical materialism. Since CHAT and the production of space share the same philosophical roots — Marxism and dialectical materialism, the production of space seems to be a great candidate to develop further CHAT with respect to local grounding and materiality. Leander (2002) made a good initial attempt to bring these two theories together, but there is still a long way to find the shadow of the activity system model.

Perhaps, one way to approach space using the activity system model is to consider it the first outcome of any activity. Space is a precondition for activity, but it does not remain a fixed container: activity manifests through space precisely by producing space as it goes. Hence, each element in the activity system model is part of the production of this outcome; subjects position themselves, instruments require storage, rules are hard coded, community anchors to place, the division of labor is bound to walls, and the object is not just waiting somewhere to be transformed. The orientation towards the object, which is the fundamental characteristic of activity (Leont'ev, 1978), is also produced in the shape of a trajectory, a space intertwined with action: “from the start of an activity so oriented towards an objective, spatial elements - the body, limbs, eyes - are mobilized, including both *materials* (stone, wood, bone, leather, etc.) and *matériel* (tools, arms, language, instructions and agendas)” (Lefebvre, 1991, p. 71).

### *The production of space in the medical imaging center project*

The complementarity between these theories could be explored in future publications. Here, the concern is the application of the activity system model to the ethnographic work in the medical imaging center. We have seen that the instrumental approach to space failed in the first place, but was followed by an object-oriented approach. However, space was already there, even before these approaches were put into practice. We have seen how activity produced space, but can we see how space produces activity?

The site itself is located in the middle of the two cities where the organizations come from, inside the terrain of a University, the organization pushing the project forward. Despite being neutral space in terms of commercial competition, the site's exchange value and building costs called for a concept that would still be profitable. The resulting concept is a medical imaging center with state of the art diagnosing machines that can be shared among the partner organizations. More than patient care, the center aims to produce innovative knowledge based on clinical trials of new machines and techniques. The concept appealed even to the hospitals that compete in the same region, since the space where the center competes is not the regional, but the global imaging diagnosing community.

Space grounded concept formation, however, this did not happen automatically. The concept had to be articulated against a range of heterogeneous networks: funding agencies, research communities, care practices, technology supply-chain, and so on. The building's availability and strategic position certainly played a role in arousing motivation from the organization to join the endeavor. As the concept evolved, some organizations reduced or increased their motivation towards this shared object. When the design was opened for criticism as a shared object, there was a sudden investment of motivation and the organizations began to dispute and collaborate for space. The printed floor plan mediated the negotiation up to the point that overlaps were realized (Figure 4).

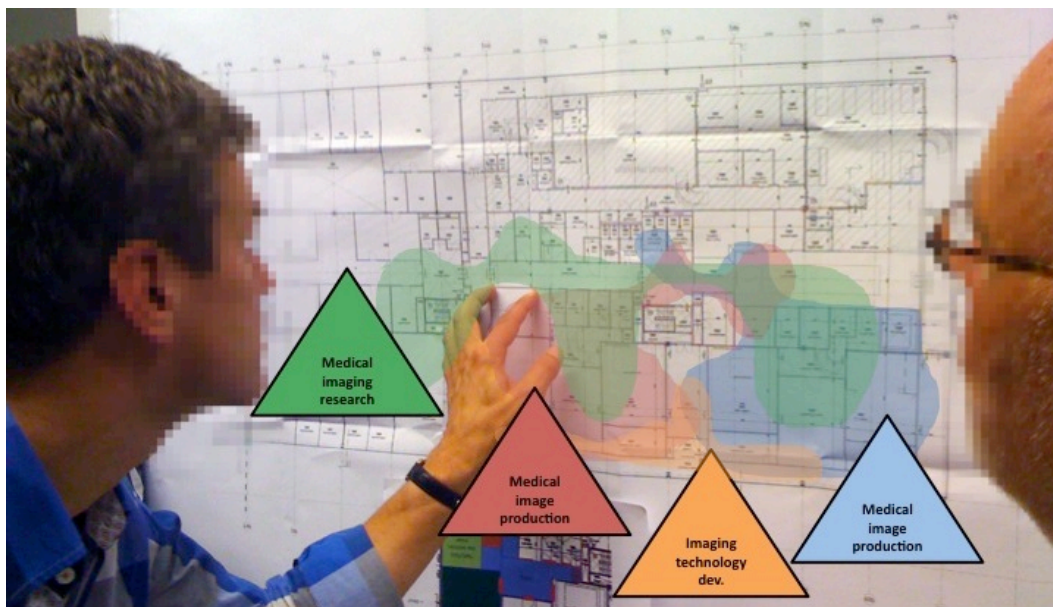


Figure 4 – The floor plan for the upcoming medical imaging center and the overlapped spaces of future activities (each in a different color).

The concept behind the design was that each organization would have separate area in the building; however, as they simulated the future activities, the organizations realized that a good deal of overlap is required to achieve coordination and knowledge sharing. Instead of accepting the functionalist design, they preferred to redesign the layout so as to facilitate interaction among different activities. The resulting design featured a long corridor spreading across the designated areas. Since the corridor does not embed any clear function, the implication is that shared space is to be produced by the eventual encounters that happen by routine or by chance (Figure 5).

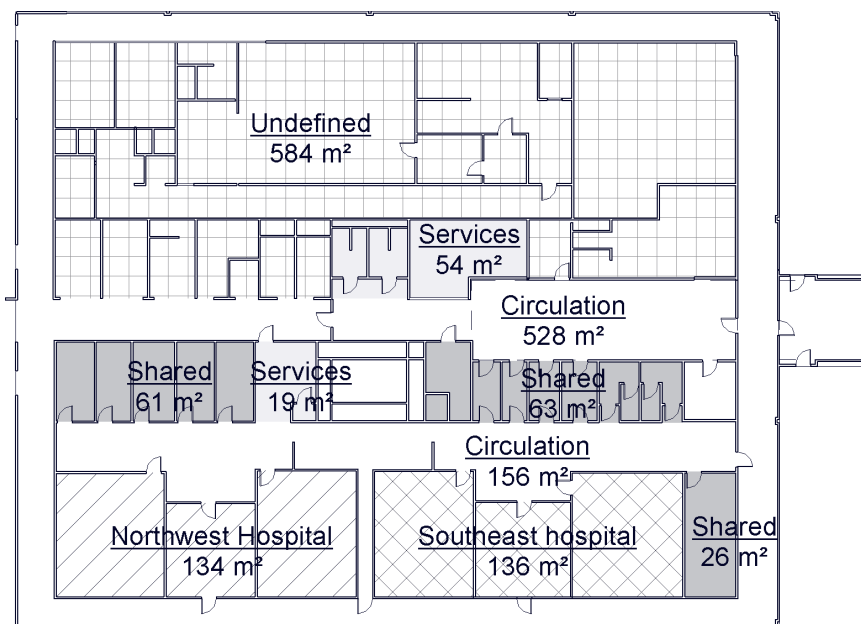


Figure 5 – A late version of the design of the medical imaging center features two large corridors connecting once separate activities. Redrawn based on video stills collected by the authors.

### *The dialectics in between activity and space*

At this point, our study was following space relating not only to one, but also to many activities, in a dialectical relationship. The theoretical articulation enabled seeing that activities are projecting themselves into space, thus producing their own space and being reproduced by that same space. Activities leave gestures, traces, and marks over space, while space imposes form, function, and structure to activities (Lefebvre, 1991). Instead of a dichotomy between activity and space, the production of space theory sets a three-component dialectics: representations of space, space of representations, and spatial practices (Lefebvre, 1991). The abstract representations of space, such as the layout of a building, are soon filled and transformed by the concrete experience of subject's bodies seeking for a place that is not



necessarily the one prescribed. The ascendance from the abstract to the concrete happens when the representations of space meet the space of representations, the opposite experience of space that relates to meaning, emotions, beliefs, and tacit knowledge (Lefebvre, 1991). Terminological inversion is a technique extensively used in the theory of the production of space to emphasize the interpenetration of opposites and the production of the third element of the dialectics, in this case, the actual spatial practices (Lefebvre, 1991, p. 43).

In a simplistic overview, the triad could be paralleled to the activity system model as instruments, community, and division of labor with rules. This would probably miss the triad's intention to avoid formalism, functionalism, and structuralism. For example, if space is just supposed to accurately represent, or accommodate, activity, there will be a gap between the representations of space and the spatial practices that is typical to formalism. There is plenty of evidence that what people do with space is usually not what planners think (Brand, 1995; Goodman, 1971). If space is just supposed to express the imagination of a community, then there will be a gap between the space of representations and the spatial practices. To avoid that, the functionalist building hides the enforcing order under signs of identification but soon loses its power to community changes. Last but not the least, if space is designed just to enforce rules and the division of labor there will be strong contradictions hidden in the spatial practices, since no representation would be available for accountability.

To avoid these gaps, the triad of the production of space may be better applied to every corner of the activity system model. This would reveal their particular role in the production of space. For instance, it is commonplace to assume that the division of labor imposes a spatial practice, but it is bit more cautious to consider that this practice is optimized by carefully crafted representations of space that do not necessarily produce the desired effects, since the space of representations resists domination through imaginative tricks. The dialectics between them is what produces the actual division of labor, the spatial practice. The analysis could go on to community, rules, subjects, instruments, and object, keeping their mutual constituting relationships and observing movements from one to another category, as explained before.

### *Conclusions*

We have seen how the first author struggled to grasp space with the activity system model in an ethnographic study and how the production of space theory elucidated the struggle. In another publication based on the same ethnographic study, the authors have framed space as

an object with expansive potential (Amstel et al., 2014), but this paper goes further in speculating the role of space in all aspects covered by the activity system model. The contribution points towards considering space on its own in CHAT framework (Leander, 2002). Spinuzzi, in particular, has observed that the expansion of the object category in CHAT, expressed in terms such as “runaway object” or “polymotivated activity”, makes empirical work difficult to pinpoint the material counterpart of the object (Spinuzzi, 2011). We believe that the production of space could be another way to corral the runaway object and ground ethnographic work. This essay is just a rough draft of what is possible in this regard.

If space grounds the object, a question may be raised: can space produce activity? Or to put in another way, can a new building create new practices in an organization? The project studied was indeed trying that, hoping that a boundary crossing activity would flourish out of the new building. The observed difficulties of realizing this vision does not let us believe in that, though further studies are needed for conclusive thoughts.

The activity system model is great to set, organize, and present ethnographic studies, however, without space it looks like flying above the ground. The local is indeed the departing point of much ethnography using this model, but since there is no clear view for dealing with space, the dialectical return might lose the concrete locality to abstract form, function, or structure. The risk of falling into formalism, functionalism, or structuralism has been acknowledged; systemic approaches have this tendency. Nevertheless, we believe that the production of space could perhaps keep the system more grounded and sensible to expansion.

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