Bodies and Materiality in (Inter)action at the Assembly Line

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Overview

1. Research background and methods
2. Body and materiality – some empirical insights
3. Discussion from a theoretical point of view

Research background and methods

Role of Experience in Assembly Work

Funding -->

Objective -->

Research project

German Ministry of Research

Prof. Dr. Sabine Pfeiffer – München
Funding -->

Objective -->

Qualitative -->

German Ministry of Research

Role of Experience in Assembly Work

4 German automotive suppliers
60 interviews
5 analytical workshops
Several work site observations

Total employee count: 50 to 5,000
Gross profit: 8 million to 1 billion €
Variation of assembly organization
Common ground: CPS

Assembly Work

...an endangered species in our knowledge society?

1,000,000
assembly workers in Germany.

600,000
in serial assembly.

High Tech Assembly

complex and sophisticated products

28 sec.
cycle times often under one minute

often a hybrid of high tech automation and human work
Body and materiality – some empirical insights

Not only regarding the materiality of means and objects of work
...but also regarding colleagues and team

subjectifying work action

being at work with all senses – in a holistic way
sensous-corporeal dialogue, constantly exploring assembly station, process and product
intuition and serendipty – anticipating disturbances
empathic involvement with only seemingly „dead“ things

subjectifying work action

Flow Line Assembly

longest cycle time = coordination criterion
Flow Line Assembly

- working on one’s own station
- every single task determined
- no social interaction needed?

Work group coordination:

- is not only technically determined
- or a question of social beyond the assembly line.

- but a body-material related sociality!

Perceiving with all senses with regard to the machinery, product, and colleagues.

Noticing who needs help, observing failures from the corner of one’s eye.

In short cycle times and often limited space:

Experienced assembly workers move like a well-coordinated soccer team.

Only once a player is exchanged and the rhythm is lost, will become evident:

how much collective body awareness and coordination ability are involved!
Shorten the cycle time. Reducing human labour.

shortest cycle time gives the rhythm

Everybody constantly moves in line with their own and varying other cycle times...
and with each other.

Ever changing dance of bodies and things...
– permanently re-choreographed by varying situations.

Collective coordination of moving bodies and proceeding materiality gets essential.

Assembly Work?!
I get the feeling that it's a black box. I put my hand in, I feel around, I get something that feels kind of warm and fuzzy and I pull it out and see what it is. It's like fishing. You don't maintain a database of every place you've ever caught a fish. You learn to fish by learning to read the meaning of water temperature, bottom contour, vegetation, weather and climate. Those are finding tools. You learn how to figure out where the fish are likely to be biting today. You don't try to memorize where they were yesterday, last month, last season, or when you were a child (Basch 1996).

I use my three fingers – my thumb, my index finger and my middle finger. The right hand. And my left hand is on the groceries. I got my hips pushin' on the button and it rolls around on the counter. If I have enough groceries in front of me, I let go of my hips, the hand, and the register, the hips, the hand. If somebody interrupts me to ask me the price, I'll answer while I'm movin'. Like playin' a piano (Terkel 1974 in Huws 2007).

Assembly Work?!

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Why?

...could be explained by sociological theory.
But what about the... How?

...can this collective coordination be achieved?

...can cycle times, complex assembly operations and physical movings function so smoothly together?

...can different individuals jointly develop an always new, situation-adequate choreography?

And all this under time pressure, in minimal space and without verbal communication due to noise?
Assuming these coordination feats:

a) are the result of actions \textbf{and}
b) of social nature

Assuming we are not dealing with:

physically inscribed, quasi pre-social routines and uniform repetitions...

We should accept:

the corporeality of the body \textbf{and}
the materiality of things...

as integral elements of social action.

Sociological theory provides an increasing variety of theories focusing on

\textbf{OR}

the corporeality of the body

\textbf{AND}

the materiality of things

\textbf{Theoretical framework to combine}

the corporeality of the body

the materiality of things

\textbf{Labour capability (Arbeitsvermögen)}
labour power

dialectical

labour capability

Quantitative
Exchange value of human labour
Commodity

labour power

dialectical

labour capability

Qualitative
Use value of human labour
No commodity

Quantitative
Exchange value of human labour
Commodity

labour power

production

dialectical

labour capability

Qualitative
Use value of human labour
No commodity

means and objects of „work“

object and condition

appropriation

lifelong and unavoidable process

labour capability
Thank you!

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