Creating the Productive Workplace: A Psychological Perspective

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Defining productivity

“Ratio of output to input”

Input
- Time/effort
- Staff/equipment cost

Output
- Quantity/quality
- Product/service/idea

Property in perspective

85% Salary

15% Property

Business Costs

- Salaries of occupants 85%
- Building – construction cost 6.5%
- M&E services – running and maintenance 4%
- Furnishings and furniture – capital cost 1.25%
- Building – maintenance 1%
- Cleaning, security etc 1%
- M&E services – depreciation 0.75%
- Furnishings and furniture – maintenance and depreciation 0.5%

Property costs = 10-20% staff cost = 3-6% revenue

£1M property = £6M staff = £18M revenue

Measuring productivity

- ASHRAE, NEMA and CIBSE documented numerous productivity metrics.
- Specific business metrics but costly, timely and difficult:
  - use satisfaction as a proxy
- Extraneous factors affect accuracy and relevance of metric:
  - market and marketing
  - organisational factors
Predicting productivity

- **AWE funded research:**
  - Oseland & Burton June 2012

- **Literature review & meta-analysis**

- **Weighted by:**
  - Research environment
  - Performance metric
  - Time in activity

Example study

- Exeter University research:
  - Knight & Haslam (2010)

- Lean, enriched, empowered and disempowered offices

- Sorting task, letter identification, vigilance task, questionnaire

- Office simulation, objective metrics, office related tasks

- Empowered most positive results

Knight & Haslam (2010) Journal of Experimental Psychology, 16 (2), 158-172
## Predicting productivity

<table>
<thead>
<tr>
<th>Factor</th>
<th>Count</th>
<th>Unweighted Mean</th>
<th>Weighted Effect</th>
<th>Mean</th>
<th>Lower Quartile</th>
<th>Upper Quartile</th>
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</thead>
<tbody>
<tr>
<td>Lighting (L)</td>
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<td>9.5</td>
<td></td>
<td>1.1</td>
<td>0.1</td>
<td>2.0</td>
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<tr>
<td>Noise (N)</td>
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<td>27.8</td>
<td></td>
<td>1.4</td>
<td>0.2</td>
<td>1.7</td>
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<tr>
<td>Temperature (T)</td>
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<td>17.0</td>
<td></td>
<td>1.2</td>
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<td>1.9</td>
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<tr>
<td>Ventilation (V)</td>
<td>16</td>
<td>9.0</td>
<td></td>
<td>1.4</td>
<td>0.2</td>
<td>1.7</td>
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<tr>
<td>Control (F)</td>
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<td>0.3</td>
<td>2.1</td>
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<tr>
<td>Furniture (F)</td>
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<td>15.7</td>
<td></td>
<td>2.1</td>
<td>1.0</td>
<td>2.1</td>
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<tr>
<td>Space (S)</td>
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<td></td>
<td>3.5</td>
<td>1.7</td>
<td>4.4</td>
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<tr>
<td>Mean</td>
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<td>15.9</td>
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<td>1.7</td>
<td>0.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Multiple/general</td>
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<td>16.7</td>
<td></td>
<td>2.7</td>
<td>1.2</td>
<td>3.2</td>
</tr>
</tbody>
</table>
Defining psychology

- Psychology – the study of mental processes and human behaviour
- Environmental psychology – the interrelationship between people and their environment
- Evolutionary psychology – how innate human behaviour and psychological processes have evolved for survival and wellbeing

• Persona is Latin for "mask"
• An individual’s unique set of traits and consistent pattern of thinking and behaviour that persists over time and across situations
• Personality is stable not fixed – bias for traits that affect behaviour
Personality theories

- Hippocrates
  - Four Humours

- Galen
  - Four Temperaments

- Freud
  - Psychoanalytic Theory

- Allport
  - Trait Theory

- Jung
  - Attitude & Functional Types

- Kersey
  - Simplified MB

- Myers
  - Briggs (MBTI)

- Eysenck
  - Three Factor (PEN)
  - Personality Inventory

- Cattell
  - 16PF

- Big 5 Factors (OCEAN)

[Source: www.hermanmiller.com/research/topics/collaboration.html]
Eysenck’s classification = Extroversion - Neuroticism

**Extroverts** – thrill seekers, require stimulation, social, impulsive, easily distracted when working alone

**Introverts** – prefer quiet life, solitary activity, reflective, distracted by noise and commotion

**Neuroticism** – ranges from calm/collected to anxiety/nervous affects planning and communication

www.hermanmiller.com/research/topics/collaboration.html
Collaboration

- “Dearth of research on link between collaborative work and space”

- Collaboration versus interaction:
  - two or more people work together to realise a shared goal that they could not have come to on their own

- Trust is key and interaction helps develop community and trust

- Heterogeneous teams more productive than homogenous

www.hermanmiller.com/research/topics/collaboration.html
### Collaboration

<table>
<thead>
<tr>
<th>OCEAN</th>
<th>Implication for performance</th>
<th>Implication for collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness</td>
<td>Good for creative tasks but detrimental to routine tasks</td>
<td>F2F meetings, brainstorming, plus stimulating, new spaces</td>
</tr>
<tr>
<td>Conscientious</td>
<td>Positive team performance across a wide variety of tasks</td>
<td>Planned, formal, well-organised, and minuted meetings</td>
</tr>
<tr>
<td>Extroversion</td>
<td>Imaginative or creative but inhibits precision and logic</td>
<td>F2F and socialising, large social groups plus impromptu, informal, off-site meetings, and stimulating spaces</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>Good for long-term teams and tasks that involve persuasion</td>
<td>Meetings with structure and information to gain group consensus</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>Level of emotional stability correlates with team output</td>
<td>Well-planned formal meetings with advance notice and information; also subdued environments.</td>
</tr>
</tbody>
</table>
Arousal theory

- Inverted U shape relationship for level of arousal and performance
- We perform better when stimulated, but too much stimulation leads to stress too little to boredom
- Extroverts have a low level of arousal whereas introverts have a natural high level of arousal
- Complex tasks increase arousal, repetitive/detailed tasks decrease it
- Noise and cold are stimulating
Space & privacy

- Hall’s proxemic framework:
  - personal distance is ~1.2 m, social/business distance higher

- Altman’s privacy model:
  - privacy is means of controlling level of interaction with others
  - personalisation is territorial behaviour, a coping mechanism

- Sociofugal and sociopetal space:
  - attractiveness related to finishes, layout and location
Behavourial settings

• Lewin:
  – behaviour in place is a function of physical environment and personality

• Barker:
  – behavioural settings relates to expectation, experience and preconceptions

• Not sure of rules and use of breakout and informal spaces
Evolutionary psychology

- From homo sapiens to office worker
- Psychological processes evolved to adapt to living on Savannah
- As hunter/gatherers we developed preference for:
  - vista/views/looking-out
  - natural light and ventilation
  - ambient noise levels
  - social animals, story telling
  - hearth/food/watering hole
  - inquisitive, contemplative
• Affinity to nature and greenery
• Place for contemplation & solitude
• “Non-taxing involuntary attention”
• Browning claims clear and quantified productivity benefits
Design principles

• Need range of different places depending on personality

• Offer choice of places to work
  – stimulating/busy/social areas or
  – quiet/contemplative/serene areas

• Encourage social interaction but respect privacy – avoid distraction

• Create team collaboration space and quiet solo spaces

• Avoid large deep plan, gloomy, dense, crowded, uninspiring places
Thank You

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