An Integrated Approach to Healthy Universities

Interdisciplinary Center for Healthy Workplaces
University of California, Berkeley

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Presentations

- Cristina Banks, PhD  University of California, Berkeley
  “The Healthy Workplaces Model”
- Sally Augustin, PhD  Design with Science
  “Designing, Literally, for Well-Being”
- Siw Tone Innstrand, PhD  Norwegian University of Science and Technology
  “Healthy Universities: Exploring Basic Psychological Needs and Health Among Academics”
- Caitlin DeClercq, PhD  University of California, Berkeley
  “Health-Promoting Innovations in Office Design”
- Isabelle Thibau, MPH  University of California, Berkeley
  “Graduate Student Experience Impact on Health and Academic Success”
The Healthy Workplaces Model

Cristina Banks, PhD
University of California, Berkeley
PROPOSITIONS

We can make the work experience a source of joy, pride, meaning, satisfaction, and well-being.

We can help employees become healthier and happier with their lives at work.

We can re-invent the workplace to create these outcomes.
Interdisciplinary Center for Healthy Workplaces
University of California, Berkeley
Repository | Convener | Catalyst

- **The Work**
  - Organizational Design
  - Human Resources

- **The Law**
  - Public Policy
  - Employment Law

- **Mind & the Body**
  - Medicine
  - Neuroscience

- **Human Nature**
  - Psychology
  - Sociology
  - Economics

- **Societal Impact**
  - Public Health
  - Nutrition
  - Physical Activity
  - Demographics

- **The Built Environment**
  - Physical Environment
  - IEQ
  - Design

- **Work Design**
  - Engineering
  - Ergonomics
  - Software Automation

- **Tools**
  - Technology
  - Health Tech
  - Sensors
Organizational Context

Healthier Employees

Improved Personal and Organizational Outcomes

Organizational and Societal Sustainability

Organizational Support

Prevention

Mitigation

Promotion

Individual Behavior Change

Physical and Psychological States

Healthier Employees

Improved Personal and Organizational Outcomes

Organizational and Societal Sustainability
Meaning/Purpose

Engaged/Accomplishment

Positive Emotions

Autonomy

Competition/Mastery

Belonging/Social Connection

Safety

Personal Growth

Physical WB/Vitality

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What are the “drivers” of need satisfaction that can be built into the work environment?

• Privacy
• Flexibility
• Predictability
• Equity
• Comfort
• Connection
• Safety
Designing, Literally, for Well-Being

Sally Augustin, PhD
Principal, Design With Science
Editor, Research Design Connections
Mood matters, a lot
Wellbeing is

“People’s evaluations of their lives—evaluations that are both affective [emotional] and cognitive. People experience abundant SWB [subjective wellbeing] when they feel many pleasant and few unpleasant emotions, when they are engaged in interesting activities, when they experience many pleasures and few pains, and when they are satisfied with their lives. . . . there are a number of separate components of SWB: life satisfaction (global judgments of one’s life), satisfaction with important domains (e.g., work satisfaction), positive affect (experiencing many pleasant emotions and moods), and low levels of negative affect (experiencing few unpleasant emotions and moods).”

(Diener, 2000)
Design in wellness by:

• Reducing stress and improving mood
• Encouraging healthy eating
• Supporting sleep and napping
• Building in activity
Reducing stress and improving mood
Encouraging healthy eating
Supporting sleep and napping
Building in activity
Sally Augustin, PhD
Principal, Design With Science
Editor, Research Design Connections

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Healthy Universities
Exploring basic psychological needs and health among academics

Siw Tone Innstrand, PhD
NTNU Center for Health Promotion Research

Cristina Banks, PhD
Christina Maslach, PhD
Christopher Lowenstein, MPH
A health-promoting university

“creates a learning environment and organizational culture that enhances the health, well-being and sustainability of its community and enables people to achieve their full potential”

www.healthyuniversities.ac.uk
Aim

What are the most important psychological needs that influence the health positively or negatively as perceived among employees in university settings?

– Gender differences
– Occupational group differences
(Academics / Technical-Administrative staff / Doctorial research fellows)
SEM model

Autonomy

Meaning

Positive emotions

Fairness

Belongingness

Competence

Safety

Positive health

Negative health
• Norwegian acronym for work environment and climate study
• Health promoting intervention program in the university setting
• 18 universities and colleges in Norway (N>15,000)
• KIWEST (Knowledge Intensive Work Environment Survey Target) questionnaire
Measures

- **Autonomy** – Job autonomy. e.g., “I have a sufficient degree of influence in my work” (Näswall et al., 2010)
- **Competence** – Task completion ambiguity. e.g., “I know when a task is completed”. (Hellgren et al., 2008)
- **Belongingness**– Social community at work. e.g., “There is a good atmosphere between me and my colleagues” (Pejtersen et al., 2010)
- **Psychological safety** - Trust in unit management. e.g., “My unit management is always reliable.” (Näswall et al., 2010)
- **Fairness** - Recognition. e.g., “I am treated fairly by the unit management.” (Pejtersen et al., 2010)
- **Meaning** – e.g., “My work is meaningful” (Pejtersen et al., 2010)
- **Positive emotions** - Utrecht Work Engagement Scales (UWES) e.g., “At my work, I feel bursting with energy” (Schaufeli, Bakker, & Salanova, 2006)
- **Health**- “My work has a positive/negative influence on my health”
Sample

• Employees with regular payroll for minimum 20% position (N=12,170)
  – 4,562 Academics (research and teaching)
  – 1,452 PhD students
  – 5,519 Administrative/technical staff
  – 637 Leaders

Men: 46%
Women 54%
Statistical analyses

The data analyses proceeded in three steps.

1. Confirmatory factor analyses (CFA)
2. Structural equation modeling (SEM)
3. Multi-group analyses in SEM*

*As latent variables are not associated with measurement error, latent mean analysis is more sensitive than traditional statistical techniques like and is more likely to detect between-group differences (Hancock, Lawrence, & Nevitt, 2000; Hong, Malik, & Lee, 2003).
1. Strongest relationship?

Gender and occupational differences?
2a. Gender differences in the level of needs
(Multi-group analyses: Female used as reference group)
2b. Gender differences in the relationships (Female/Male)
3a. Occupational differences in the level of needs
(Multi-group analyses: Academics used as reference group)
3b. Occupational differences in the relationships
(Academics/PhD/Technical-Admin)
Summary and practical implications

✓ Needs relate differently to positive and negative health
  → *Mechanisms for promoting health are likely to differ from those for preventing illness*

✓ Gender and occupational groups differ in the level of needs
  → *Why* these differences exist needs to be explored further

✓ There are gender and occupational differences in how needs are related to positive and negative health
  → *Different interventions are required to address the specific needs associated with different gender and occupational groups to create health and wellbeing*
Thank you
Health-Promoting Interventions in Office Design
How Students Define and Envision Healthy Workplaces

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Work, Stress, & Health Conference | Minneapolis, MN | June 2017
The built environment *matters* for health

How design impacts health outcomes:

- “aspects of design can [directly] impact health”
- “the design of the environment influences behaviors, actions, and interactions”
- “some aspects [of design] can be healing, health promoting”

Buildings work at behavioral and symbolic levels*; both have implications for health

• *How do I feel in this space?*
• *Do I feel safe, valued, energetic, positive, healthy?*
• *Does this space enable me to do my best work?*

How Does This Relate to Design?

Engagement: employees want to come to work and are able to do their best work (ICHW, 2015)

Drivers of need satisfaction:
- Comfort
- Connection
- Equity
- Flexibility
- Predictability
- Privacy
- Safety
Study Overview

• Focus Group Methodology
• Individual and Group Process
  1. “Think about what **connection** **means** to you. What would make a space feel more **connected**? Using words and images, take 5-7 minutes to record your ideas.”
  2. Prompt 2: The Box (**spatial elements and qualities**)
• Data Analysis
Comfort - *what*

- “Feeling good,” “physical, mental, social”
  - **Physical comfort**
    - Right lighting; good temperature
    - Being able to dress like you want
    - A good fitting chair that reclines; couch, bean bags; stretching room
    - Moveable furniture
    - A “clean, tidy, neat” space
  - **Mental** (“*feel at ease; not come home stressed*”)
    - Able to receive good energy from the people around me
    - Relationships with coworkers fostered (social events)
    - Being able to talk about personal issues; being trusted and encouraged; no discrimination; boss is accessible
    - A “fun” environment
Comfort - *how*

- Plenty of **breaks** to stretch and walk; places to have a break and meet co-workers
- Space for **collaboration**, and office **individual office spaces** with completely enclosed walls; places for “real private work”
  - Both “quiet and focused” and “engaging and interactive” environments
- **Outdoor space** for breaks; ability to work inside or outside; safe neighborhood; outdoor activities
- **Amenities**: feeling that you can have what you need whenever you need to; personal needs met
- Be able to design the room, customize workspace [user-generated]*
- **Other**: circular building; big entry; no interruptions/no bothering; clean; nap time; “floor is not hard”; a “homey” feel
Key Ideas

- **Breaks**: break room in center; gymnasium
- **Private spaces**
- **Amenities**: in center; childcare; gym
- **User-generated**: adaptable temperature; sliding doors
- **Circular building**
Key Ideas

- **Outside/beyond office**: safe neighborhood; no buildings next door; rooftop garden
- **Other**: Circular building
• Communal and private workspaces (separated by floor)
• Outside: Roof deck; transparent glass
• Breaks: couches, TV
Connection - *what*

- **Community, communication, collaboration; recognition**
  - Connection to inside/outside; connection to management; connection between employees; connection of ideas
  - Connected to work visually, physically, mentally, and socially
  - Environment where voice is heard, recognized for efforts, company is invested in you, outside of work accomplishments (work and non-work)
    - feeling welcomed; being able to voice concerns; knowing that you can approach anyone in the workplace;
    - “your work is recognized and valued by other members of the organization”
Connection - *how*

- **Connection to management, employees**: sense of importance to group; proximity of people; sliding glass doors; can see and communicate with peers (“without fear of being called out for talking to them”)
- **Connection of ideas**, comfort to collaborate, communication (at and beyond work), teamwork; co-working spaces
  - Yet, also “some privacy...space where I can be myself and do what I want”
- **Connection to outside**: connection to “nature/health”; connection to the outer world; lots of windows/natural light
- **Other**: hexagonal workspaces, open plan, shared resources, beds (!), kitchens
  - “members can sleep and eat together to make a space feel more connected”
Main ideas:
Management/employees: 
cubicles face common area; 
sociopetal seating (x2)
Outside: trees
Collaboration: collaborative seating (yet private offices)
Management/employees:
- ping pong table, cafeteria, break rooms

Outside:
- windows, outdoor area, “open air spaces”

Other:
- “connection to health”

- having open air spaces (connection to nature, health)
Management/employees: break room, couches; short walls; memo wall

Outside: trees; glass

Collaboration: innovation area; café; collaboration desks
• Private and social areas (separated by lofted floor)
• Couches and long tables
• Mini offices with glass, sliding doors “to encourage leaving them open”
• Shared resources
Note beds and kitchen – *eat and sleep together*!
Equity - *what*

- Equity is about equal opportunity
- Fairness, equal allocation of resources; respect all occupations
- Options and choice
  - Private, but not too private
  - Creative freedom
- Sharing spaces, feelings, interests
  - Management is responsive
  - Giving people a say
  - Feeling listened to
- No boundaries, transparent
Equity - *how*

- **Equal allocation of resources/space:** have the same (type, size) facilities, chairs, desks, offices*; equal access to communal resources (e.g., lighting, windows, views); “equal freedom from distraction”
- **Visually display incentives**
  - *and hierarchy? → yet, “management should be on same level”*
- **Options and choice:** seating, noise levels, food; open floor space (*designated space = unequal*)
- **Sharing spaces, feelings, interests:** conference spaces as places “to freely share creativity”
- **No boundaries, transparent:** windows, skylights, glass, personal space
- Other: white walls, round or “diamond layout” tables
Equal allocation: divide in half by noise levels (freedom from distraction); gender neutral bathrooms

Options: standing/sitting

Sharing: art wall

Other: circles
Equal allocation:
auditory barrier
Options: food options
Sharing: benches, cubicles arranged for collaboration
Equal opportunity:*
• Note the 4-sided elevator!
• Everyone on the same floor, “not sectioned off by hierarchy”
Flexibility - *what*

- Cultural, spatial, bodily
  - Inviting, calm, peaceful, warm*
  - A lot of choice
    - No set spaces (function, role)
    - Flexible space = flexible body (*movement, postural variation*)
  - Movability; makeshift privacy
  - Open access; free
- Abstract processes encouraged
- Multiple resources, tools, modes of expression
Flexibility - how

• **Inviting**: bright and inviting lighting (skylights, glass doors, windows, changing lights); music; garden; high ceiling

• **Options**
  • No set spaces; *unprescribed* space – can work anywhere), “not tied to a desk”
  • Flexible bodies, postural variation, “possible movement in space”
  • Movable furniture, adjustable lights

• **Multiple resources and modes of expression**: blackboards and computers; multiple entrances and exits

• **Open**: no clock; outdoor space; storage on walls; open space
Main ideas:

**Inviting**: natural lighting, windows

**Options**: movable (sliding) walls; work and break spaces outside; individual and collaborative spaces; sit/stand

**Open**: “space created based on preference”
Options: different postures (carpeted space to encourage); furniture (and tree!) on wheels*

Multiple resources:
shared supplies
Predictability - *what*

- **Workplace** *meets expectations*
  - Knowing that your workplace will have the things you need to do the work assigned
  - Being able to predict certain outcomes at your workspace so you can make decisions
- **Safety**: to know you will be safe or not (“no panic: know next action”)*
- **Autonomy**, privacy (visual, aural)
- **Enough resources**, enough workspaces, predictable infrastructure
- **Familiarity** with space (function, navigation) and people
- Not disturbed by irrelevant things (**low distraction**)
Predictability - *how*

- **No workplace hazards:** structurally sound floors and ceilings; sanitation; no pooping dogs, bugs, leaky ceilings
- **Autonomy, privacy:** personal items; personal spaces; aural privacy (carpeting to control sound)
- **Sufficient and reliable resources:** central location for supplies/supplies continually restocked; food, furniture, maps, wifi, parking, nap pods, showers, bathrooms
  - “Employees can fix the equipment”
- **Familiarity with space, people, and schedule:** display schedules/calendars and staff information; **signage**, labels
- **Other:** plants (“can predict they will grow → nature’s predictability”)
• No hazards: clean!
• Privacy: carpet controls sound; ample private spaces
• Sufficient resources: consistent personal spaces; central supplies; ample flex space
- **Familiarity:** staff information via display; coffee tables
• Parking spots – more spaces than people!,
• Kitchenette
• Emergency resources
Privacy - what

• Digital, personal, spatial privacy
  • Having spaces for both collaboration and privacy* (question of the default; “being able to progress on work without collaboration”)
  • Digital: log in codes, passwords, privacy screens
  • Personal space: your space is respected; you can deal with your private life; personalize space; making the space my own (like private property); no looking over shoulders or sneaking up

• You have a choice in when to show/reveal your work; turn on/off communication depending on needs

• Comfort: a safe space, relaxation, customization
Privacy - *how*

- **Spaces for both collaboration and privacy**: private rooms (which can’t be seen through) and collaborative spaces (which can be seen through).
- **Personal space**
  - **Controlling access**: doors, closets; high walls and seat backs; tables that hide your legs; key card access; opaque windows/shutters; can see who is coming; private offices; soundproof (“ensuring confidentiality”); reception desk
    - “*each office has all materials required for position: staplers, pencils...*”*
  - **Personalization**: personalization; cubicle or office has amenities in it (personal fridge, water cooler, white board)
- **Comfort**: sofa, comfy chair, “personal comfortable chair”
- **Other**: pastel colors, nature, garden area, music (without disturbing others), hexagonal workstations
  - “*round tables not great for private work*”
• **Collaboration and privacy:** pathways to collaboration; private spaces (can’t see in); private tables in collaborative room

• **Comfort:** chairs
Private offices

Reception area
Private offices

Personal space: high backed chair; desk hides legs; personal resources (water cooler)
- Drawers
- Dividers
- Tinted windows and shutters
Safety - what

- Physical safety
  - Structural safety ("facilities protect")
  - Taking account for natural disasters
- Psychological safety
  - Privacy
  - Personal space
  - Pleasant colors (calming)
  - A safe and inclusive space
  - Food, job, financial security
Safety - how

• **Physical safety**: structural safety (sturdy walls, retrofitting); natural disaster and emergency preparedness (exits, alarms); no toxic substances; easy access to exits; good lighting (controllable)
  • Limiting access: card key, scanners, access codes

• **Psychological safety**: privacy, personal space, safe and inclusive space*, white walls; backs against wall

• Other: [environmental cues and affordances]: warning signs; wayfinding signs; ramps for people with disabilities;
  • “small city; 10-20 people”** [defensible space – Oscar Newman]
• Main ideas:
• Physical safety: natural light; reception
• Psychological safety: GN bathroom; HR
• **Physical safety:** receptionist; nature; protect sharp edges; emergency button
• **Psychological safety:** colors; lockers (personal space)
• **Cues:** wayfinding signs
• Accessible HR boss
• Cameras and lights
• Windows (as exits)
• Visible emergency protocols/ resources
Discussion

• Interrelation of 7 drivers (privacy, comfort*)

• Common themes
  • **Nature** (comfort, connection, flexibility, privacy)
  • **Posture** (comfort, flexibility)
  • **User-generated design** (comfort, equity, flexibility, predictability)
  • **Shapes** (comfort, connection, equity), **colors** (connection, predictability, safety)
  • **Break room** (comfort, connection, flexibility)
Discussion

• Conflict and overlap
  • Break rooms as social space vs. refuge (connection vs. comfort or privacy)
  • Walkway to limit vs. connect (privacy vs. connection)
  • Predictability vs. unpredictability (lead to new ideas)
  • Tension between open and closed spaces (defaults*)

• Implications
  • Methodology: Unique way to identify design correlates (and ultimately make workplaces meet needs and promote worker health)
  • Findings: Perceptual and behavioral implications of office space → impact need satisfaction
Graduate Student Experience Impact on Health and Academic Success

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Fran Kipnis
Cristina Banks, PhD

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June 10, 2017
Study Overview

Research questions:

• What do graduate students need in their work environments to be successful?

• How do their work environments affect their health, well-being, and work outcomes?
What we found

- Certain features in the study environment contribute more to need satisfaction than others
- We identified features that the University should add to the student environment to promote greater need satisfaction.
- Some work performance attitudes are related to better or to worse health
Study Overview

Subjects: Graduate students from UCB campus (N=462)

Measure: Graduate Student Experience Survey

Method: Developed, administered on-line survey to all registered graduate students (7,083) via email solicitation by each department head, one-month response period; attrition rate = 26%

Analysis: Descriptive statistics, chi square analyses, and multiple regressions
Tool Description

Survey: 5 sections

• **(Context)** Demographics, academic program
• **(Environment)** Rate importance of features, tell us what you have or use
• **(Individual behavior)** Study habits
• **(Needs)** Identify basic needs that are satisfied by each feature
• **(Personal outcomes)** Work satisfaction, productivity, physical and mental health, stress
Results

Berkeley School Students Reported Attending (N=462)

- Science-related schools: 21%
- Non-science related schools: 50%
- Haas School of Business: 29%
PERCENTAGE OF STUDENTS REPORTING DISTRACTION BY CONCERN

(N=393)

Finding Time to Eat: 47%

My financial situation: 51%

Getting academic/social support: 45%
<table>
<thead>
<tr>
<th>Workspace Features</th>
<th>Ambiance Features</th>
<th>Cultural and Policy Features</th>
<th>Resources</th>
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</thead>
<tbody>
<tr>
<td>• Sufficient space to do work</td>
<td>• Generally quiet</td>
<td>• Clear understanding of course instruction, of assignments</td>
<td>• Reliable Internet</td>
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<td>• Uncluttered workspace</td>
<td>• Natural light</td>
<td>• Fairness and equity</td>
<td>• Technological compatibility</td>
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<td>• Windows</td>
<td>• Collaborative environment</td>
<td>• Safety and freedom from harassment</td>
<td>• Access to healthy food</td>
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<td>• Bathrooms nearby</td>
<td>• Odorless environment</td>
<td>• Manageable workload</td>
<td>• Training in research skills</td>
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<td>• Individual study table</td>
<td>• Fresh air</td>
<td>• Effective methods of communication</td>
<td>• Access to kitchen/food storage area</td>
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<td>• Ergonomic chair</td>
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<td>• Supportive culture</td>
<td>• Leadership training</td>
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<td>• Physical layout that promotes focus</td>
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<td>• Ability to apply skills on assignments</td>
<td>• Availability of tech equipment and devices</td>
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<td>• Private group study room</td>
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<td>• Peer support</td>
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</table>
Most Need Satisfaction

Top 1-5
- Manageable workload
- Supportive culture
- Equity
- Sufficient space to do work
- No harassment

Top 6-10
- Peer support
- Quiet study space
- Windows
- Uncluttered space
- Natural light

Top 11-15
- Effective communication
- Collaborative environment
- Ability to apply learned skills to assignments
- Reliable internet
- Clear understanding of assignments
Least Need Satisfaction

Bottom 1-5
- Bright colors
- Wall art
- Accommodation on assignments
- Music
- Fixed desk

Bottom 6-10
- Natural colors
- Outside table
- Couch
- Armchair
- Views of internal space
Do students actually have these features?

And do these important features satisfy their needs?

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<tr>
<th>Have + Satisfy</th>
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Satisfaction with Work Performance

• Dissatisfaction with workload and number of available study locations is associated with increased stress.
• Satisfaction with study habits and knowledge gained associated with increased stress.
• Dissatisfaction with professional network associated with poorer health.
• Satisfaction with workload associated with better health.
• Satisfaction with workload associated with not feeling dispirited.
Conclusion

We should design spaces that have elements that support basic need satisfaction.

- Certain features contribute more to need satisfaction:
  - quality space, freedom from distraction, support, safe, enough resources to take care of basic needs.
- The University should add to the environment features that have greater student need satisfaction.
  - manageable workload, quiet workplace, no harassment, and reliable internet.
- Some work performance attitudes are related to better and others to worse health
  - Workload, availability of space in which to study, study habits, knowledge gained, and professional network
Where do we go from here?

- More data, more research
- Research tool and methodology being adopted in Norway
- Work with UC on designing space
- Develop an assessment tool and inventory
References


