

The role of university faculty in an age of ubiquitous personal networked computing

Gardner Campbell, Ph.D.

Virginia Commonwealth University

gardnercampbell.net

@gardnercampbell

The
Role
of
University
Faculty
in an
Age
of
Ubiquitous
Personal
Networked
Computing

The
Role
of
University
Faculty
in an
Age
of
Ubiquitous
Personal
Networked
Computing

The
Role
of
University
Faculty
in an
Age
of
Ubiquitous
Personal
Networked
Computing

Faculty

University

Role

Age

Computing

Personal

Ubiquitous

Networked

etymology faculty



fac·ul·ty

Origin



late Middle English: from Old French *faculte*, from Latin *facultas*, from *facilis* 'easy,' from *facere* 'make, do.'



Translations, word origin, and more definitions

fac·ul·ty 'fakəltē/ *Noun*

1. a. an inherent mental or physical power.

"her critical faculties"

b. an aptitude or talent for doing something.

"the author's faculty for philosophical analysis"

fac·ul·ty 'fakəltē/ *Noun*

1. a. an inherent mental or physical power.
"her critical faculties"
b. an aptitude or talent for doing something.
"the author's faculty for philosophical analysis"
2. a. the teaching staff of a university or college, or of one of its departments or divisions, viewed as a body.
"there were then no tenured women **on the faculty**"

fac·ul·ty 'fakəltē/ *Noun*

1. a. an inherent mental or physical power.
"her critical faculties"
 - b. an aptitude or talent for doing something.
"the author's faculty for philosophical analysis"

2. a. the teaching staff of a university or college, or of one of its departments or divisions, viewed as a body.
"there were then no tenured women **on the faculty**"
 - b. a group of university departments concerned with a major division of knowledge.
"the Faculty of Arts and Sciences"

fac·ul·ty 'fakəltē/ *Noun*

1. a. an inherent mental or physical power.
"her critical faculties"
b. an aptitude or talent for doing something.
"the author's faculty for philosophical analysis"
2. a. the teaching staff of a university or college, or of one of its departments or divisions, viewed as a body.
"there were then no tenured women **on the faculty**"
b. a group of university departments concerned with a major division of knowledge.
"the Faculty of Arts and Sciences"
3. a license or authorization, especially from a church authority.

UNIVERSITY

The word "university" is derived from the Latin *universitas magistrorum et scholarium*, which roughly means "community of teachers and scholars."

In modern usage the word has come to mean "An institution of higher education offering tuition in mainly non-vocational subjects and typically having the power to confer degrees...."

University



Copyrighted Material

CLARK KERR

THE USES OF THE
UNIVERSITY

FIFTH EDITION

WITH A NEW CHAPTER AND PREFACE

Copyrighted Material

Triumphs of the modern university (Clark Kerr, *The Uses of the University*)

- The goal of universal access to higher education.
- Research universities, not industry, as the great engines of discovery and innovation (courtesy of the federal government).
- A rising tide of prosperity and productivity.

The pathologies of the modern university

- Rising federal influence over the direction of intellectual endeavors.
- Elevation of the sciences over the humanities and the social sciences (with \$\$ inequities).
- Valuing research and service over teaching, with particular neglect of undergraduates.
- A new class of faculty and administrators chasing dollars and neglecting educational policy issues.

ROLE



By CVUT - Own work, CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=7193882>

ROLE

A diploma is a certificate or deed issued by an educational institution, such as college or university, that testifies that the recipient has successfully completed a particular course of study.....

The diploma (as a document certifying a qualification) may also be called a **testamur**, Latin for "we testify" or "certify" (testari).....

AGE



“The world has arrived at an age of cheap complex devices of great reliability; and something is bound to come of it.”

Vannevar Bush, “As We May Think,” *Atlantic Monthly*, July, 1945

“We are living in the middle of the largest increase in expressive capability in the history of the human race.”

Clay Shirky, *Here Comes Everybody* (2008)

ABCDEFGHIJK

LMNOPQRSTU

VWXYZ

Computing

reproduced. The stored-program computer, as conceived by Alan Turing and delivered by John von Neumann, broke the distinction between numbers that *mean* things and numbers that *do* things. Our universe would never be the same.

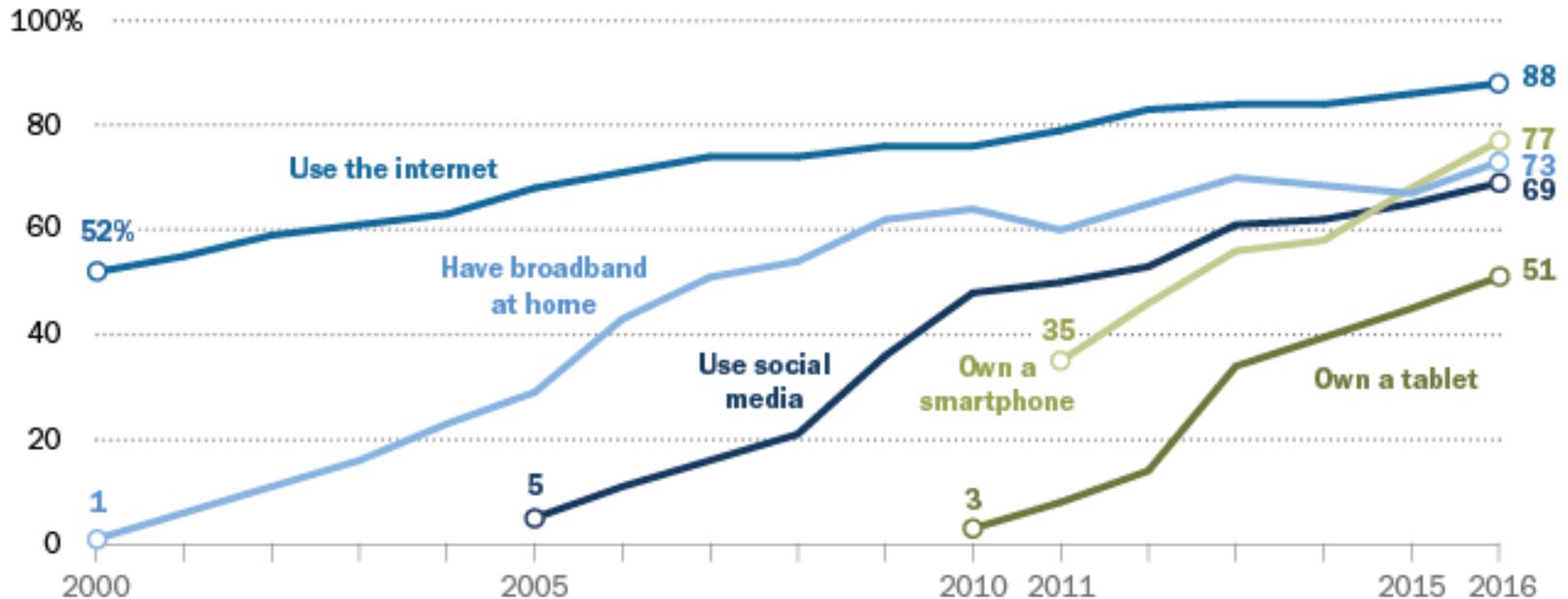
George Dyson, *Turing's Cathedral: The Origins of the Digital Universe*



UBIQUITOUS

The evolution of technology adoption and usage

% of U.S. adults who ...



Source: Surveys conducted 2000–2016. Internet use figures based on pooled analysis of all surveys conducted during each calendar year.

PEW RESEARCH CENTER

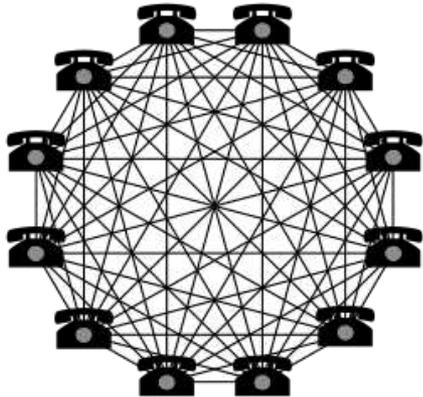
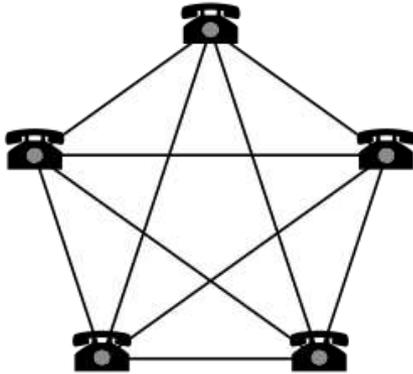
<http://www.pewresearch.org/fact-tank/2017/01/12/evolution-of-technology/>

PERSONAL

“Man’s working image of himself is anchored in his sense of intimacy—in the events and relations that are the fabric of his immediate experience and make up his way of life. Change in the individual is a function of how much and in what manner an intimate way of life is altered.” Jerome Bruner, “Fate and the Possible,” in *On Knowing: Essays for the Left Hand* (Harvard UP, 1979)



NETWORKED



[T]he value of a telecommunications network is proportional to the square of the number of connected users of the system (n^2).

"[E]ven Metcalfe's law understates the value created by a group-forming network [GFN] as it grows. Let's say you have a GFN with n members. If you add up all the potential two-person groups, three-person groups, and so on that those members could form, the number of possible groups equals 2^n . So the value of a GFN increases exponentially, in proportion to 2^n . I call that Reed's Law. And its implications are profound."

David Reed, "The Law of the Pack," *Harvard Business Review*, February 2001
<http://hbr.org/2001/02/the-law-of-the-pack/ar/1>

Looking at the dynamics of these laws, you realize that the forces at work are not just exponential, they're hyperexponential because these are not independent laws, they interact with each other. And because they rule our technological infrastructure, they enable powerful changes in the way we live, work, and learn.

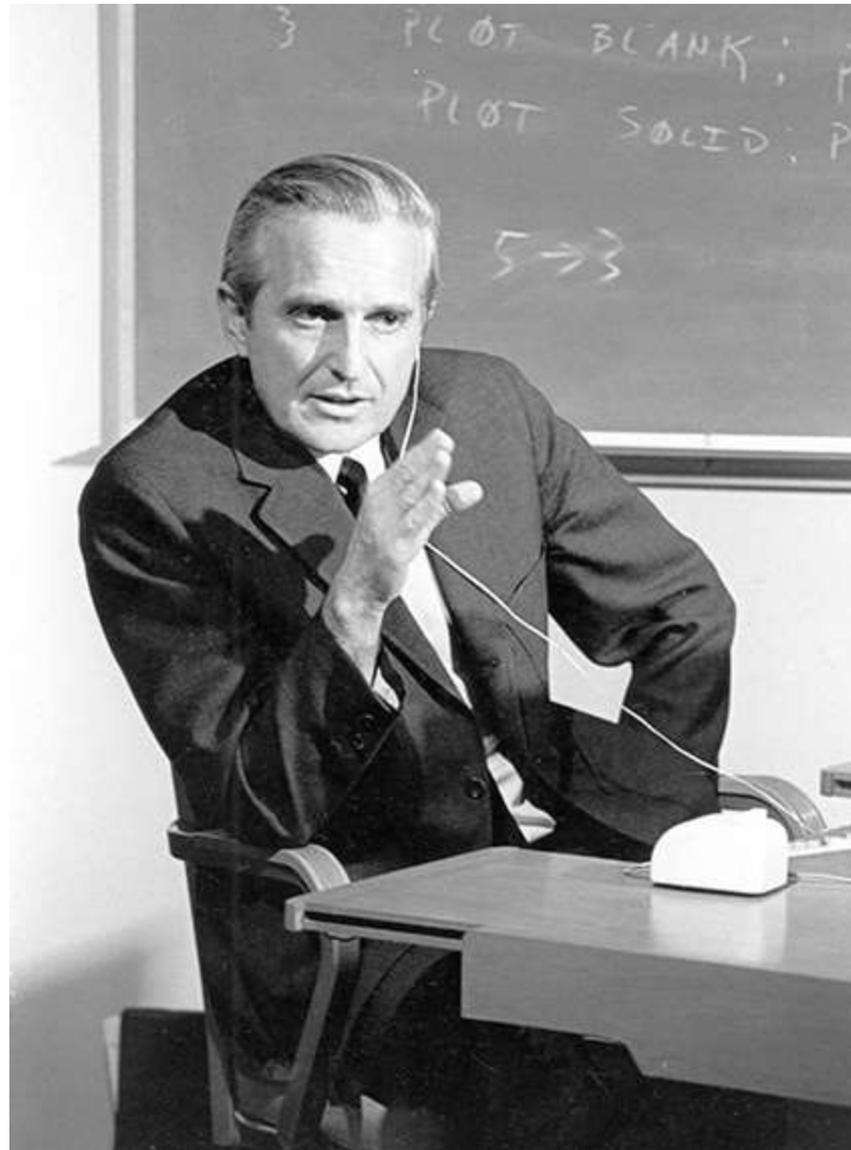
John Seely Brown, "The Social Life of Learning: How Can Continuing Education Be Reconfigured in the Future?"





No one knows what it would do to a creative brain to think creatively continuously. Perhaps the brain, like the heart, must devote most of its time to rest between beats. But I doubt that this is true. I hope it is not, because [interactive computers] can give us our first look at unfettered thought.

J. C. R. Licklider, "Computers in the University," in *Computers and the World of the Future* (1962)



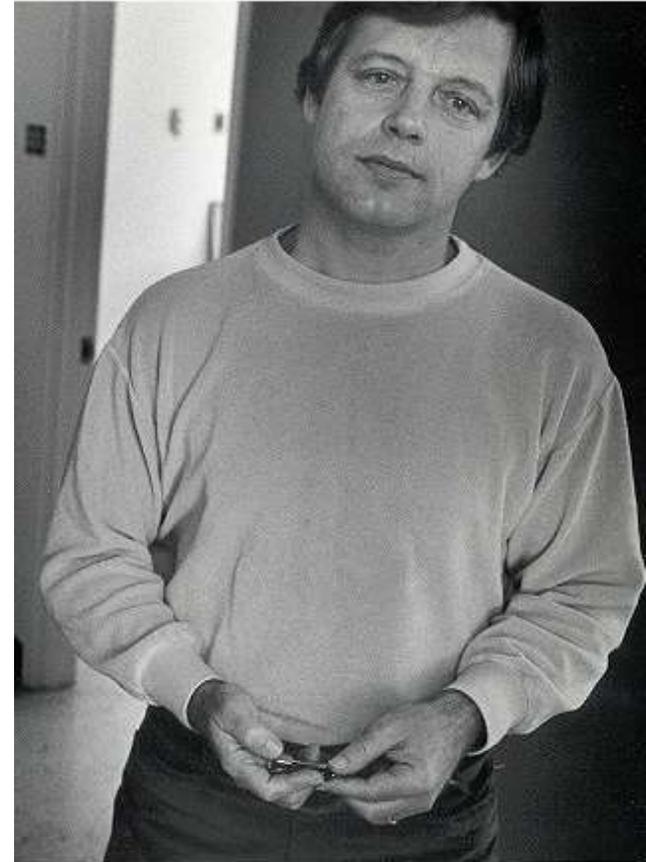
An Integrated Domain

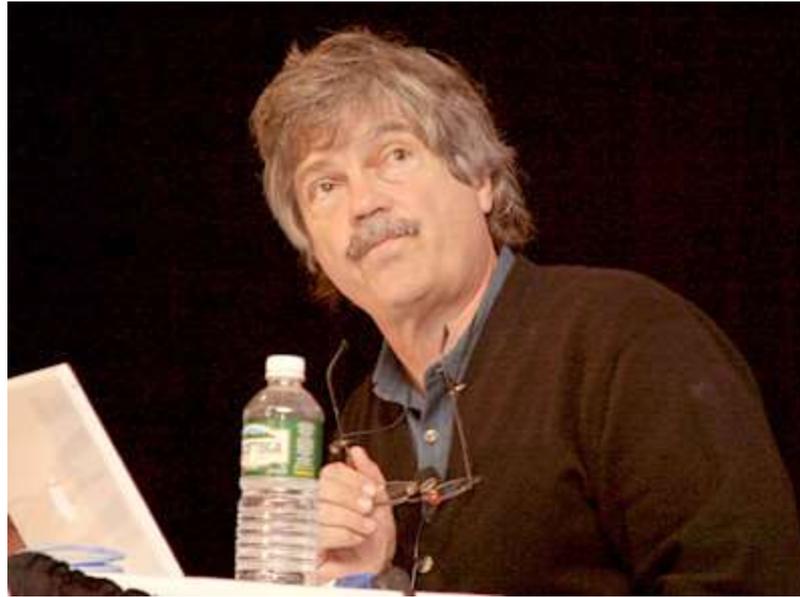
“We do not speak of isolated clever tricks that help in particular situations. We refer to a way of life in an integrated domain where hunches, cut-and-try, intangibles, and the human ‘feel for a situation’ usefully co-exist with powerful concepts, streamlined terminology and notation, sophisticated methods, and high-powered electronic aids.”

Douglas Engelbart, “Augmenting Human Intellect: A Conceptual Framework,” 1962

The real significance of computing was to be found not in this gadget or that gadget, but in how the technology was woven into the fabric of human life—how computers could change the way people thought, the way they created, the way they communicated, the way they worked together, the way they organized themselves, even the way they apportioned power and responsibility. That was what had resonated so deeply in Taylor's mind.

--Mitch Waldrop, *The Dream Machine*





**The computer is an instrument
whose music is ideas.**

Alan Kay

“[Education] ought to teach and reward initiative, curiosity, the habit of self-motivation, intellectual involvement.”

Ted Nelson, “Computer Lib/Dream Machines” (1974)

“Educators and computer enthusiasts tend to agree on these goals. But what happens? Many of the inhumanities of the existing system, no less wrong for being unintentional, are being continued into computer-assisted teaching.” Ted Nelson, “Computer Lib/Dream Machines” (1974)



Any choice of pedagogical practice implies a conception of the learner and may, in time, be adopted by him or her as the appropriate way of thinking about the learning process. For a choice of pedagogy inevitably communicates a conception of the learning process and the learner. Pedagogy is never innocent. It is a medium that carries its own message.

“Folk Pedagogy,” Jerome Bruner (1996)

Roughly speaking, there are two ways to use computers in the classroom. You can have them measure and represent the students and the teachers, or you can have the class build a virtual spaceship. Right now the first way is ubiquitous, but the virtual spaceships are being built only by tenacious oddballs in unusual circumstances. More spaceships, please.

Jaron Lanier, “**Does the Digital Classroom Enfeeble the Mind?**”, *New York Times*, September 16, 2010.



The task is the same now as it ever has been, familiar, thrilling, unavoidable: we work with all our myriad talents to expand our media of expression to the full measure of our humanity.
Janet Murray, "Inventing the Medium"

THE IMAGE OF ARIZONA STATE COLLEGE

TO BECOME EDUCATED IS TO BECOME MORE HUMAN.

RECOGNIZING THIS PRINCIPLE, WE OF THE ARIZONA STATE COLLEGE FACULTY DEDICATE OURSELVES TO MAINTAIN THE HIGHEST STANDARD OF PROFESSIONAL EFFICIENCY IN A CAMPUS ATMOSPHERE OF SCHOLARSHIP AND FRIENDLINESS. FURTHERMORE, WE FEEL THAT WITHIN AND WITHOUT THE CLASSROOM, THE LINE OF COMMUNICATION BETWEEN THE STUDENT AND THE FACULTY MUST BE KEPT OPEN, AND THE INDIVIDUALITY OF THE STUDENT MUST BE PRESERVED.

1961