

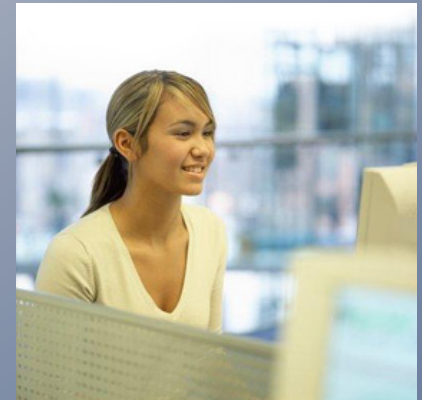
# Culture Clash!

**Undergraduate Student Socialization  
during Pre-professional Work in the IT Field**

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*School of Information Studies*

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# IT Work: Recruitment & Retention



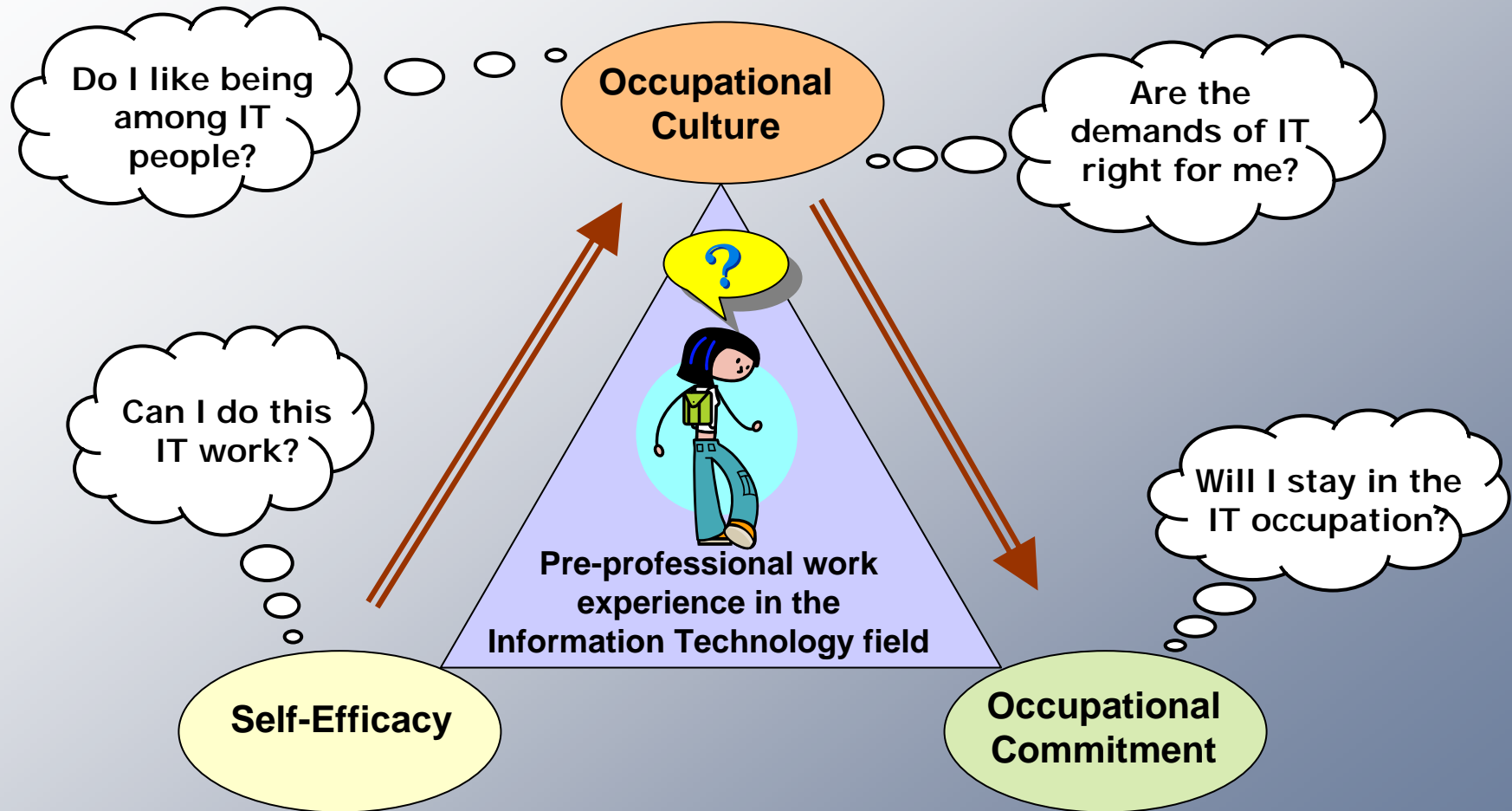
**Enrollments in IT majors have continually dropped since 2001 (Babbitt, 2001; Bentsen, 2000)**

**IT workers report high turnover intentions (Hu, Poon, Zhong, & Wan, 2004; Moore, 2000)**

**Women and minorities are underrepresented in the IT workforce (Tapia & Kvasny, 2004; Trauth, 2002).**

**An ITAA report suggests that a reason for underrepresentation may lie in the unattractiveness of the IT work environment.**

# Theoretical View (Trice, 1993)



# Research Questions

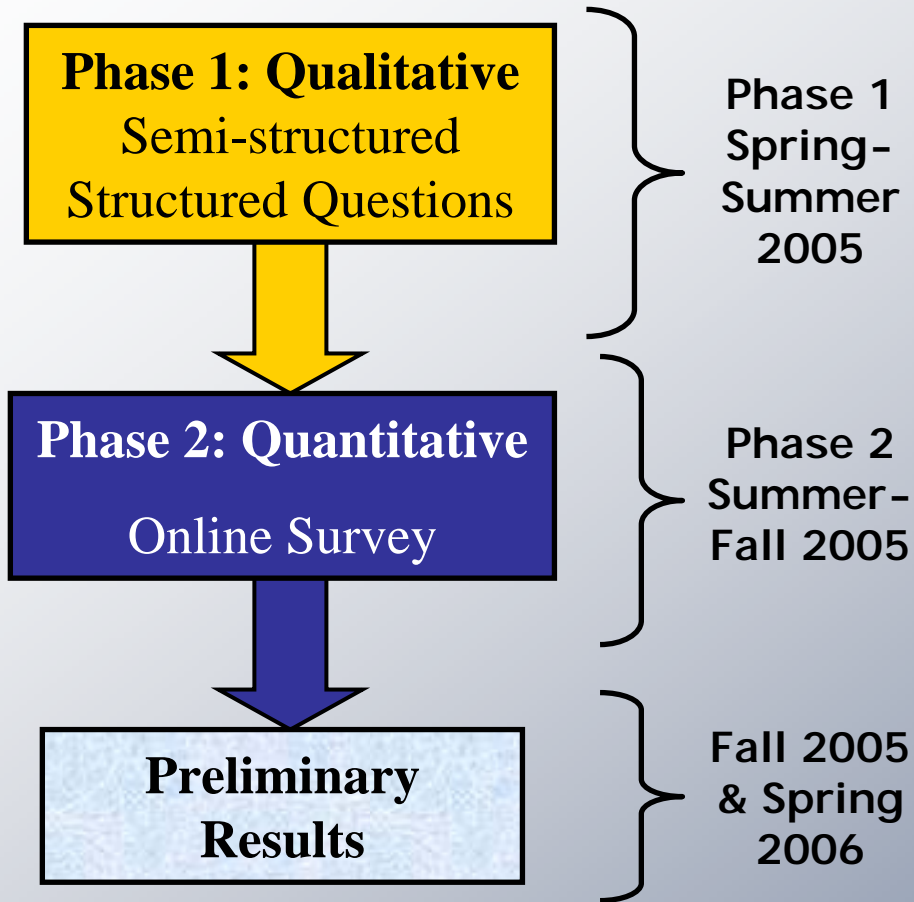
Culture

Groups

Commitment

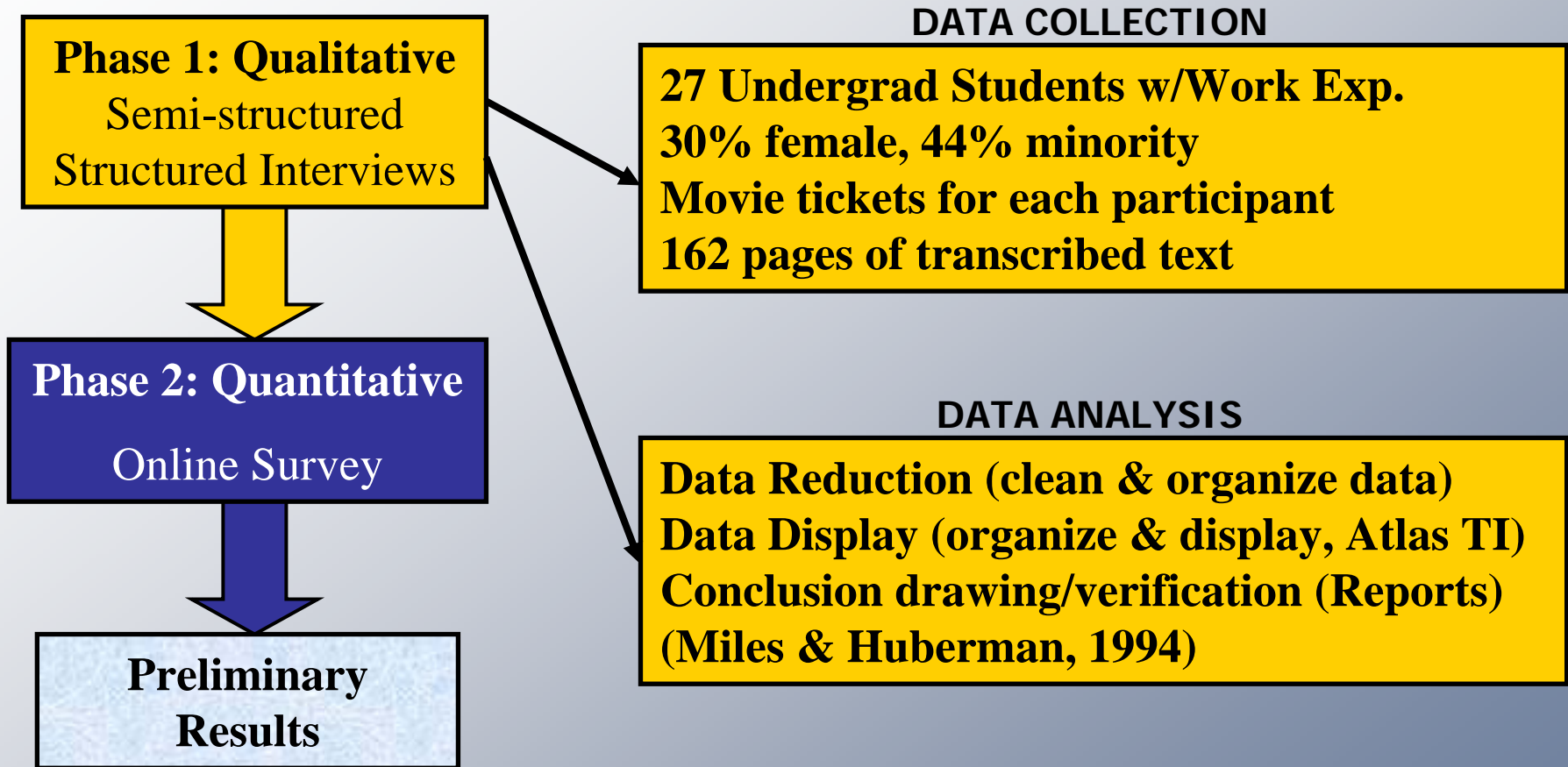
- I. What are the occupational culture features to which newcomers most easily adapt during their adjustment to the IT occupation? Which cultural features present the most difficulty for acculturation?
- II. Do men and women experience the acculturation process differently? Do members of minority groups experience the process differently than those in the majority?
- III. Does adjustment of college students to IT occupational culture predict occupational commitment and if so how?

# Sequential Mixed Methodology

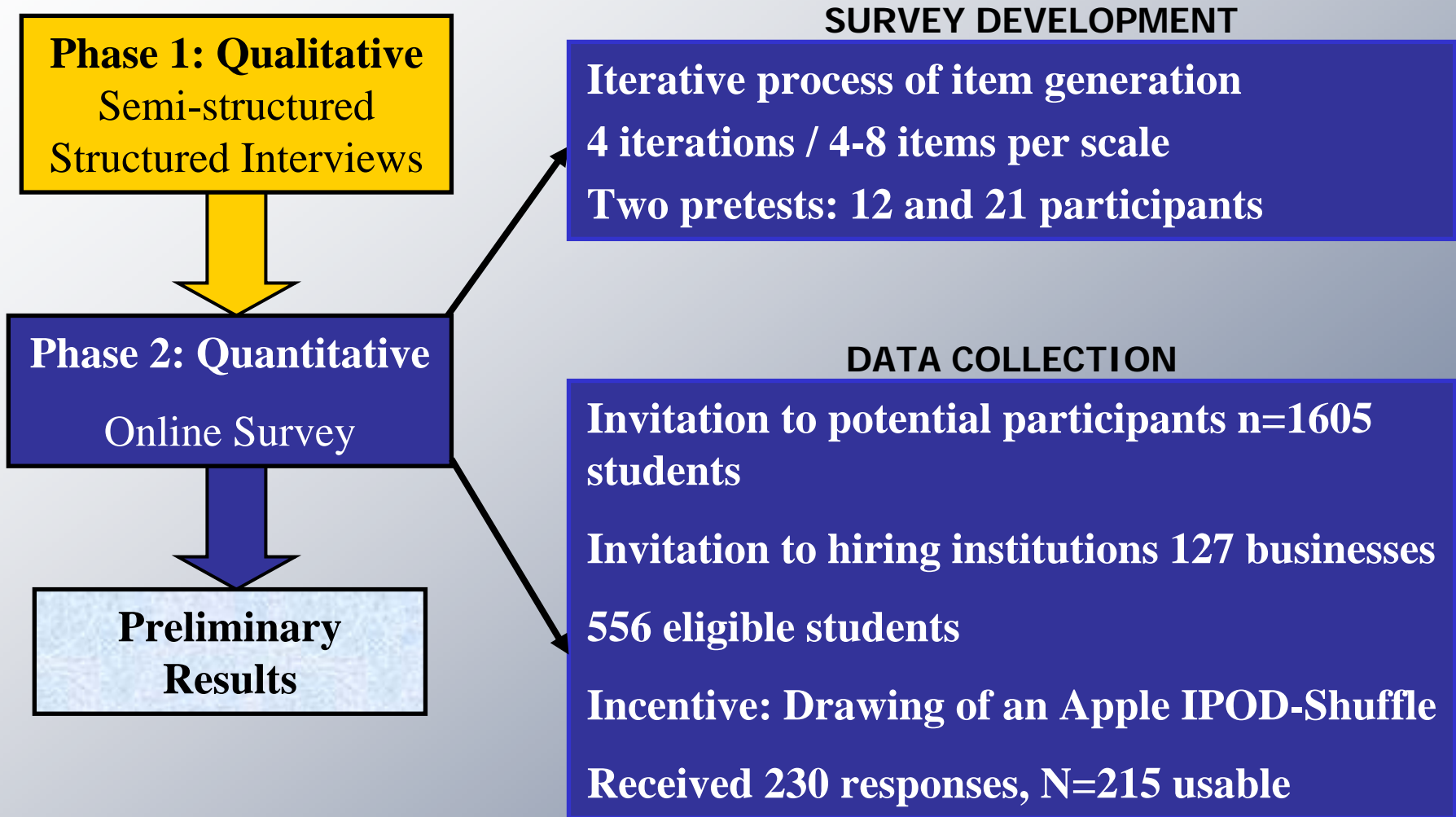


Adapted from Tashakkori & Teddlie (1998)

# Phase 1: Qualitative

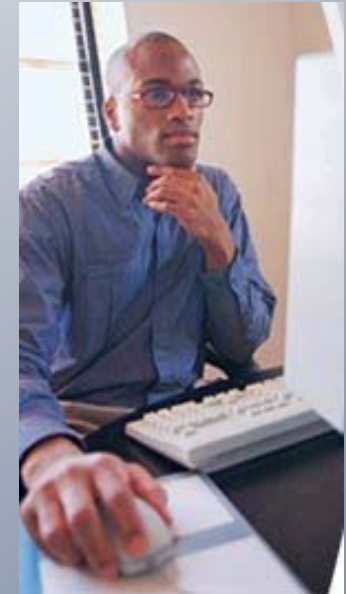
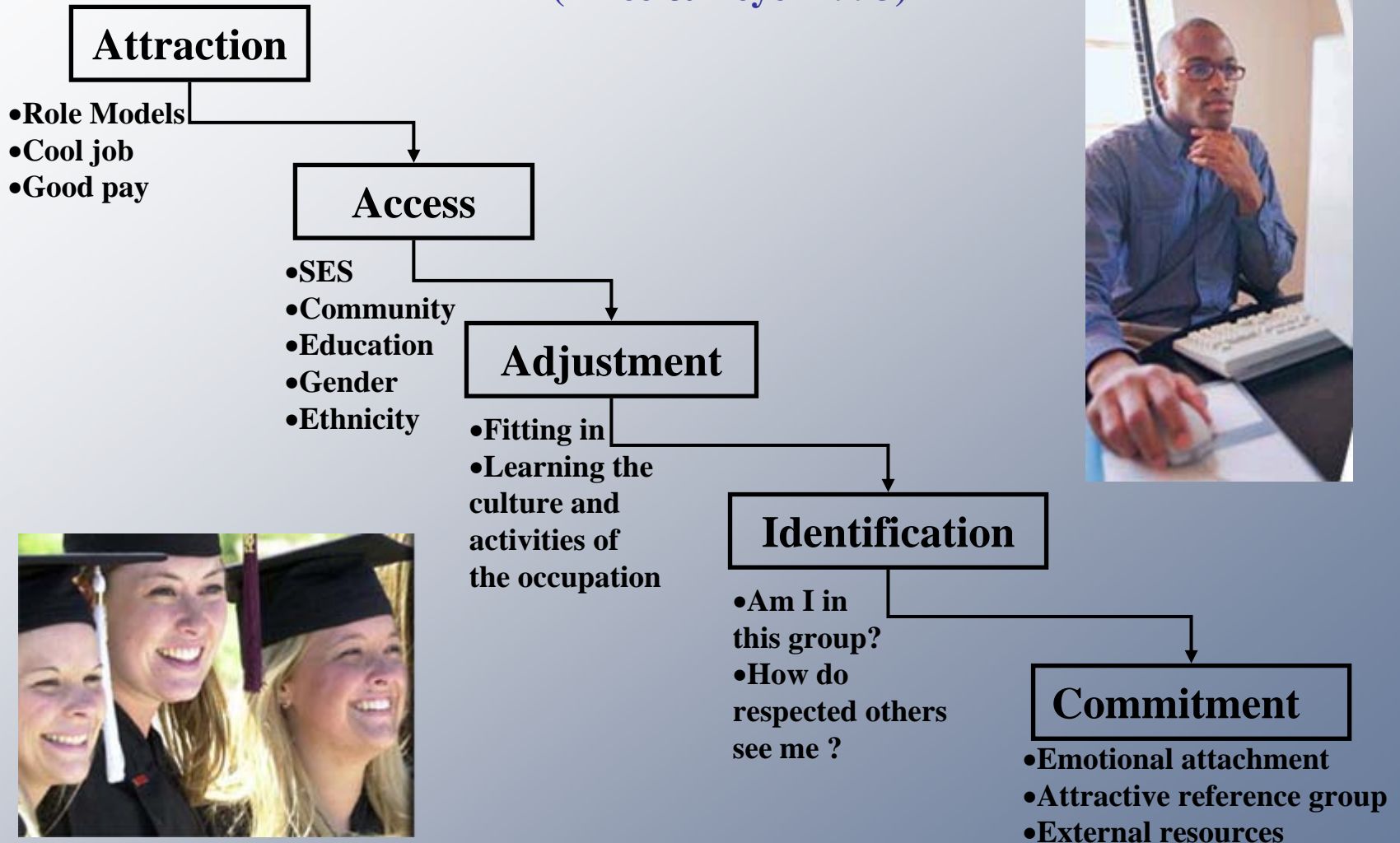


# Phase 2: Quantitative

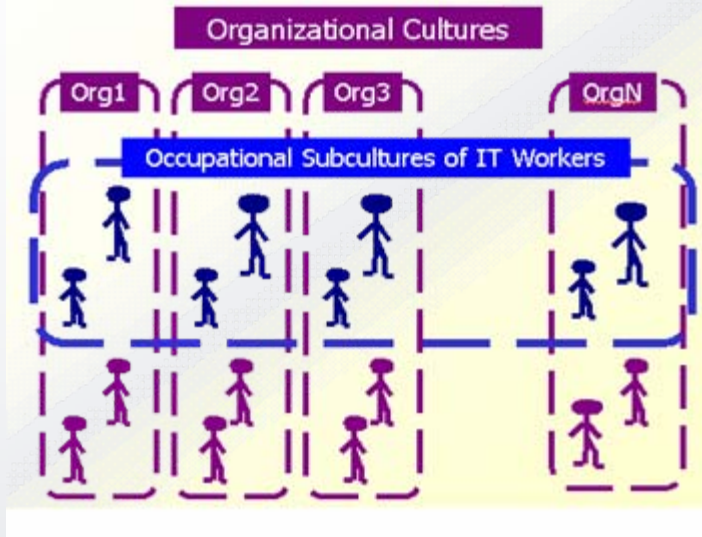


# Occupational Socialization

(Trice & Beyer 1993)



# Theoretical Framework



## Occupational subcultures (Trice 1993)

Arise from the shared educational, personal, and work experiences of individuals who pursue the same profession.

## Group-Grid Analysis (Douglas, 1982)

map the links between culture and behavior in an occupation.

### Examples:

Esoteric knowledge  
Extreme Demands  
Consciousness of kind  
Pervasiveness  
Favorable self-image

**GROUP**

**DIMENSION**

### Examples:

Membership  
Formal rules

**GRID**

**DIMENSION**



# Previous Research: IT Subculture

(Douglas, 1982)

(Daruba & Baroudi, 1991; Gerulat, 2003; Guzman et.al., 2004)

<b>GROUP DIMENSION</b>	<b>MANIFESTATIONS OF IT OCCUPATIONAL COMMUNITY</b>
<b>Esoteric knowledge and expertise</b>	<b>Proud of restricted IT skills and abilities; Perceived high value of technical knowledge</b>
<b>Extreme &amp; unusual demands</b>	<b>Need for constant self re-education; long hours; field forever changing; unsatisfied and/or angry users</b>
<b>Consciousness of kind</b>	<b>Boundaries between IT people and non-IT people, occupational membership</b>
<b>Pervasiveness</b>	<b>IT people predominate in non-work social community. Use IT in their leisure time</b>
<b>Status, Favorable self-image</b>	<b>Personal Status, benefits of belonging to the IT occupation.</b>
<b>Abundance of cultural forms (Stereotypes, language, stories)</b>	<b>Stigmatized as nerds/geeks; shared stories about user mistakes and challenges of IT work; shared jargon; informal clothing</b>
<b>GRID DIMENSION</b>	<b>Lack of formal rules and rankings. Unclear job titles.</b>

# Phase 1: Results – RQ1

1. What are the features of the occupational culture that newcomers first learn and become adjusted to as they acquire their first IT related work experiences?

GROUP DIMENSION	MANIFESTATIONS PERCEIVED BY STUDENTS
1-Esoteric knowledge and expertise	People in IT-related positions possess and value esoteric knowledge, challenge, solving problems.
2-Extreme & unusual demands	IT-related positions impose significant demands on time and energy
3-Consciousness of kind	Physical workspace, dress, language, behavior make people either members or non-members.
4-Pervasiveness	IT activities pervade non-work and leisure time. Differences by gender and ethnicity were suggested.
5-Status	Favorable self-image/pride associated with being members of the group.
6-Cultural forms	Stigmatized as nerds/geeks; shared jargon;



# Phase 1: Results – RQ1 & RQ2

## Sample Quotes: General

**"I sit for hours reading articles in IT. Part of it is the fear, if you don't keep up, you're obsolete."**

**"A lot of times there's a lack of understanding between IT people and end users. End users want something that looks like this and works this way. A lot of times that's not possible or can't be done."**

## Sample Quote: Minority

**"My hobbies have nothing to do with IT, it's almost all sports."**

## Sample Quotes: White Males

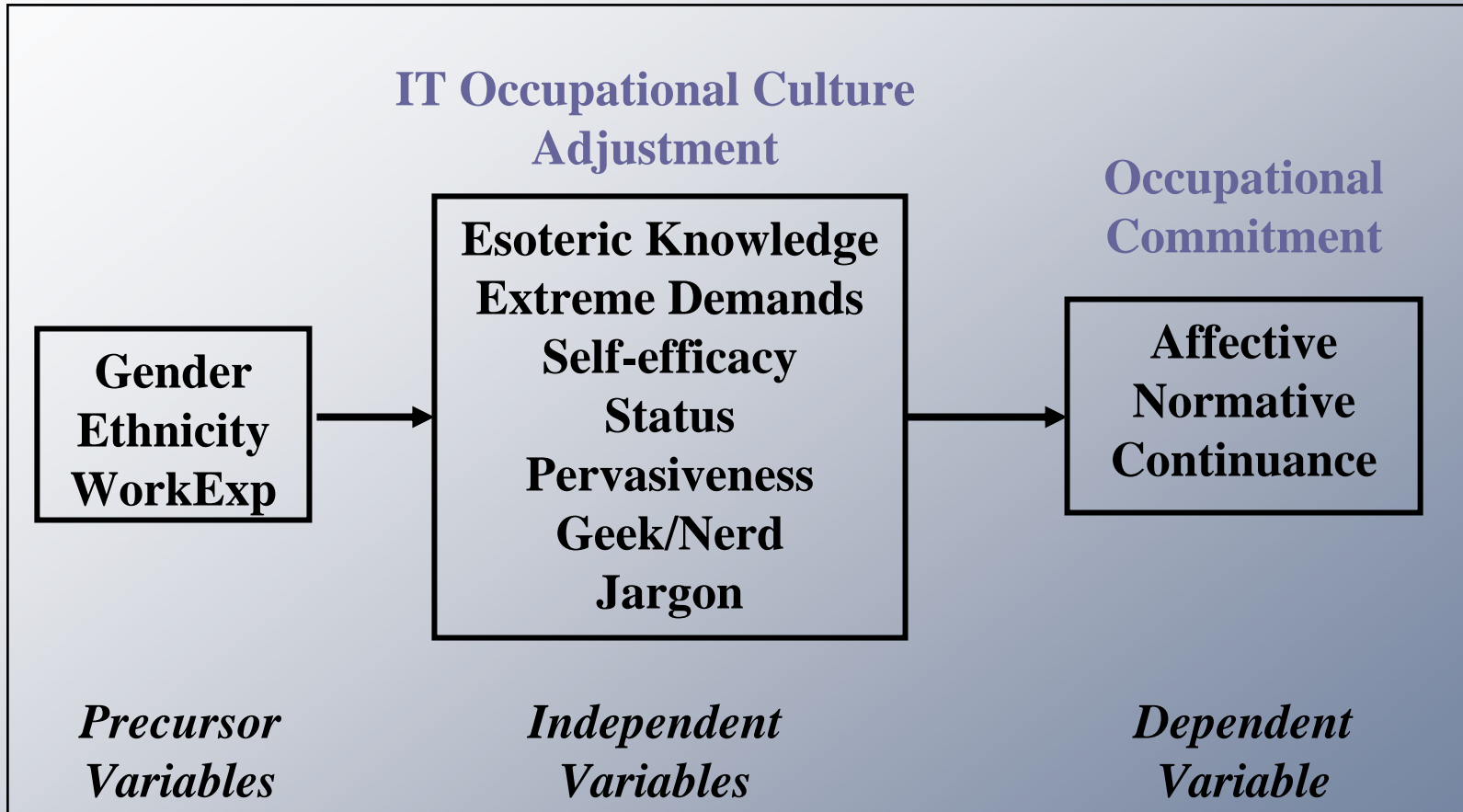
**"I like buying computer parts and stuff. I put my own computer together and upgrade it once in awhile."**

**"I am kind of a geeky person. For example I'll try to install Linux. People do it in the classroom but nobody wants to go home and try it out. I've tried it a few times."**

## Sample Quote: Woman

**"My free time is mostly going out and shopping. Staying outside. Not in the computer lab at all."**

# Phase 2 Research Model





# Occupational Commitment

**The strength of motivation to work in a chosen career role (Hall, 1976) and the attachment an individual has to an occupation (Cable & DeRue, 2002).**

**Three dimensions of Occupational Commitment:**

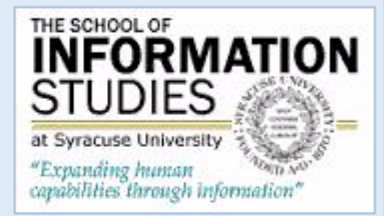
**Affective commitment: emotional attachment to their occupation.**

**Continuance commitment: perceptions of the cost associated with leaving one's occupation.**

**Normative commitment: sense of personal and social obligation to remain in their occupation.**

# Welcome!

We greatly appreciate your responses to our survey. With your help we hope to understand the information technology profession better in order to develop improved recruitment and retention strategies in the IT field. This research would not be possible without your valuable input and we appreciate the time you are taking to participate. **Thank you!**  
 (@itwf.syr.edu - Ver 5.0 - Sept. 2005)



**The survey contains four pages of questions and should take approximately 12 minutes to complete.**

**A. How do other people see you? How do you see yourself? Please indicate the extent to which you agree or disagree with these statements about stereotypes of the IT field.**

**Answer Scale: 1-Strongly Disagree to 6-Strongly Agree**

**Strongly Disagree** **Strongly Agree**

	(1)	(2)	(3)	(4)	(5)	(6)
1. If someone called me a nerd I would consider it an insult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I think other people do think of me as a geek or nerd.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I don't consider myself a nerd or geek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. My family thinks of me as a computer nerd.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Some of my colleagues are definitely computer nerds.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I do not mind being stereotyped as a geek/nerd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Being seen as a geek by my friends is a problem for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\*\*\*\*\*



# Phase 2: Scale Reliability

Scale Title	Definition	# of Items	Alpha
Stereotyping	Evaluations of the stereotypical labels of "geek" and "nerd" as applied to self and colleagues.	6	.70
Jargon	Evaluations of widespread use of jargon within IT occupations.	3	.74
Demands	Perceptions of own self-efficacy in meeting the demands of an IT occupation.	8	.92
Updating	Evaluations of learning the techniques and knowledge in the IT field.	6	.92
Challenges	Evaluations of the need to adapt to new problems, long hours, and constant change.	5	.72
Status	Evaluations of the social status benefits of IT expertise, particularly helping others.	7	.85
Leisure	Extent to which students integrate IT into non-work leisure time and socializing.	6	.82



# Demographics (N=215)

## Distribution by Gender

Gender	Frequency	Percent
Male	146	68%
Female	68	32%
Missing	1	<1%

## Distribution by Ethnicity

Ethnicity	Frequency	Percent
AA/Hispanic	27	13%
White	155	72%
Other	33	15%

## Phase 2: Results – RQ1

- I. What are the cultural features to which newcomers most easily adapt during their adjustment to the IT occupation? Which cultural features present the most difficulty for acculturation?

Variables	Mean	Std. Deviation
1. Geek/Nerd Scale	3.79	0.98
2. Pervasiveness Scale	3.79	1.11
3. Extreme Demands Scale	4.14	0.86
4. Status Scale	4.73	0.93
5. Jargon Scale	4.75	1.02
6. Self Efficacy Scale	4.80	0.82
7. Esoteric Knowledge Scale	5.16	0.82

Students reported worst adaptation to being stereotyped as geek or nerd.

Students reported best adaptation to the knowledge challenges of the IT field.

## Phase 2: Results – RQ2

II. Do men and women experience the acculturation process differently?  
Do members of minority groups experience the process differently than those in the majority?

Variable Name	Males	Females	t
Geek/Nerd Scale	3.79	3.77	.09
Jargon Scale	4.79	4.67	.78
Self Efficacy Scale	4.89	4.62	2.31*
Esoteric Knowledge Scale	5.23	5.00	1.92
Extreme Demand Scale	4.19	4.03	1.28
Status Scale	4.73	4.73	.02
Pervasiveness Scale	3.93	3.48	2.81**
Identification Scale	3.57	3.49	.50

Males reported higher self-efficacy concerning demands of the occupation than females.

Males indicated that they integrated IT into their leisure activities more extensively than females.

\* $p < .05$ , \*\* $p < .01$

# Phase 2: Results – RQ2

II. Do men and women experience the acculturation process differently? Do members of minority groups experience the process differently than those in the majority?

Variable Name	Ethnic Minority	Ethnic Majority	t
Geek/Nerd Scale	3.43	3.90	-.231*
Jargon Scale	4.95	4.71	1.19
Self Efficacy Scale	4.84	4.80	.22
Esoteric Knowledge Scale	4.82	5.24	-2.46**
Extreme Demand Scale	4.08	4.12	-.26
Status Scale	4.60	4.77	-.86
Pervasiveness Scale	3.54	3.89	-1.15
Identification Scale	3.68	3.50	.81

Ethnic majority members report fewer concerns about being stereotyped as a geek or nerd than members of minority groups.

Ethnic majority members reported liking to acquire technical knowledge more than minority groups.

\*p<.05, \*\*p<.01

## Phase 2: Results – RQ3

III. Does the adjustment of college students to the IT occupational culture predict occupational commitment and if so how?

Predictors	Type of Occupational Commitment		
	Normative ( $\beta$ )	Affective ( $\beta$ )	Continuance ( $\beta$ )
Geek/Nerd Scale	.01	-.15**	.09
Jargon Scale	.05	-.00	-.04
Self Efficacy Scale	-.18*	.11	-.09
Esoteric Knowledge Scale	-.04	.42**	.06
Extreme Demand Scale	.26**	.09	.14
Status Scale	.09	.08	.08
Pervasiveness Scale	.11*	.17**	.06
<b>R<sup>2</sup></b>	<b>.13*</b>	<b>.39**</b>	<b>.07*</b>

\* $p < .05$

\*\* $p < .01$

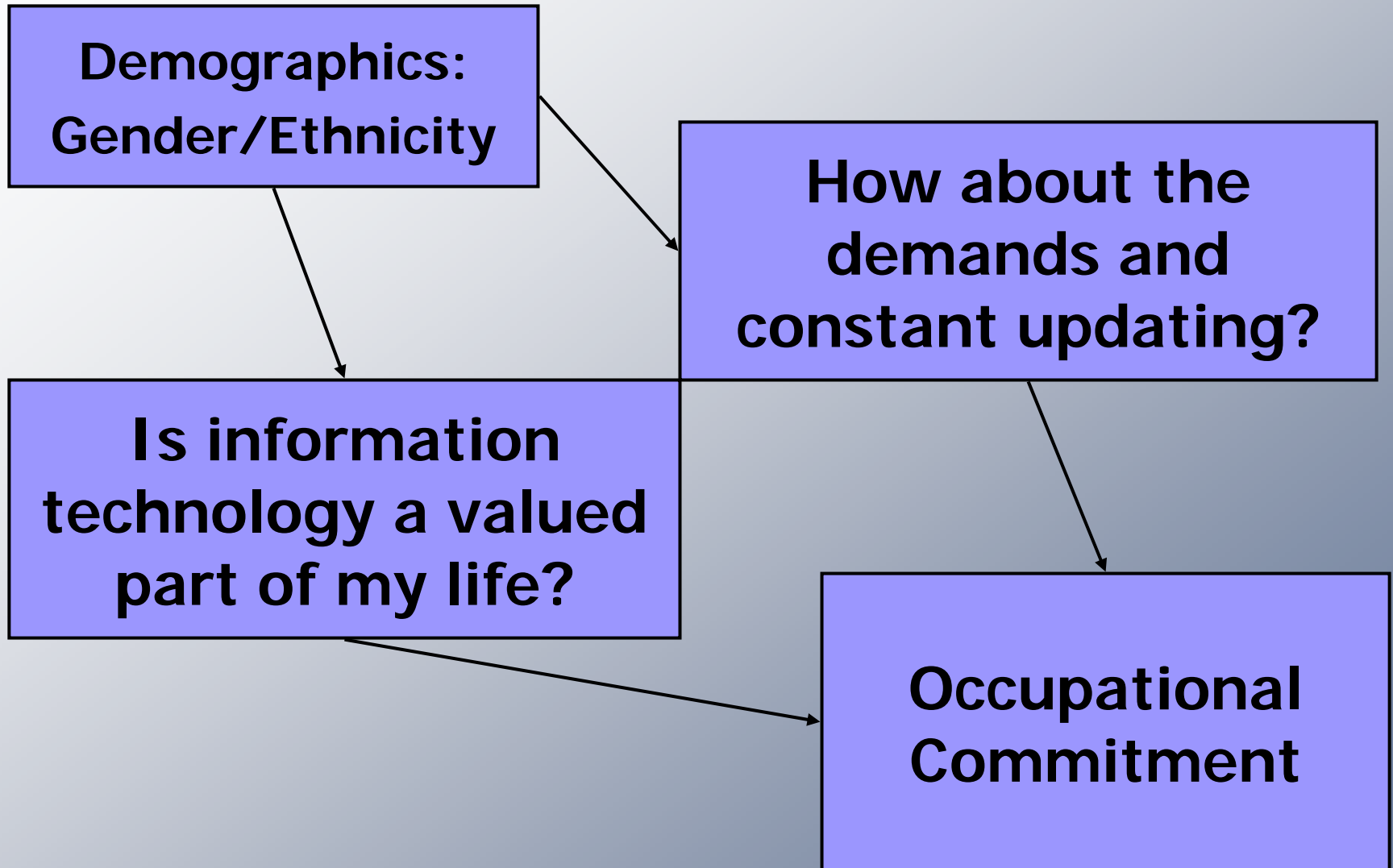
Students with better adaptation to occupational culture felt greater emotional attachment to IT.

Enjoyment of learning, keeping up with technology, integration of IT in leisure activities predict affective commitment.

Participants who accept stereotype labeling felt lower affective commitment.

Students with greater appreciation of the challenges of the occupation felt a higher obligation to remain in it.

# Findings in a Nutshell







# References

- Trice, H.M. and Beyer, J.M., (1993), "The Cultures of Work Organizations", Englewood Cliffs, NJ: Prentice-Hall.
- Trice, H. M., (1993) Occupational subcultures in the workplace. ILR Press, Ithaca. 1993, xvi, 286p., wraps. (Cornell studies in industrial and labor relations, no. 26)
- Douglas, M. (1982). Introduction to grid/group analysis. In *Essays in the Sociology of Perception*, ed. Mary Douglas, London: Routledge.
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and Extension and Test of a Three-component Conceptualization. *Journal of Applied Psychology*, 78(4), 538.

# Demographics

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Other	33	15%

## Distribution by Length of Work Experience

Work Experience (Months)	Frequency	Percent
Inexperienced (<6)	49	23%
Internship (6-12)	41	19%
Internship Plus (12-36)	61	28%
Experienced (>36)	64	30%

# Analysis of Variance by LWEE

Those with more experience reported higher self-efficacy or confidence in meeting the demands of the IT occupation.

Those with more experience also reported more integration of IT in their non-work activities and better adaptation to the demands of the occupation such as change in the field.

	<6 m N=49	>6m,<1y N=41	>1y,<3y N=61	> 3 y N=64	ANOVA F	Sig.
Geek/Nerd Scale	4.66	4.76	4.73	4.85	1.59	.19
Jargon Scale	4.99	5.03	5.28	5.25	0.32	.81
Self Efficacy Scale	3.92	4.00	4.25	4.30	5.83	.00**
Esoteric Knowledge Scale	4.49	4.64	4.87	4.84	1.68	.17
Extreme Demand Scale	3.56	3.67	3.70	4.13	2.56	.05*
Status Scale	3.60	3.78	3.73	3.99	1.98	.12
Pervasiveness Scale	4.45	4.71	4.88	5.06	3.11	.03*
Identification Scale	3.59	3.46	3.59	3.53	0.16	.92
Normative Commitment Scale	2.89	2.78	2.66	2.69	0.42	.74
Affective Commitment Scale	4.62	4.56	4.92	4.88	1.83	.14
Continuance Commitment Scale	3.30	3.22	3.30	3.48	0.48	.70

\*p<.05, \*\*p<.01

# Correlations among indicators

	1	2	3	4	5	6	7	8	9	10	11	12
<b>1</b> <u>GeekNerd</u>	1											
<b>2</b> Jargon	.21**	1										
<b>3</b> <u>SelfEfficacy</u>	.19**	.26**	1									
<b>4</b> <u>EsotKnow</u>	.37**	.40**	.48**	1								
<b>5</b> <u>ExtDemand</u>	.29**	.50**	.39**	.57**	1							
<b>6</b> Status	.24**	.36**	.41**	.52**	.55**	1						
<b>7</b> <u>Pervasiviness</u>	.40**	.28**	.29**	.50**	.40**	.44**	1					
<b>8</b> Identification	.18**	.31**	.26**	.41**	.44**	.38**	.47**	1				
<b>9</b> Normative Commitment	.12	.19**	-.01	.15	.29**	.21**	.20**	.44**	1			
<b>10</b> Affective Commitment	.14*	.29**	.39**	.59**	.43**	.43**	.42**	.38**	.22**	1		
<b>11</b> Continuance Commitment	.17*	.10	.06	.19**	.22**	.19**	.18**	.31**	.45**	.16*	1	
<b>12</b> Work Experience	.13*	.06	.28**	.13*	.18**	.15*	.18**	-.01	-.07	.13	.06	1

\*\* Correlation is significant at the 0.01 level

\* Correlation is significant at the 0.05 level



# Theory Link to Bandura

- ***Self Efficacy***- "a personal judgment of how well one can execute courses of action required to deal with prospective situations" and is also "concerned with people's beliefs in their capabilities to produce given attainments" (Bandura, 1982, 1997). Self-efficacy can have a direct effect on choice of activities and settings, as well as "determine how much effort people will expend and how long they will persist in the face of obstacles and adverse experiences" (Bandura, 1977).