Empirical examination of the adoption of WebCT using TAM

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Outline

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Introduction (1/2)

- Online teaching and learning is becoming an increasingly important
- Current delivery modes and instructional designs
- E-Learning
  - Web-based learning (Gunasekaran, Mcneil, & Shaul, 2002)
  - Internet-enabled learning process
  - More than double (from 1500 in 1999 to more than 3300 in 2004)
  - US$750 million by 2004
  - Learning tools
- WebCT is being used nearly in all institutions of higher education in Hong Kong

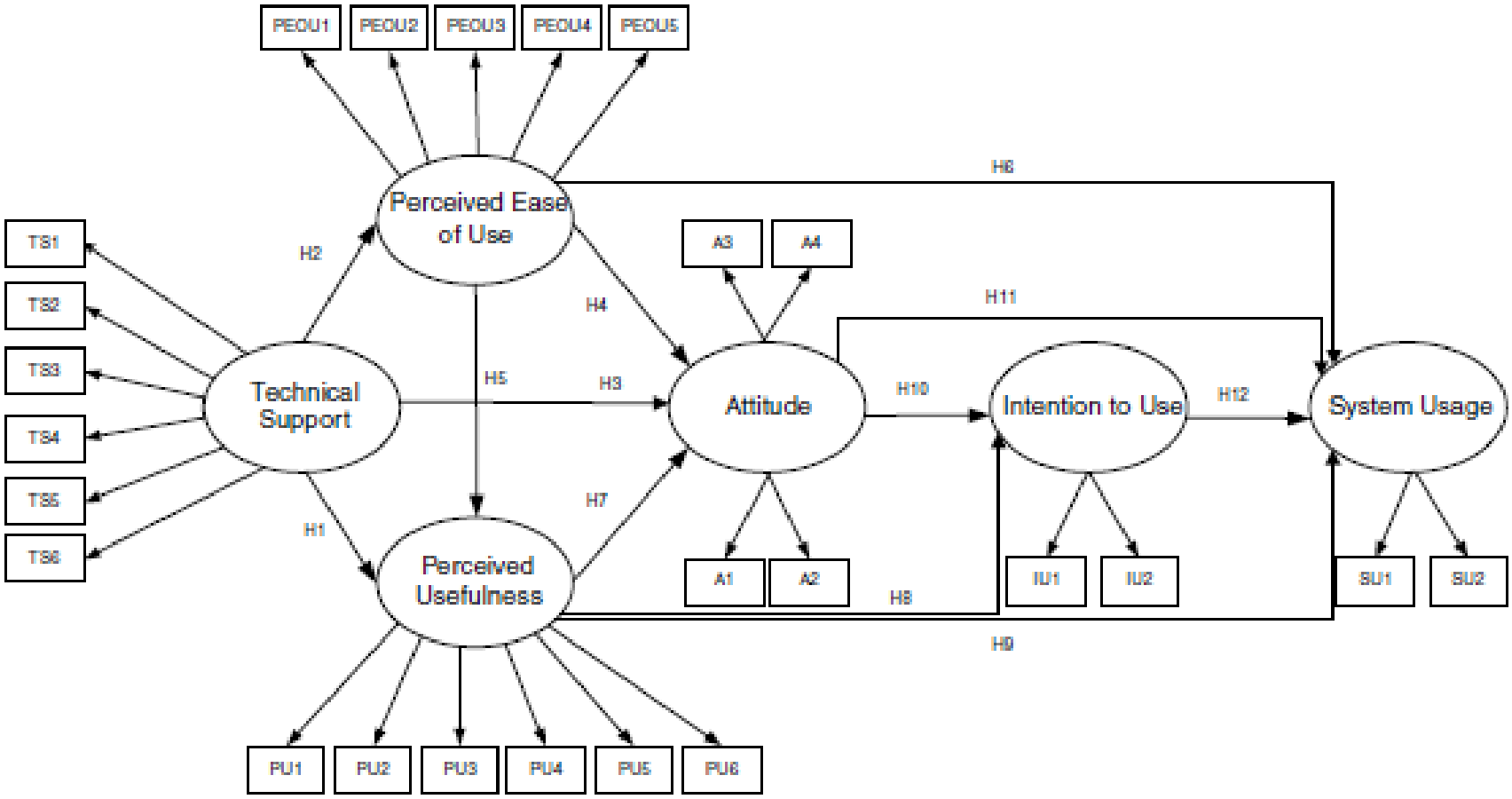
Introduction (2/2)

- Propose a model, based on the extension of the Technology Acceptance Model (TAM)
- Investigate the factors that affecting the acceptance of WebCT for supporting e-learning
- The aims of this paper are:
  - Current usage of WebCT
  - Factors affecting the acceptance of WebCT
  - Develop a model for the acceptance of WebCT

Literature review

- Web-based learning systems
  - Online course outperformed those taking the traditional classroom-based course (Kekkonen-moneta & Moneta, 2002; Hofmann, 2002)
  - To design their own, improvement began to emerge in the 1990s (such as WebCT, WebCH, Smile)
- Technology acceptance model
  - Nor has any research been conducted on attitudes towards WebCT
  - Perceived usefulness and perceived ease of use were important factors
  - A number of studies have successfully adopted TAM

Research model and hypotheses



Research method (1/2)

- Development of instruments
  - 25 items
  - Six constructs of the proposed model
  - Technical support (Igbaria, 1990)
  - Seven-point Likert scale
- The study was conducted in two phases
  - A pilot study and a questionnaire
  - 1400 questionnaires distributed
  - 1263 were collected and used for analysis

Research method (2/2)

- Sample and data collection
  - Seven universities in Hong Kong
  - 1400 students, about 1.77% of the population

University Name	Total no. of students	Sample sizes in Strata	Sampling fractions in Strata (%)
City University of Hong Kong (CityU)	16,142	200	1.24
The Chinese University of Hong Kong (CU)	14,161	200	1.41
Hong Kong Baptist University (HKBU)	7400	200	2.70
The Hong Kong Polytechnic University (PolyU)	17,859	200	1.12
University of Hong Kong (HKU)	14,216	200	1.41
The Hong Kong University of Science andTechnology (HKUST)	7332	200	2.73
Lingnan University (LU)	2000	200	10
Total	79,110	1400	1.77

Analysis and results (1/3)

	Frequency	Percentage
Gender		
Male	583	46.2
Female	*680*	*53.8*
Total	1263	100.0
Academic level		
Undergraduate	1086	86.0
Master	102	8.1
Doctor	10	0.8
Other (e.g., associate degree)	*65*	*5.1*
Total	1263	100.0
Year of study		
Year 1	553	43.8
Year 2	334	26.4
Year 3	353	27.9
Year 4	13	1.0
>Year 4	*10*	*0.8*
Total	1263	100.0
Mode of study		
Full-time	1119	88.6
Part-time	*144*	*11.4*
Total	1263	100.0

Analysis and results (2/3)

Courses currently studying		
Business Administration	262	20.7
Management	102	8.1
Computer Science	62	4.9
Chemistry	80	6.3
Physics	48	3.8
Biology	51	4.0
Social Work	23	1.8
Medicine	38	3.0
Mechanical Engineering	21	1.7
Civil Engineering	17	1.3
Others Engineering	96	7.6
Language	122	9.7
Arts	29	2.3
Others (e.g., Nursing, Journalism)	*312*	*24.7*
Total	1263	100.0

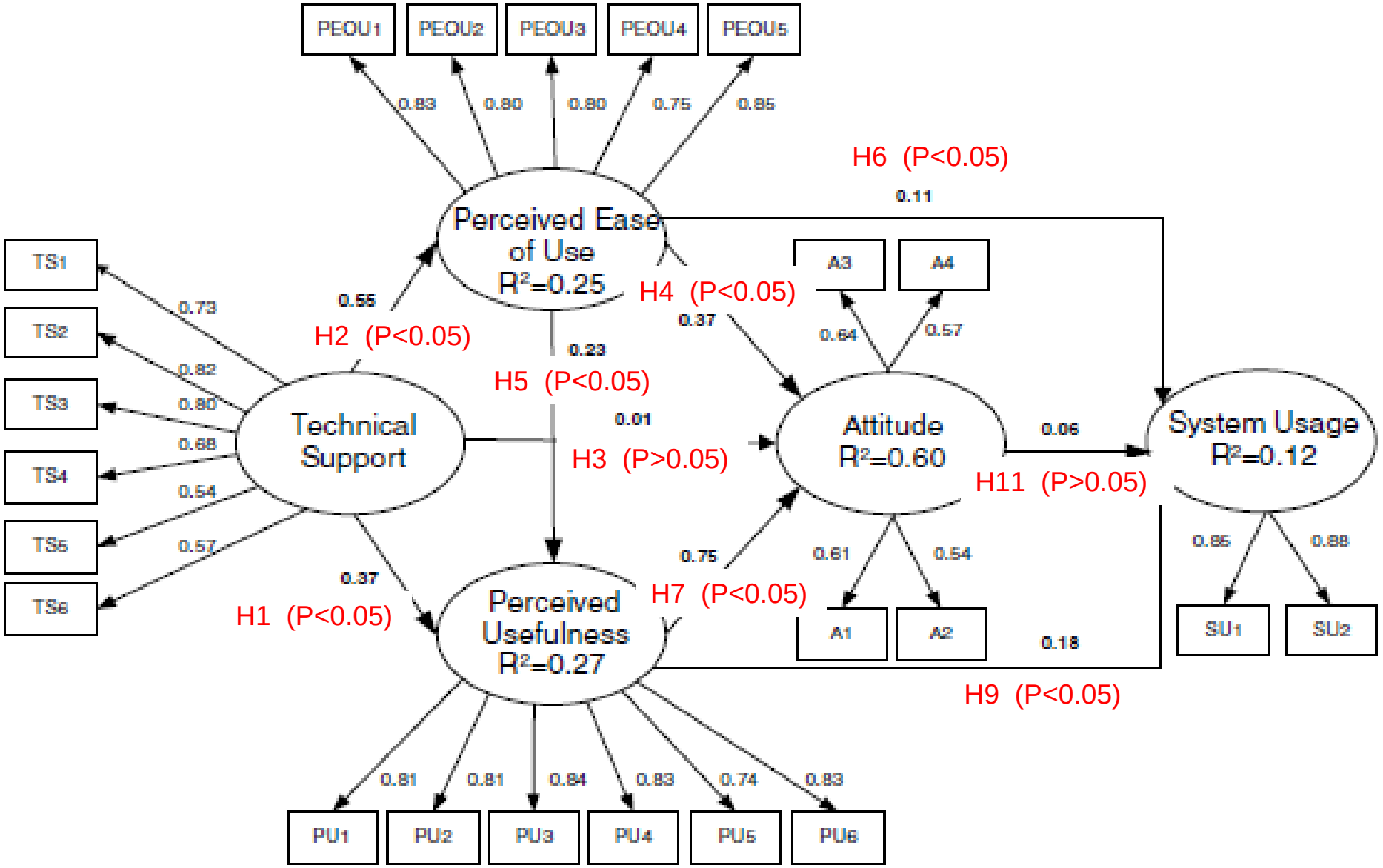
Analysis and results (3/3)

- Analysis of validity and reliability
  - Principal component analysis (PCA)
  - Decided to remove the construct of ‘‘intention to use’’

Table 3
Results of principal component analysis

	Component				
	Factor 1 perceived usefulness	Factor 2 perceived ease of use	Factor 3 attitude	Factor 4 technical support	Factor 5 system usage
PU1	0.81				
PU2	0.81				
PU3	0.84				
PU4	0.83				
PU5	0.74				
PU6	0.83				
PEOU1		0.83			
PEOU2		0.80			
PEOU3		0.80			
PEOU4		0.75			
PEOU5		0.85			
A1			0.61		
A2			0.54		
A3			0.64		
A4			0.57		
TS1				0.73	
TS2				0.82	
TS3				0.80	
TS4				0.68	
TS5				0.54	
TS6				0.57	
SU1					0.85
SU2					0.88
Cronbach's α	0.93	0.90	0.91	0.83	0.71
Eigenvalue	8.99	2.38	2.26	1.50	1.61
Cum. variance explained (%)	23.65	41.83	55.30	63.53	70.80

Analysis of the structural model (1/2)



Analysis of the structural model (2/2)

Summary statistics of model fit

Model goodness-fit indexes	Recommended value	Results in this study
Chi-square/degree of freedom	$\leqslant 3.0$	3.0
Goodness-of-fit index (GFI)	$\geqslant 0.90$	0.87
Adjusted goodness-of-fit index (AGFI)	$\geqslant 0.80$	0.84
Normalized fit index (NFI)	$\geqslant 0.90$	0.90
Comparative fit index (CFI)	$\geqslant 0.90$	0.93
Root mean square residual (RMSR)	$\leqslant 0.10$	0.07

Discussion and conclusions

- Between technical support, perceived usefulness, perceived ease of use, attitude and the acceptance of the WebCT
- **Technical support** was found to have a direct effect
- **Attitude** only demonstrated a weak direct effect
- As a future direction of research, we will include **self-efficacy** as a factor for further investigation

Thanks for attention