

**Data Modeling Education and  
Practice: What's Being Used and  
What's Being Taught**  
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**ERD vs. UML**

- Buzz in the database academic community indicated a preference for UML
- Focus of a special issue of the JISE
- Research study of the training and use of each (ERD vs. UML)

## The Study

- Focus on four principal areas:
  - ERD concepts
  - ERD tools
  - UML concepts
  - UML tools
- Web delivered to academics and practitioners
- Ongoing—you can still contribute at:  
[http://enterprise.cba.ksu.edu:8080/DB\\_Survey](http://enterprise.cba.ksu.edu:8080/DB_Survey)  
(case sensitive)

## Study Results

- Demographics
- ERD Concepts
- ERD Tools
- UML Concepts
- UML Tools

## Demographics

n = 123

	Age	Experience	
		Academic	Practitioner
<b>Academics</b>	46.0	16.0	5.2
<b>Practitioners</b>	40.3	0.3	14.3
<b>Both</b>	49.0	15.0	13.5
<b>Overall Averages</b>	46.0	13.0	8.9

	Male	Female	
	<b>Gender</b>	99	24
	Academics	Practitioners	Both
<b>Occupation</b>	70	18	35

## ERD Concepts

	Academics		Practitioners		Both	
	Use	Imp.	Use	Imp.	Use	Imp.
Data requirements gathering	70.92	80.83	80.33	96.67	79.67	83.00
Forming entities	81.92	80.00	80.00	81.33	79.50	76.83
Determining relationships	84.83	81.17	84.33	88.33	89.50	89.33
Synthesizing tables	70.00	63.25	34.33	37.33	62.50	66.33
Data structures	49.17	52.08	77.00	73.67	47.83	50.33
Data independence	57.67	60.08	79.67	87.00	68.33	68.17
Entity integrity	76.25	71.42	80.00	86.33	67.83	64.67
Referential integrity	76.42	74.33	57.00	78.67	76.67	79.50

## ERD Tools

	Academics		Practitioners		Both	
	Use	Imp.	Use	Imp.	Use	Imp.
Oracle Designer	19.92	25.00	19.67	22.00	46.83	52.33
IBM DB2 Tools	4.17	18.42	10.67	12.00	16.67	26.50
Microsoft Visio	39.50	45.33	49.33	47.33	49.67	34.83
ER Win	9.17	25.08	56.00	62.67	38.67	33.17
ER Assistant	6.50	16.67	22.33	9.67	13.50	10.00
Visible Analyst	10.00	22.42	25.67	33.33	8.33	8.33
DDS Lite	4.17	16.67	11.00	13.33	8.50	8.33
O-Schema	4.17	16.67	10.00	13.33	8.67	8.33

## UML Concepts

	Academics		Practitioners		Both	
	Use	Imp.	Use	Imp.	Use	Imp.
OOA/OOP/OOD	46.17	51.83	33.33	33.33	61.50	66.17
Use Case diagrams	50.50	56.25	53.33	63.33	70.17	71.17
Object Interaction diagrams	37.75	46.83	20.00	40.00	54.83	55.00
State diagrams	36.75	38.42	20.00	40.00	43.67	44.33
Class diagrams	55.33	59.08	36.67	63.67	79.50	76.83
JAVA	31.92	35.17	46.67	47.67	8.50	25.00
.NET (any language)	28.58	25.08	33.33	33.33	39.83	35.17
C++	11.00	25.92	33.33	33.33	0.00	16.67

## UML Tools

	Academics		Practitioners		Both	
	Use	Imp.	Use	Imp.	Use	Imp.
Rational Rose	24.25	33.92	0.00	16.67	49.83	63.67
JBuilder	20.08	24.42	0.00	16.67	8.33	8.33
.NET	23.42	27.50	0.00	16.67	34.67	33.67
WebSphere	5.08	23.42	0.00	16.67	18.33	22.17
Oracle JDeveloper	14.33	29.50	0.00	16.67	8.33	8.83
NetBeans	8.33	23.25	16.67	16.67	8.33	16.67
Eclipse	5.92	31.00	30.00	29.67	8.50	18.33
Together Control Center	7.58	20.83	0.00	0.00	20.00	28.33

## Special Issue of JISE

- Overall viewpoint
  - Jim Rumbaugh
- 4 Textbook authors
  - Kroenke
  - Connolly & Begg
  - Mannino
  - Watson
- Teaching approaches
  - Carte, Jasperson & Cornelius
  - Wang
  - Golden & Matos
- Current Status & Job Prospects
  - Suleiman & Garfield
  - Winkler & Seip

## The “Real” Issue

- System analysis vs. Database design