Beijing Conference of UNESCO-CUC Chair On Media and Gender
January 12 to 14, 2006

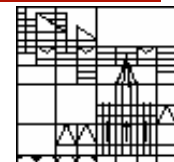Communication University of China

Collaborative e-learning - an opportunity to identify and to overcome gender barriers

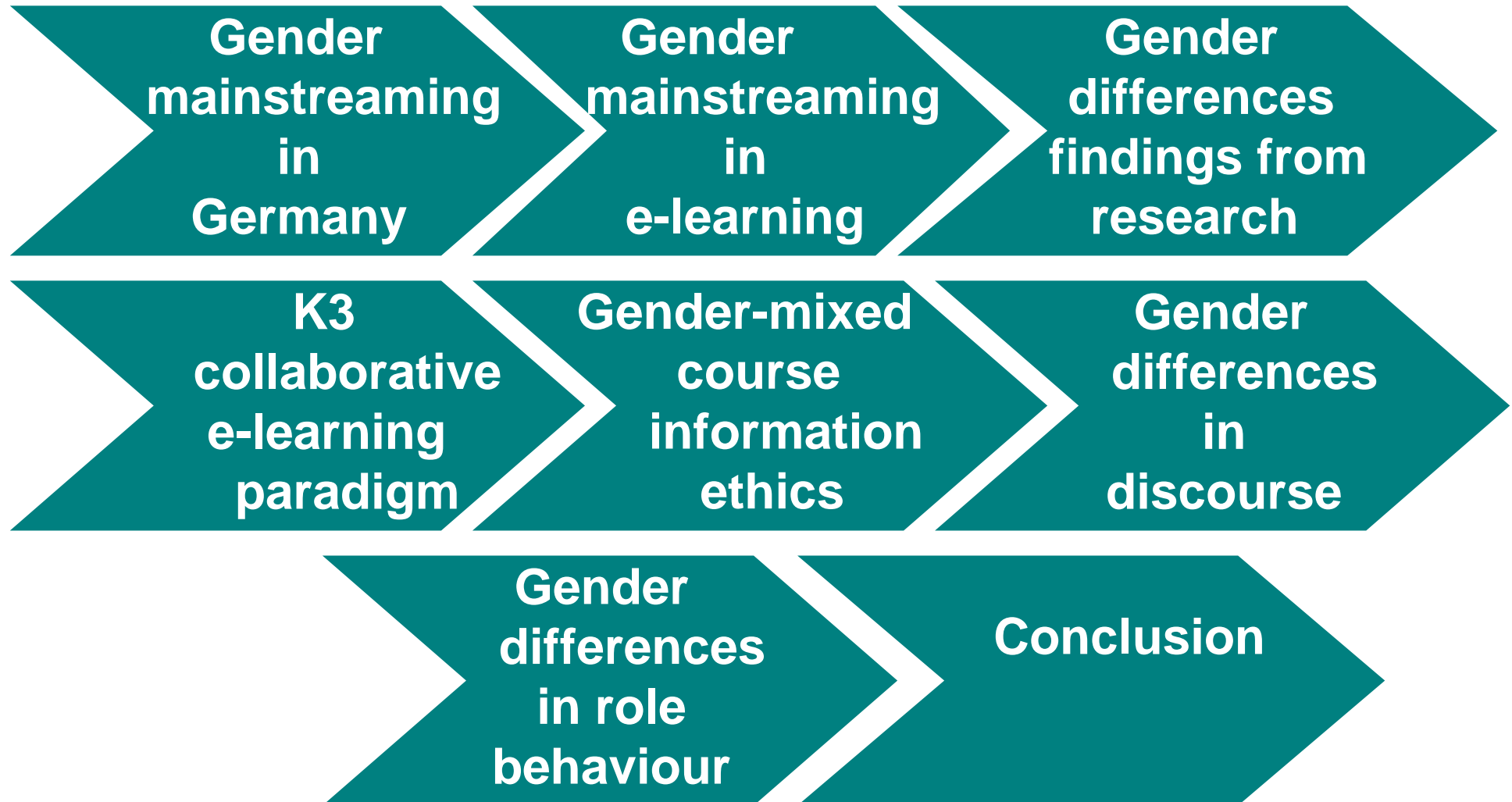**Rainer Kuhlen**

German UNESCO Chair in Communications

Department of Computer and Information Science
University of Konstanz - Germany

Content – Topics - Consequences

Gender mainstreaming in Germany	Gender mainstreaming in e-learning	Gender differences findings from research
K3 collaborative e-learning paradigm	Gender-mixed course information ethics	Gender differences in discourse
Gender differences in role behaviour	Conclusion	

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2

Gender mainstreaming in Germany

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3

The gender concept in general, different from the bi-polar sex concept, considers differences between male and female behavior and their norm/value system as socially and culturally constructed.

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4

Gender mainstreaming is not the same as promotion of women or a politics of equalization of women, but rather a politics of equalizing the opportunities for development both for men and women.

http://www.bmbf.de/pub/women_in_education_and_research.pdf.

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5

„Innovation and work place in the information society of the 21st century"

objectives

➢ equal Internet access for men and women

➢ a 40% contingent of women in IT-related professional training and in the first semester in computer science

➢ a significant consideration of women in other government programs, such as media and e-learning

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6

Gender mainstreaming in e-learning

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7

Considering gender as the social and culture-dependent construction of sex, **gender mainstreaming in e-learning** takes into consideration the gender perspective for all aspects and processes of e-learning.

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8

Gender differences findings from research

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9

Some findings from research

> Women tend to under-estimate their computer competence compared to women even if they have a higher competence profile than that of their male colleagues.

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10

Some findings from research

➢ Confidence levels of the female CS majors are often lower even than the male non-majors.

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11

Some findings from research

➢ Male students prefer individual work whereas female students like group work.

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12

Some findings from research

> Women lare ess likely to engage in criticism of one other.

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13

Some findings from research

Male learning culture	Female learning culture
Tendency to dominant behavior in educational situations	Tendency to cooperative behavior and orientation
More frequent take-over of monitoring discourse	Willingness to be responsible for ongoing discourse
Longer and more frequent contributions in discourse	Shorter contributions in discourse

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14

Some findings from research

More often involved in the development of enforcement strategies	Open for proposals of other people and for cooperative work in general
Desire to impress others and competitive behavior	Willingness to discuss topics, supportive of others
Development and maintenance of competitive relations	Care for a just distribution of learning tasks; preference for group work

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15

K3
collaborative
e-learning
paradigm

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K3 in a nutshell

Collaborative e-learning in K3

➢ *firstly, to let virtual groups (and in them, of course, individual learners) produce content and acquire knowledge in the special course domain, and,*

➢ *secondly, to acquire information and communication competence.*

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17

K3 architecture

K3 discourse structure

(1) course

(2) main topics

(3) work orders

(4) specific tasks

(5) discourse objects

(5) discourse objects

(5) discourse objects

(5) discourse objects

(6) reference objects

bibl. references | web links | upload files | summaries | presentations

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18
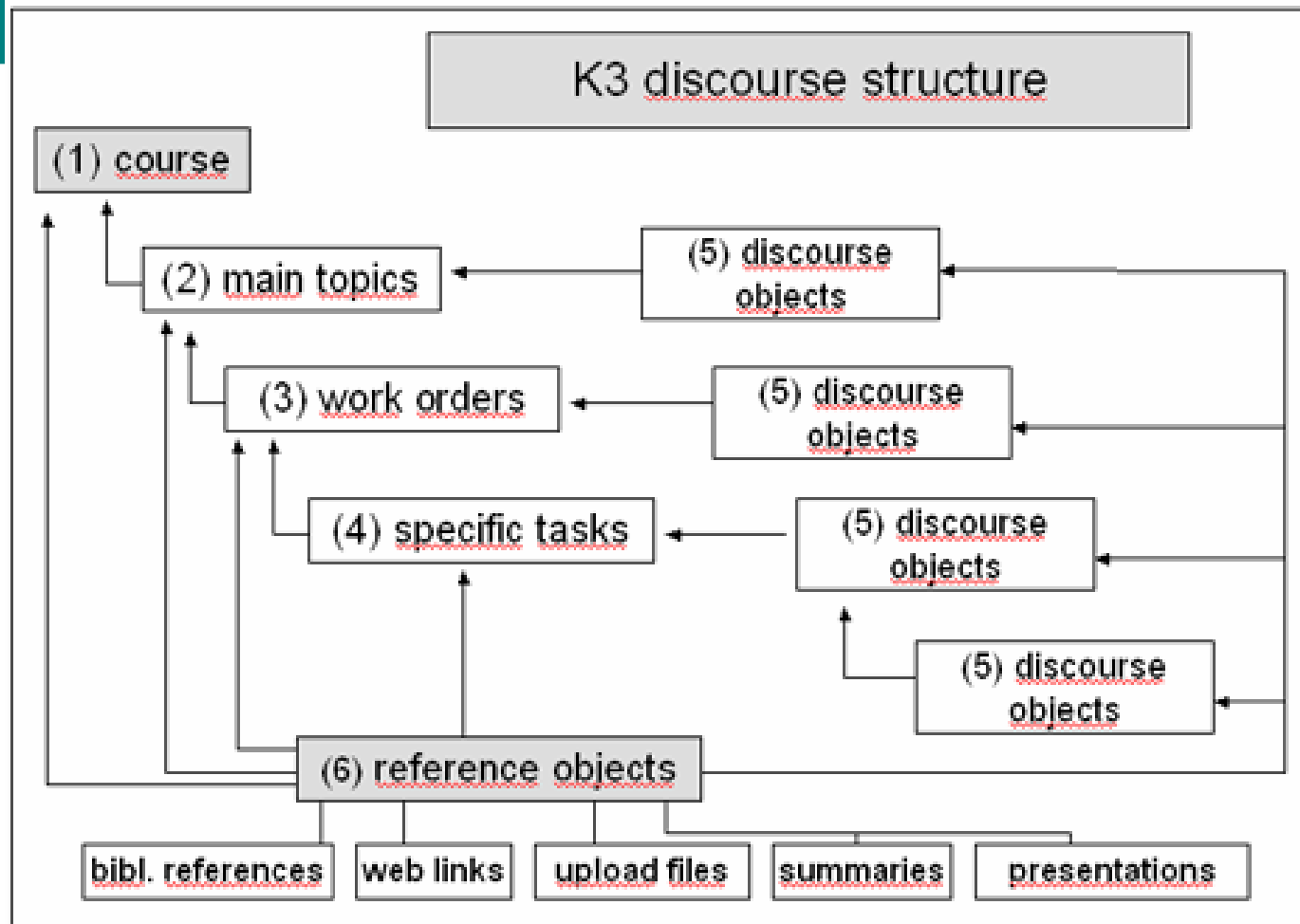
K3 course structure (overview)

(1) Course „CSCW and Knowledge Management"

(4) Reference objects provided by the course instructor

(2) Textual description of one of the main topics „Models of computer-aided communiction"

(5) Reference objects provided by students at the end of this specific discourse (summary and presentation)

(3) Work orders (e.g. „A1 model of rational media choice" - 203 discourse objects)

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19

Gender-mixed course information ethics

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23 participants, 12 from Berlin (library science), 11 from Konstanz (information engineering)

11 male (7 Konstanz, 4 Berlin)

12 female (4 Konstanz, 8 Berlin)

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21

Blended learning – Phases in the information ethics course
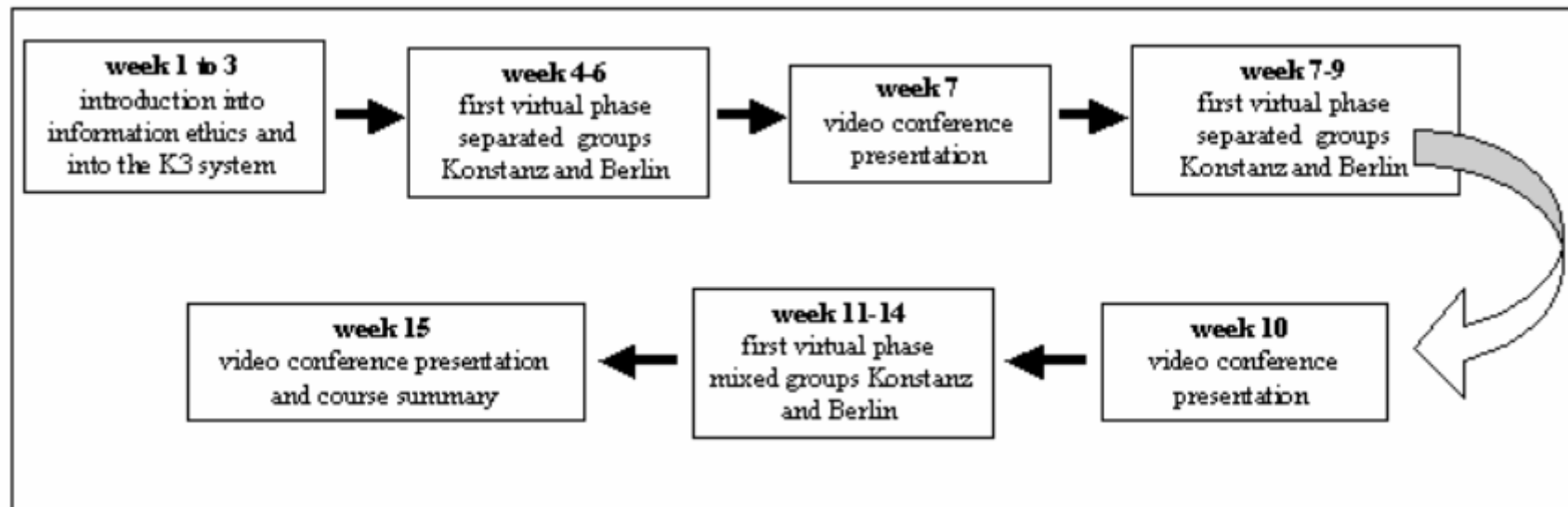
| week 1 to 3 — introduction into information ethics and into the K3 system | → | week 4-6 — first virtual phase separated groups Konstanz and Berlin | → | week 7 — video conference presentation | → | week 7-9 — first virtual phase separated groups Konstanz and Berlin |

| week 15 — video conference presentation and course summary | ← | week 11-14 — first virtual phase mixed groups Konstanz and Berlin | ← | week 10 — video conference presentation |

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22

Hypotheses

H1 There are gender- and domain-specific differences in course activity.

H2 Men, independently of their domain of study, tend to take over more prestigious roles in virtual group work, whereas women are willing to take over the remaining, more service-oriented roles.

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23

Hypotheses

H3 Men tend to be more initiative and critical in discourse, whereas women act more cooperatively by reacting to other people's comments.

H4 The gender composition in virtual group work has an effect on the performance of the virtual work.

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24

Data

1	2	3	4	5	6	7	8	9	10	11	12	13
	quest ion	thesis	new theme	adden dum	criti que	resul tat	organiz ation	total disctypes	hyp link	upload	lit ref	total reftypes
female	29	29	124	372	7	39	82	682	256	50	34	340
mean/f	2.64	2.64	11.27	33.82	0.64	3.55	7.45	62.00	23.27	4.55	3.09	30.91
median/f	1.00	3.00	11.00	33.00	0.00	3.00	8.00	61.00	18.00	3.00	3.00	29.00
male	34	54	71	301	41	52	94	647	163	61	20	239
mean/m	2.83	4.50	5.92	25.08	3.42	4.33	7.83	53.92	13.58	5.08	1.67	20.33
median/m	2.00	4.00	4.50	23.50	3.50	4.50	8.50	51.00	12.00	4.50	1.50	18.00

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25

Data

1	2	3	4	5	6	7	8	9	10	11	12	13
	question	thesis	new theme	addendum	critique	resultat	organization	total disctypes	hyp link	upload	lit ref	total reftypes
Konstanz	30	41	73	338	29	32	98	641	165	50	15	230
mean/KN	2.73	3.73	6.64	30.73	2.64	2.91	8.91	58.27	15.00	4.55	1.36	20.91
median/KN	2.00	1.00	7.00	30.00	1.00	2.00	8.00	59.00	14.00	4.00	0.00	19.00
Berlin	33	42	122	335	19	59	78	688	254	61	39	354
mean/B	2.75	3.50	10.17	27.92	1.58	4.92	6.50	57.33	21.17	5.08	3.25	29.50
median/B	1.50	3.00	8.00	28.00	1.00	5.00	6.00	58.00	18.50	3.00	3.00	26.50

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26

1	2	3	4	5	6	7	8	9	10	11	12	13
	question	thesis	new theme	addendum	critique	resultat	organization	total disctypes	hyp link	upload	lit ref	total reftypes
KN/male	28	31	45	226	29	32	75	466	103	34	10	147
mean/KN/m	3.50	3.88	5.63	28.25	3.63	4.00	9.38	58.25	12.88	4.25	1.25	18.38
median/KN/m	3.00	1.00	4.50	26.50	2.50	3.00	9.50	58.50	12.00	4.00	0.00	18.00
KN/female	2	10	28	112	0	0	23	175	62	16	5	83
mean/KN/f	0.67	3.33	9.33	37.33	0.00	0.00	7.67	58.33	20.67	5.33	1.67	27.67
median/KN/f	0.00	3.00	10.00	39.00	0.00	0.00	8.00	59.00	18.00	3.00	2.00	29.00
B/male	6	23	26	75	12	20	19	181	60	27	10	97
mean/B/m	1.50	5.75	6.50	18.75	3.00	5.00	4.75	45.25	15.00	6.75	2.50	24.25
median/B/m	1.50	6.00	4.00	17.50	3.50	5.50	3.50	36.00	12.50	5.50	2.50	19.50
B/female	27	19	96	260	7	39	59	507	194	34	29	257
mean/B/f	3.38	2.38	12.00	32.50	0.88	4.88	7.38	63.38	24.25	4.25	3.63	32.13
median/B/f	1.50	2.50	11.00	29.50	0.50	5.00	8.00	65.50	19.00	2.50	3.50	27.50
1	2	3	4	5	6	7	8	9	10	11	12	13

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27

Discourse objects as typed objects

➢Organization of discourse

➢ Initialization of discourse (to get discourse started): question, thesis, new topic

➢ Enhancement of discourse: addendum, critique

➢Results of discourse: summaries, presentations

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28

Gender differences in discourse

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29

H1 There are gender- and domain-specific differences in course activity

The median of the total number of gender-specific contributions shows clearly more activity on the part of the women.

This is true both for the total number of comments (column 9 – median/f=61 vs. median/m=51) and for the number of reference objects (column 13 – median/f=29 vs.

	1	2 question ion	3 thesis	4 new theme	5 adden dum	6 criti que	7 resul tat	8 organiz ation	9 total disctypes	10 hyp link	11 upload	12 lit ref	13 total reftypes
female		29	29	124	372	7	39	82	682	256	50	34	340
mean/f		2.64	2.64	11.27	33.82	0.64	3.55	7.45	62.00	23.27	4.55	3.09	30.91
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male		34	54	71	301	41	52	94	647	163	61	20	239
mean/m		2.83	4.50	5.92	25.08	3.42	4.33	7.83	53.92	13.58	5.08	1.67	20.33
median/m		2.00	4.00	4.50	23.50	3.50	4.50	8.50	51.00	12.00	4.50	1.50	18.00

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30

H1 There are gender- and domain-specific differences in course activity

➢ Men in the male-dominated Konstanz group are more active than men in total (51/m/total and 58,5/m/KN vs. 58,5/m/KN), and men in the female-dominated Berlin environment are even dramatically less active (51/m/total and 58,5/m/KN vs. 36/m/B).

➢ The same is true for the women's behavior (but not as significant as for that of the men): (61/f – 65,5/f/B; 65,5/f/B – 59/f/KN).

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31

	1	2	3	4	5	6	7	8	9	10	11	12	13
		question	thesis	new theme	addendum	critique	resultat	organization	total disctypes	hyp link	upload	lit ref	total reftypes
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mean/KN/m		3.50	3.88	5.63	28.25	3.63	4.00	9.38	58.25	12.88	4.25	1.25	18.38
median/KN/m		3.00	1.00	4.50	26.50	2.50	3.00	9.50	58.50	12.00	4.00	0.00	18.00
KN/female		2	10	28	112	0	0	23	175	62	16	5	83
mean/KN/f		0.67	3.33	9.33	37.33	0.00	0.00	7.67	58.33	20.67	5.33	1.67	27.67
median/KN/f		0.00	3.00	10.00	39.00	0.00	0.00	8.00	59.00	18.00	3.00	2.00	29.00
B/male		6	23	26	75	12	20	19	181	60	27	10	97
mean/B/m		1.50	5.75	6.50	18.75	3.00	5.00	4.75	45.25	15.00	6.75	2.50	24.25
median/B/m		1.50	6.00	4.00	17.50	3.50	5.50	3.50	36.00	12.50	5.50	2.50	19.50
B/female		27	19	96	260	7	39	59	507	194	34	29	257
mean/B/f		3.38	2.38	12.00	32.50	0.88	4.88	7.38	63.38	24.25	4.25	3.63	32.13
median/B/f		1.50	2.50	11.00	29.50	0.50	5.00	8.00	65.50	19.00	2.50	3.50	27.50
	1	2	3	4	5	6	7	8	9	10	11	12	13

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32

H1 There are gender- and domain-specific differences in course activity

➢ Significant differences can be seen with respect to the reference objects. All female-related values are much higher than those of the male-related ones: d/total vs. m/total; b/total vs. KN/total; B/f only vs. B/m only; K/f-only vs. KN/M-only.

	1	2	3	4	5	6	7	8	9	10	11	12	13
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male		34	54	71	301	41	52	94	647	163	61	20	239
mean/m		2.83	4.50	5.92	25.08	3.42	4.33	7.83	53.92	13.58	5.08	1.67	20.33
median/m		2.00	4.00	4.50	23.50	3.50	4.50	8.50	51.00	12.00	4.50	1.50	18.00

	1	2	3	4	5	6	7	8	9	10	11	12	13
		question	thesis	new theme	addendum	critique	resultat	organization	total disctypes	hyp link	upload	lit ref	total reftypes
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median/KN/m		3.00	1.00	4.50	26.50	2.50	3.00	9.50	58.50	12.00	4.00	0.00	18.00
KN/female		2	10	28	112	0	0	23	175	62	16	5	83
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median/KN/f		0.00	3.00	10.00	39.00	0.00	0.00	8.00	59.00	18.00	3.00	2.00	29.00
B/male		6	23	26	75	12	20	19	181	60	27	10	97
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median/B/f		1.50	2.50	11.00	29.50	0.50	5.00	8.00	65.50	19.00	2.50	3.50	27.50
	1	2	3	4	5	6	7	8	9	10	11	12	13

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34

H1 There are gender- and domain-specific differences in course activity

➢ Women add more information to existing discourse objects than men – thus they contribute considerably to the success of collaborative work.

All female-related values are significantly higher than those of the male-related ones: d/total vs. m/total; b/total vs. KN/total; B/f only vs. B/m only; K/f-only vs. KN/M-only.

1	2	3	4	5	6	7	8	9	10	11	12	13
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	1	2	3	4	5	6	7	8	9	10	11	12	13
		question	thesis	new theme	addendum	critique	resultat	organization	total disctypes	hyp link	upload	lit ref	total reftypes
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median/B/m		1.50	6.00	4.00	17.50	3.50	5.50	3.50	36.00	12.50	5.50	2.50	19.50
B/female		27	19	96	260	7	39	59	507	194	34	29	257
mean/B/f		3.38	2.38	12.00	32.50	0.88	4.88	7.38	63.38	24.25	4.25	3.63	32.13
median/B/f		1.50	2.50	11.00	29.50	0.50	5.00	8.00	65.50	19.00	2.50	3.50	27.50
	1	2	3	4	5	6	7	8	9	10	11	12	13

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36

H1 There are gender- and domain-specific differences in course activity

> Women added significantly more new themes to their group work – this is true for all values in column 4, whereas men (data in column 6) seem to be more willing to criticize other group members´ contributions (without necessarily knowing the sex of the criticized person).

1	2	3	4	5	6	7	8	9	10	11	12	13
	question	thesis	new theme	addendum	critique	resultat	organization	total disctypes	hyp link	upload	lit ref	total reftypes
female	29	29	124	372	7	39	82	682	256	50	34	340
mean/f	2.64	2.64	11.27	33.82	0.64	3.55	7.45	62.00	23.27	4.55	3.09	30.91
median/f	1.00	3.00	11.00	33.00	0.00	3.00	8.00	61.00	18.00	3.00	3.00	29.00
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median/m	2.00	4.00	4.50	23.50	3.50	4.50	8.50	51.00	12.00	4.50	1.50	18.00

Gender-mixed course information ethics

	2	3	4 new theme	5 addendum	6 critique	7 resultat	8 organiz at	9 total	10	11	12	13 total bes
KN/male	28	31	45	226	29	32	75					
mean/KN/m	3.50	3.88	5.63	28.25	3.63	4.00	9.					
median/KN/m	3.00	1.00	4.50	26.50	2.50	3.00	9.					
KN/female	2	10	28	112	0	0	23					
mean/KN/f	0.67	3.33	9.33	37.33	0.00	0.00	7.					
median/KN/f	0.00	3.00	10.00	39.00	0.00	0.00	8.					
B/male	6	23	26	75	12	20	19					
mean/B/m	1.50	5.75	6.50	18.75	3.00	5.00	4.					
median/B/m	1.50	6.00	4.00	17.50	3.50	5.50	3.50	36.00	12.50	5.50	2.50	19.50
B/female	27	19	96	260	7	39	59	507	194	34	29	257
mean/B/f	3.38	2.38	12.00	32.50	0.88	4.88	7.38	63.38	24.25	4.25	3.63	32.13
median/B/f	1.50	2.50	11.00	29.50	0.50	5.00	8.00	65.50	19.00	2.50	3.50	27.50
1	2	3	4	5	6	7	8	9	10	11	12	13

But:

Women in their own environment tend to be more critical than in a male dominated environ-ment

whereas men seem to be more constant in their critical behavior.

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38

H2 Women in general are more willing to take on role responsibility and feel thus more responsible for the success of collaborative work.

Moderator		Presenter		Summarizer		Researcher		total roles/f	total roles/m
m	f	m	f	m	f	m	f		
7	11	13	5	7	12	7	12	40	34
38%	61%	72%	27%	37%	63%	37%	63%	54%	46%

H2 The higher female responsibilty degree is also supported by their willingness to take on the moderator´s role (internal group work activity).

Moderator		Presenter		Summarizer		Researcher		total roles/f	total roles/m
m	f	m	f	m	f	m	f		
7	11	13	5	7	12	7	12	40	34
38%	61%	72%	27%	37%	63%	37%	63%	54%	46%

H2 Men tend to take on the more prestigious or more visible presenter role (external work), whereas women are willing to take over the remaining, more service-oriented internal roles.

Moderator		Presenter		Summarizer		Researcher		total roles/f	total roles/m
m	f	m	f	m	f	m	f		
7	11	13	5	7	12	7	12	40	34
38%	61%	72%	27%	37%	63%	37%	63%	54%	46%

H3 Men tend to be more initiative and critical in discourse

> This hypothesis can only partially be confirmed and needs more detailed investigation.

The average values for men with respect to "question" (column 2) and "thesis" (column 3) are slightly higher

and with respect to "critique" (column 6) significantly higher compared to the ones for women,

whereas the values for women with respect to "new theme" are significantly higher than the corresponding ones for men.

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42

H4 The gender composition in virtual group work has an effect on the performance of the virtual work

➢ This hypothesis could not be fully tested so far.

➢ Data in the discussion of H1 which show that men and women are in general more active in those environments where their sex is dominant.

➢ Other results support the interpretation that both female-dominated virtual groups and male-dominated groups achieved better results (the female groups with slightly higher ratings) compared to gender-mixed groups.

conclusion

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conclusion   What does it mean if there are gender-specific differences?

Do we accept these differences, although we know that they are (widely) socially and culturally constructed and that they can be changed if the environment changes, for instance via gender mainstreaming politics?

conclusion

What does it mean if there are gender-specific differences?

Is it desirable for men to be encouraged to reduce the extent of critical and dominating discourse behavior and to take on more service-oriented roles in group work rather than aspiring to roles which give immediate reward in the public?

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46

What does it mean if there are gender-specific differences?

Should women be encouraged to be more aggressive and self-confident in their communicative style and to take on roles which make more activity in the public necessary?

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47

Concept of potential

We support the postulate that men and women not only have the same potential

but also that a learning environment should provide to both sexes equal opportunities to develop the skills and the behavior

that they consider adequate (for them) and

as well that the environment (in society, politics and professional life) expects from them.

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48

conclusion

Major objective

Promoting individual talents and preparing students for a successful and rewarding professional and public life has always been a major objective in learning, and it should be in e-learning as well.

Thank you for your attention

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or send an email to:
rainer.kuhlen@uni-konstanz.de
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50