

# **Video-Assisted Examinations with Simulated Patients: “Informed Consent Prior to Surgery”**

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## A new concept in teaching and assessment?



**Of course you can try that, but only if it is no more costly than my lecture!**

Prof. Dr. H. Becker, October 2010



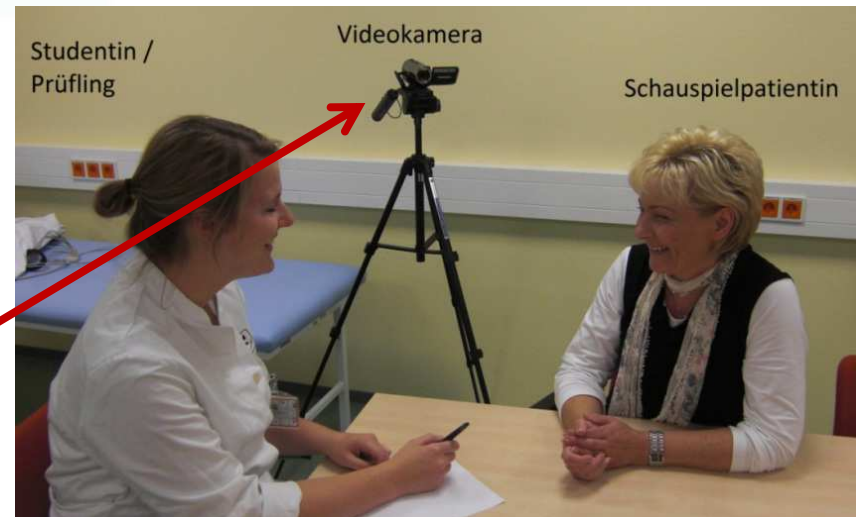
### Video-assisted exam

#### Modification:

- live examiner (“rater”) was replaced by DV camera

#### Setting:

- exam within the framework of 6<sup>th</sup> clinical semester (pairs of candidates)
- objective: to obtain **informed consent (simulated patients)**
- prior to surgery
  - inguinal hernia repair (open with mesh)
  - appendectomy (laparoscopic)
  - cholecystectomy (laparoscopic)
- 30 mins, 2 interactions recorded, candidates choose which is assessed
- summative exam, graded “pass” or “fail” for certificate (F5 Surgery)





## Unique checklists for each surgical procedure

### Part A (communication)

- Verbal and non-verbal competencies  
7 open items (Likert 1-6)

### Part B (content)

- Indication, choice of procedure  
2 open items (Likert 1-6)
- General and specific risks, postoperative management  
17 closed items (done/not done)

**Total:** 26 items for assessment



## Measures and Outcomes

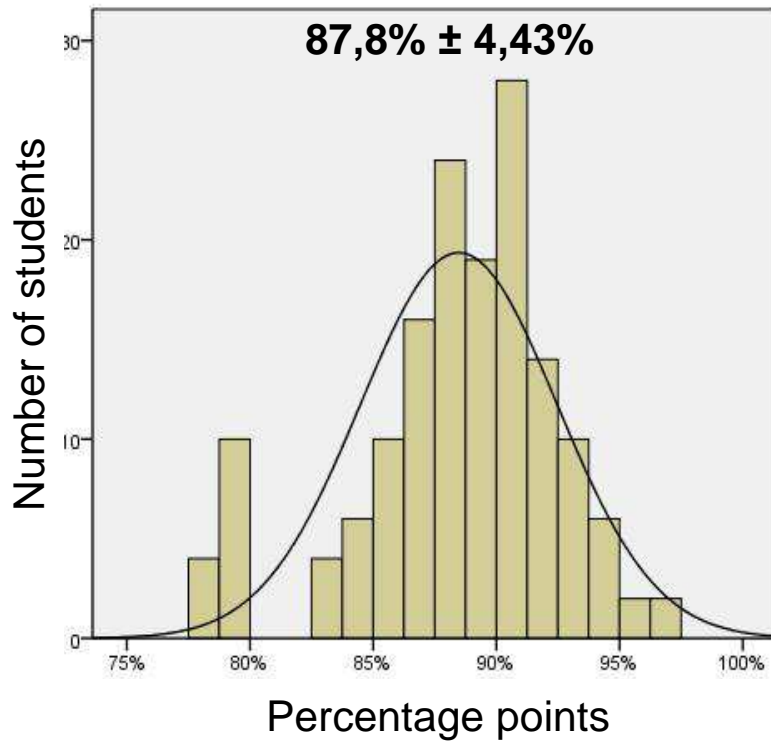
**The video-exam was analysed to determine whether:**

- the video-exam is **a feasible evaluation** of ‘surgical’ communication skills in undergraduate education
- the checklists lead to **a reliable assessment** of student performance
- **raters from outside** the field of surgery may be used
- there is any **correlation** between student performance in the **video-exam and multiple choice questioning**
- there is any degree of **time-saving** in rating

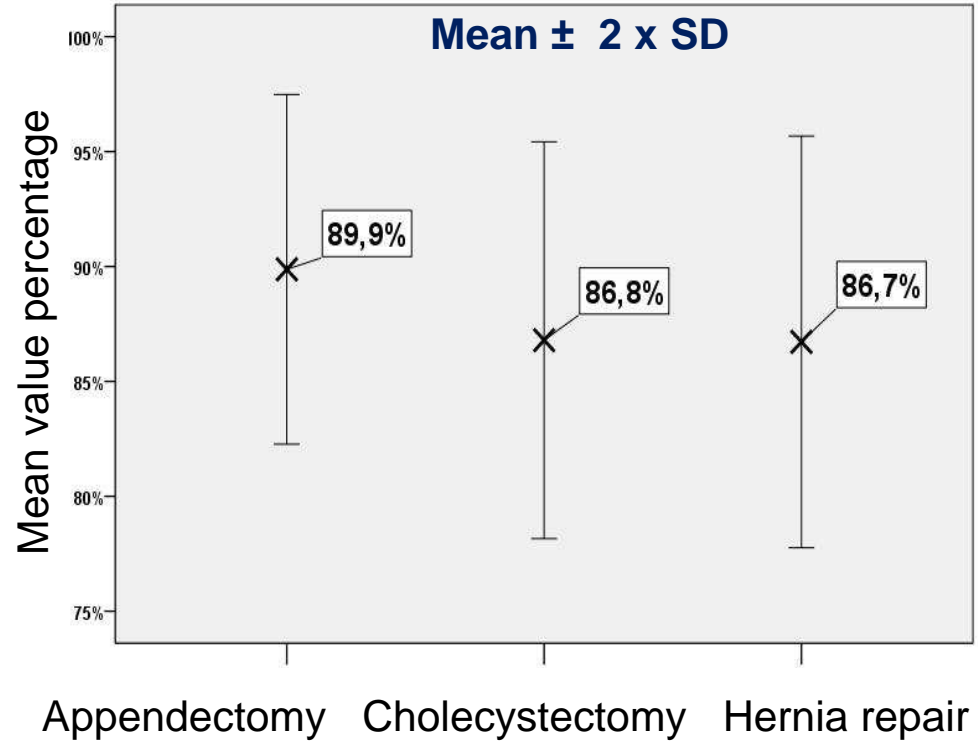


## Student performance, N=158 (summer semester 2011)

Overall percentage pass rates

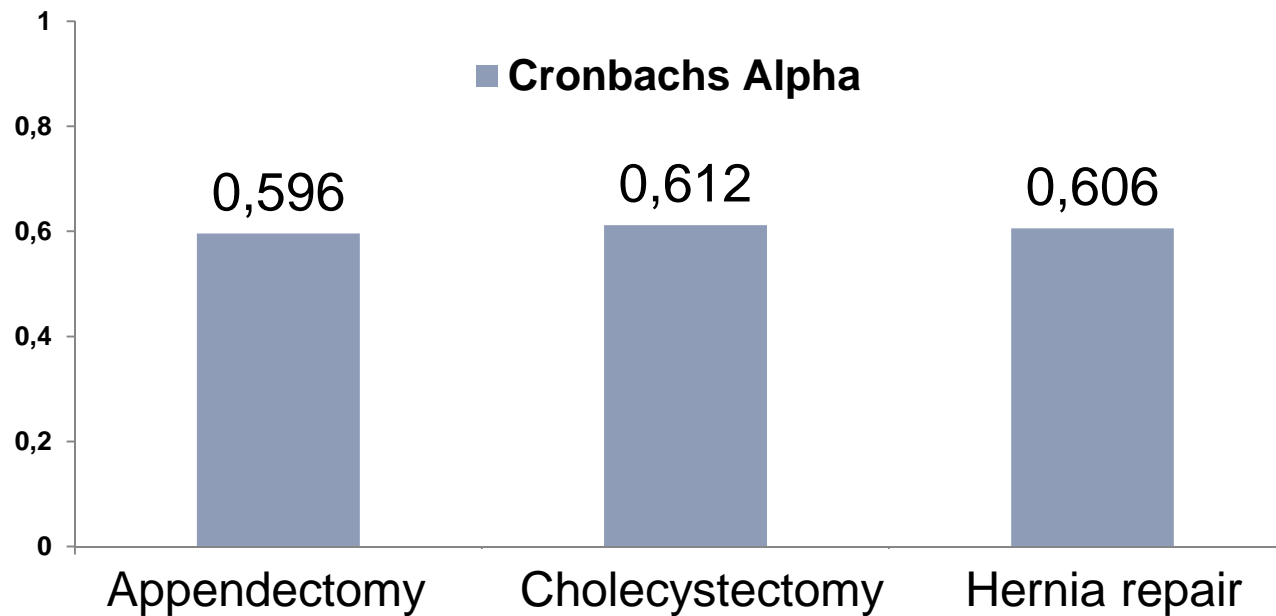


Percentage pass-rates for each procedure





## Statistical values of checklists (reliability)





## Descriptive statistics of checklist items (Cholecystectomy - Part B)

	P	r	Alpha without item
<b>Introductory explanations</b>			
Diagnosis/indication	1,00	,000	,613
Choice of procedure	1,00	,000	,613
Conversion to open surgery	,71	,268	,592
Extending the scope of surgery	,25	-,163	,652
<b>General complications</b>			
Positioning injury	,17	,087	,615
Thrombosis/embolism	,88	,321	,588
Haemorrhage	,98	,066	,612
Infection	,94	,435	,583
Injury of vessels and nerves	,94	,157	,606
Scaring	,73	,299	,587
Adhesions/bowel obstruction	,44	,361	,576
Incisional hernia	,65	,320	,583
<b>Specific complications</b>			
Injury of neighbouring organs	,94	,225	,601
Injury of bile duct	,85	,312	,588
Aerodermection	,52	,288	,588
Shoulder pain	,44	,146	,613
Pneumothorax	,38	,489	,553
<b>Postoperative recommendations</b>			
Return to normal diet / ambulation	,67	,017	,631

**Total Cronbachs Alpha = 0,612**

**P = item difficulty**

Easy  $\geq 0,8$

Good  $0,4 \leq P < 0,8$

Hard  $0,2 \leq P < 0,4$

To be eliminated  $P < 0,2$

**r = corrected item-total correlation**

High discriminatory power  $> 0,3$

Fair  $0,2 \leq r < 0,3$

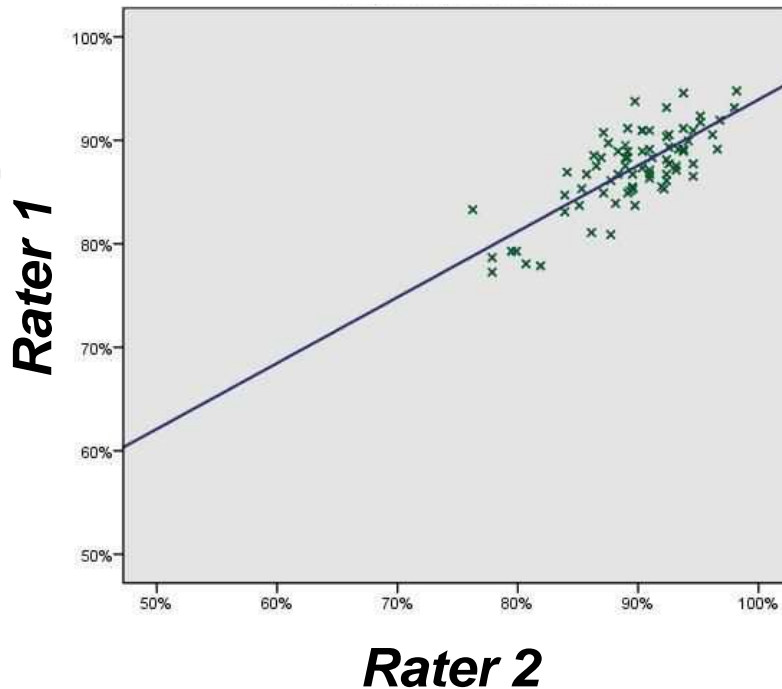
Low  $0,1 \leq r < 0,2$

Poor  $< 0,1$





## Inter-rater accordance



- Pearson's contingency coefficient  $\rho$   
= **0.761**
- Intraclass correlation 2.1  
= 0.749
- Cohens  $\kappa$  (weighted)  
= 0.374



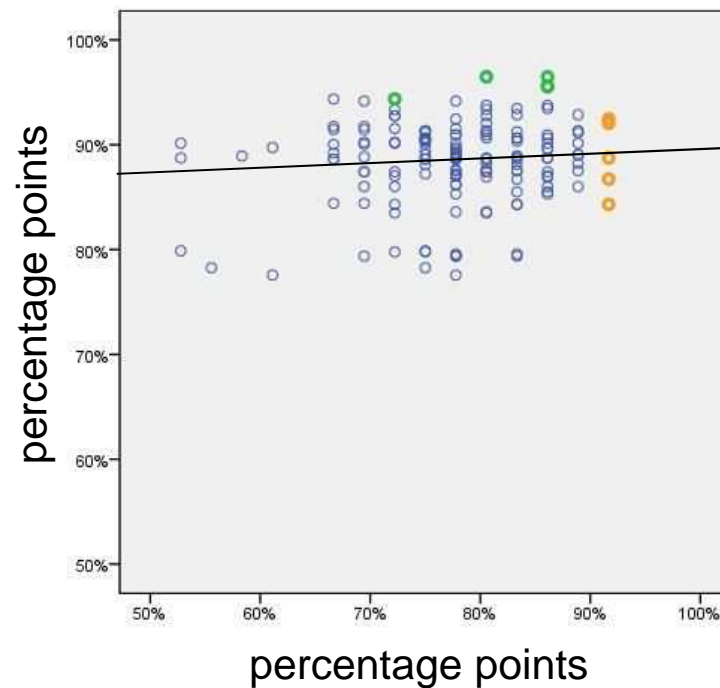


## Discriminant Validity: Video-exam and MCQ

### Video-exam

MW 87,8%

± 4,43%



### MCQ

MW 77,0%

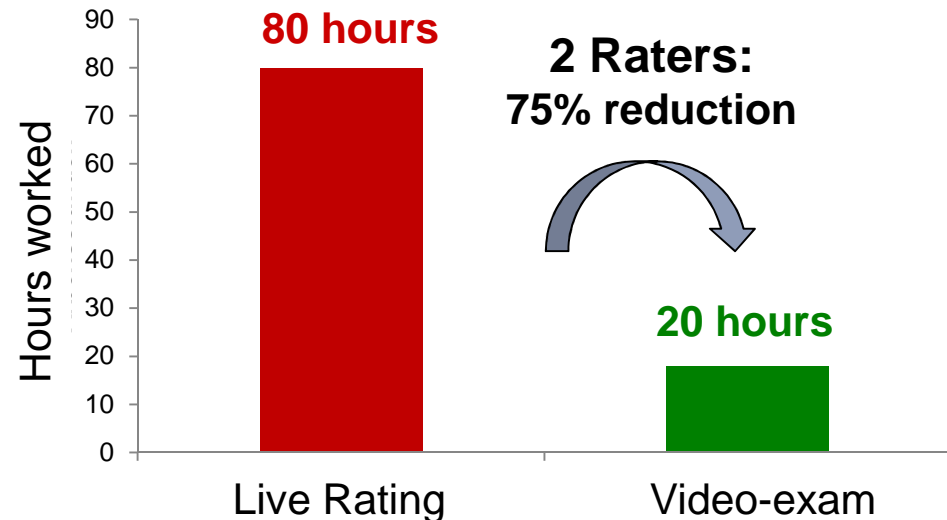
± 10,2%



## The time required by raters

### Assumption:

- 160 students  
⇒ 80 student pairs
- Assessment duration: 30 minutes
- Video length: 10 minutes



### Live rater

- present during the whole exam
- rating during core time of clinic
- **30 minutes of assessment**  
\* 80 pairs = 2400 min = **40 hours**

### Video-assisted rater

- pure viewing time, double-speed playback
- rating in paid overtime
- **15/2 minutes viewing time**  
\* 80 pairs = 600 min = **10 hours**



## Summary

### ■ **Statistical analysis of video-exam**

- Overall high pass rates
- Nearly acceptable reliability of checklists
- No correlation Video-Exam and MCQ

### ■ **Inter-rater accordance**

- High accordance between raters
- Valuable alternative: raters outside the field of surgery

### ■ **Benefits/values**

- Efficient use of rater resources and no interference with clinical duties
- Reduction in assessment time to 25% (limited costs)
- Massive reduction in the administrative load



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