

# Mobile und spielebasierte Ansätze für Lerntransfer von kritischen Entscheidungssituationen

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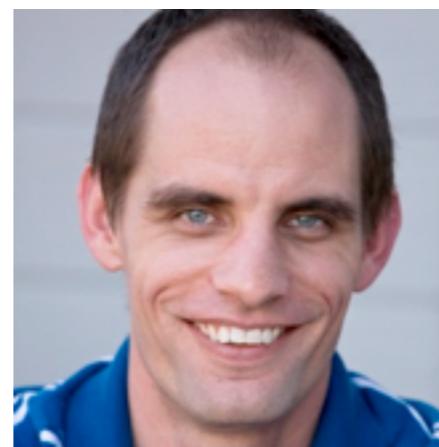
# Kritische Entscheidungssituationen

- Zeitdruck
- Verschiedene Perspektiven (Wicked problems)
- Systemische Auswirkungen von Handlungen
- Wissen & Kompetenzen & Persönlichkeitsfaktoren



# Herausforderungen

The most significant problem with education today is the problem of significance itself. Students – our most important critics – are struggling to find meaning and significance in their education.



# Herausforderungen

- Trennung von Lernkontext und Anwendungskontext
- Träges Wissen
- Lerntransfer

# Herausforderungen

## Trennung von Lern- und Anwendungskontext

künstliche Lernkontakte

Keine Einbettung in kulturelle und soziale Umgebungen

unbedeutende Lernaktivitäten

Trennung zwischen Theorie & Praxis



# Träges Wissen



Alfred North Whitehead (1929)

- Knowledge that can be
  - recalled when explicitly asked for it
  - but not when needed for problem solving

# Lerntransfer

“The ability to extend what has been learned in one context to new contexts”

A Content: What transferred			
Learned skill	Procedure	Representation	Principle or heuristic
Performance change	Speed	Accuracy	Approach
Memory demands	Execute only	Recognize and execute	Recall, recognize, and execute

(Bransford, Brown, & Cocking, 1999, p. 39)



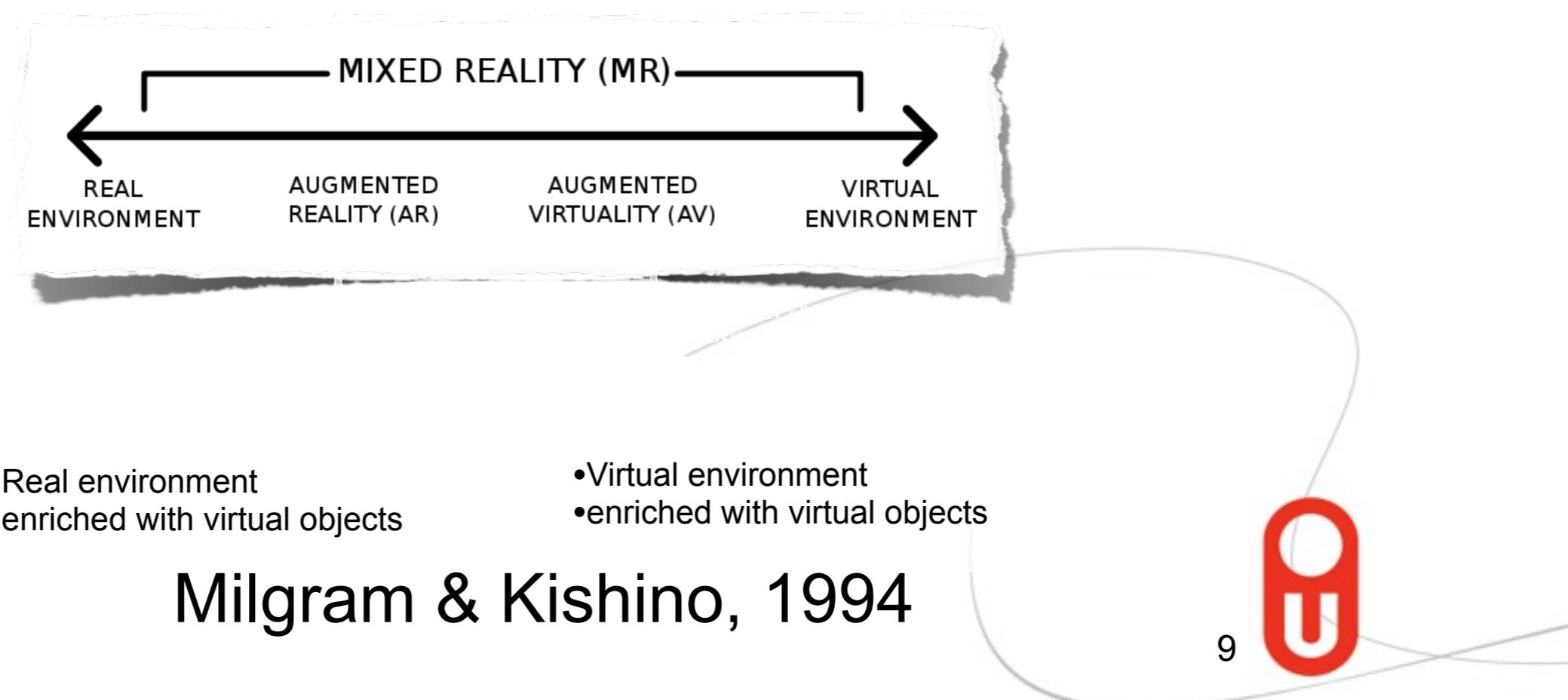
# Lerntransfer

## B Context: When and where transferred from and to

	Near ←				→ Far
<b>Knowledge domain</b>	Mouse vs. rat	Biology vs. botany	Biology vs. economics	Science vs. history	Science vs. art
<b>Physical context</b>	Same room at school	Different room at school	School vs. research lab	School vs. home	School vs. the beach
<b>Temporal context</b>	Same session	Next day	Weeks later	Months later	Years later
<b>Functional context</b>	Both clearly academic	Both academic but one nonevaluative	Academic vs. filling in tax forms	Academic vs. informal questionnaire	Academic vs. at play
<b>Social context</b>	Both individual	Individual vs. pair	Individual vs. small group	Individual vs. large group	Individual vs. society
<b>Modality</b>	Both written, same format	Both written, multiple choice vs. essay	Book learning vs. oral exam	Lecture vs. wine tasting	Lecture vs. wood carving

# Spannungsfelder

- Whole-task scenarios vs. part-task scenarios
- Low fidelity simulations vs. high fidelity simulations
- Augmented reality vs. Augmented virtuality
- Immersionsniveau



# Augmented Reality



Robert Rice

When I talk about AR, I try to expand the definition a little bit. Usually, when you talk to someone about augmented reality, the first thing that comes to mind is overlaying 3D graphics on a video stream. I think though, that it should more properly be any media that is specific to your location and the **context** of what you are doing (or want to do)...augmenting or enhancing your specific reality.

# Serious mobile location-based simulation game?



# Fallstudie 1: Geiselnahme/UNHCR

- Ausgangssituation: Wunsch nach Innovation für Training von Mitarbeitern in Krisengebieten
- Hoher Kostendruck durch reale Trainingsszenarien
- Ziel: Flexible, authentische und mobile Lösung

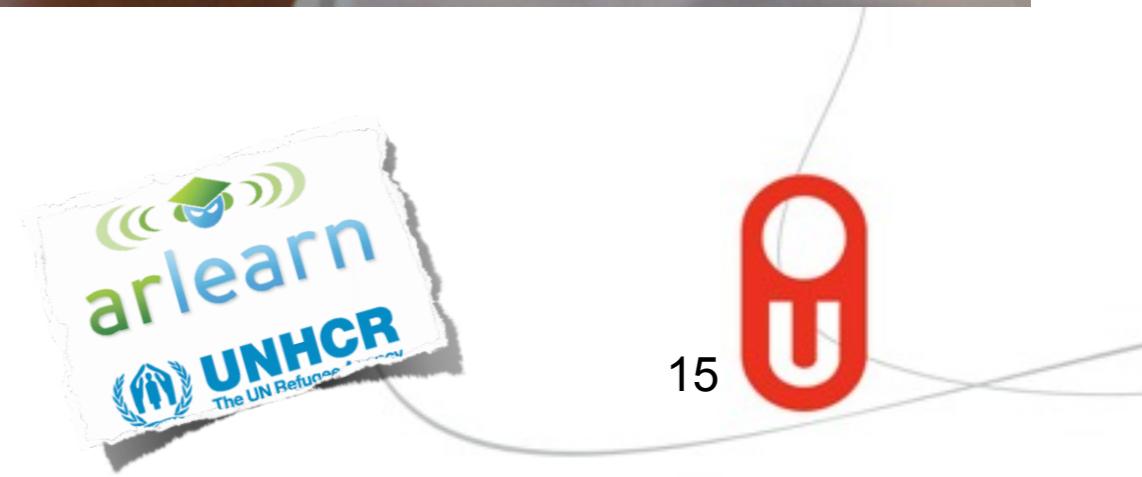
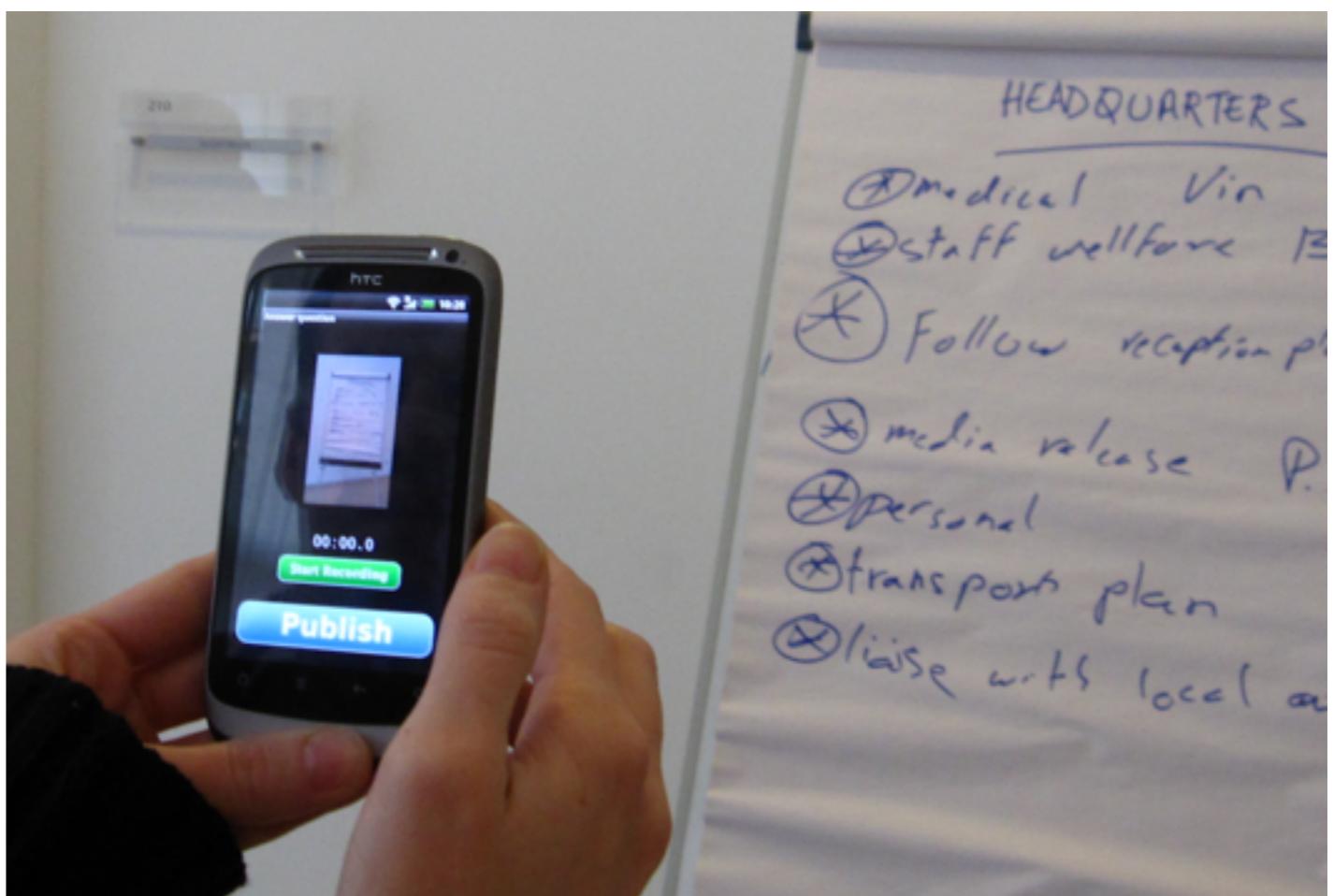
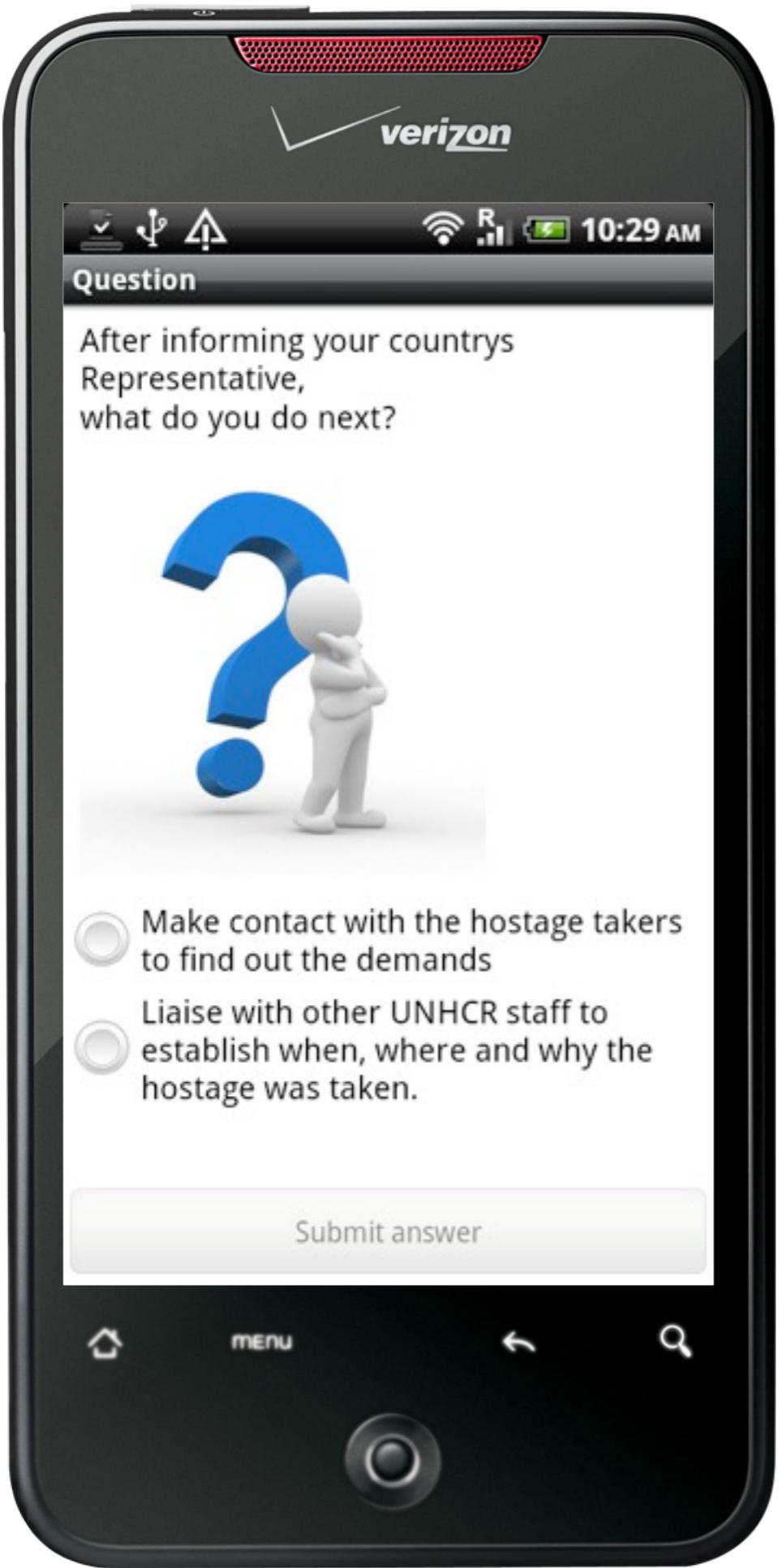


# Fallstudie 1: Setup

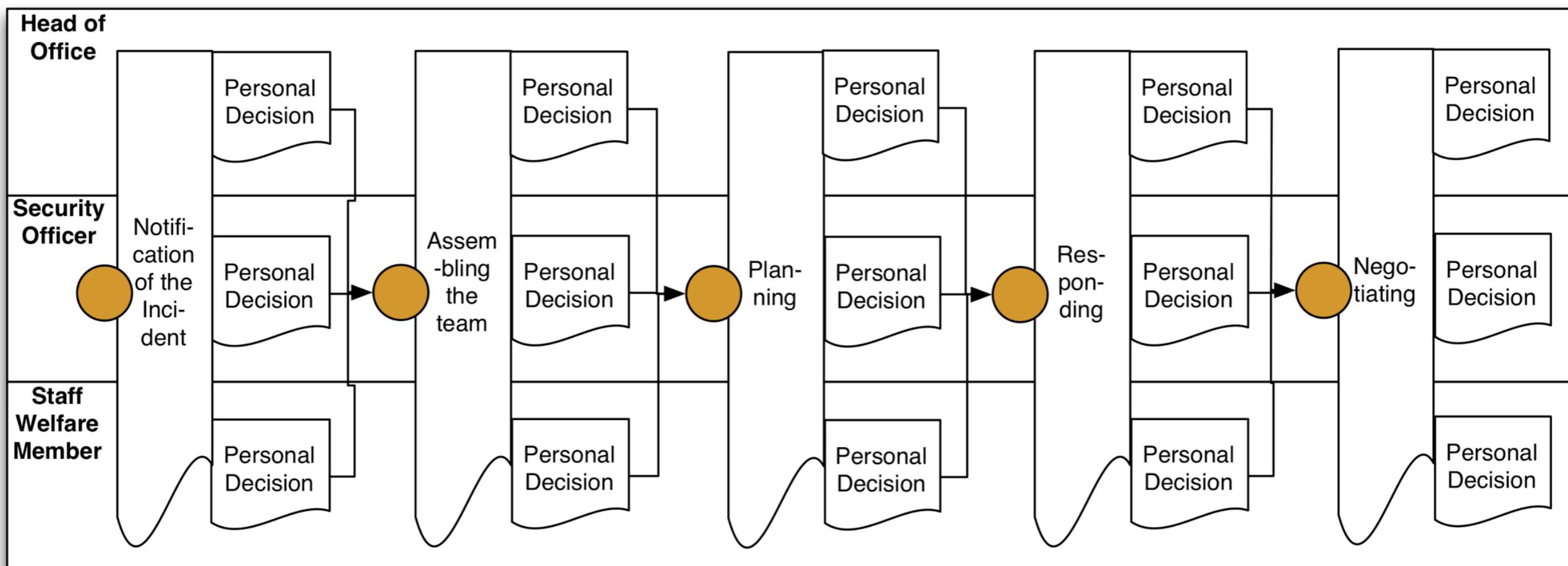
- Rollen:
  - Direktor/Büroleiter
  - Sicherheitsbeauftragter
  - HR Manager
- Ziele:
  - Wiederverwendbare mobile Lernszenarien
  - Benachrichtigungen und 'in-situ' Assessment
  - Halbautomatisches Management des Szenarios
  - Aufzeichnung der Aktivitäten für Debriefing
  - Bedachtes Handeln in Stresssituation & effiziente Kommunikation







# Fallstudie 1: Learning/Game Design



# Fallstudie 1: Zusammenfassung

- Evaluation auf Level 1 nach Kirkpatrick (1994)

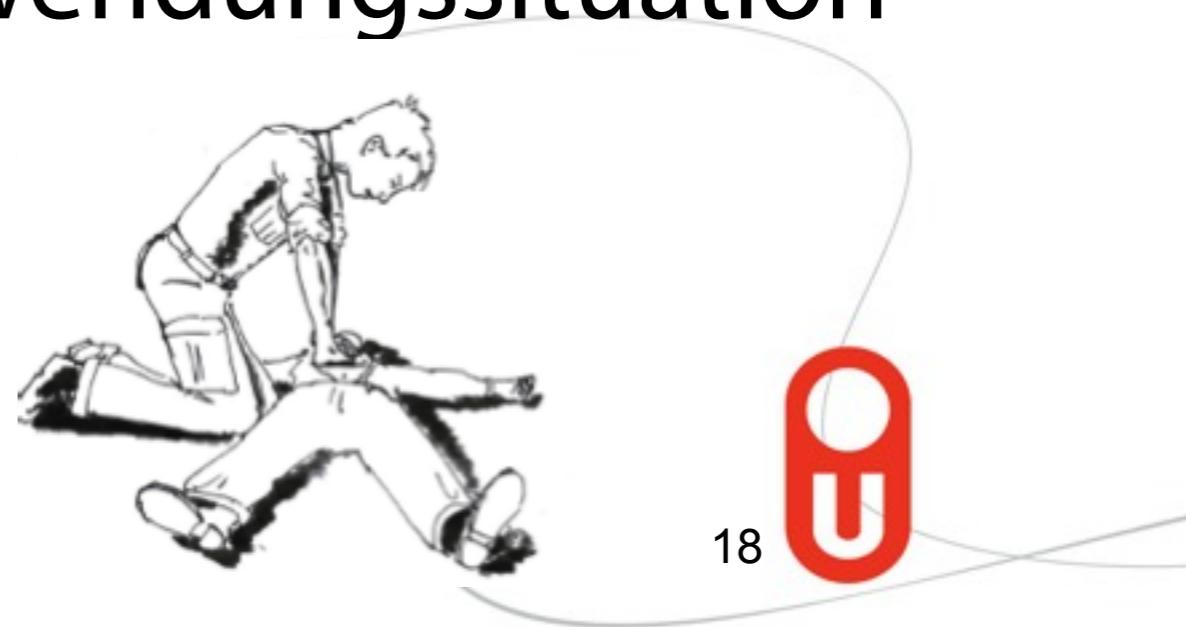


- Akzeptanz des Lernszenarios hoch, Effekt auf Wissenserwerb vergleichbar zu klassischem Training
- Alternatives Trainingsszenario ersetzt zum Teil klassisches Lernszenario

# Fallstudie 2: HeartRun



- Ausgangssituation:
  - Herzstillstand Todesursache für 350 000 Menschen pro Jahr in Europa (ERC Statistik)
  - Trotz Training nur geringe Bereitschaft zu helfen in realer Situation & geringe Halbwertszeit des Wissens & Kompetenzen
- Problem: Große Differenz zwischen Trainingssituation und Anwendungssituation



# Fallstudie 2: Setup



- Rollen:
  - AED Spieler
  - Reanimationsspieler
  - Dokumentationsspieler



- Ziele:
  - Erhöhung der Halbwertszeit des Wissens
  - Erhöhte Bereitschaft zu helfen
  - Einstellungsänderung (kurz-/langfristig)
  - Aufzeichnung der Aktivitäten für Debriefing





# HeartRun: Beispiel



12:00

Dialling

What is the most important information when calling the ambulance?

Click on **PROVIDE ANSWER** below and start recording your answer. Afterwards click on **Publish** to make your answer accessible.

21 Mar - 13:30:44

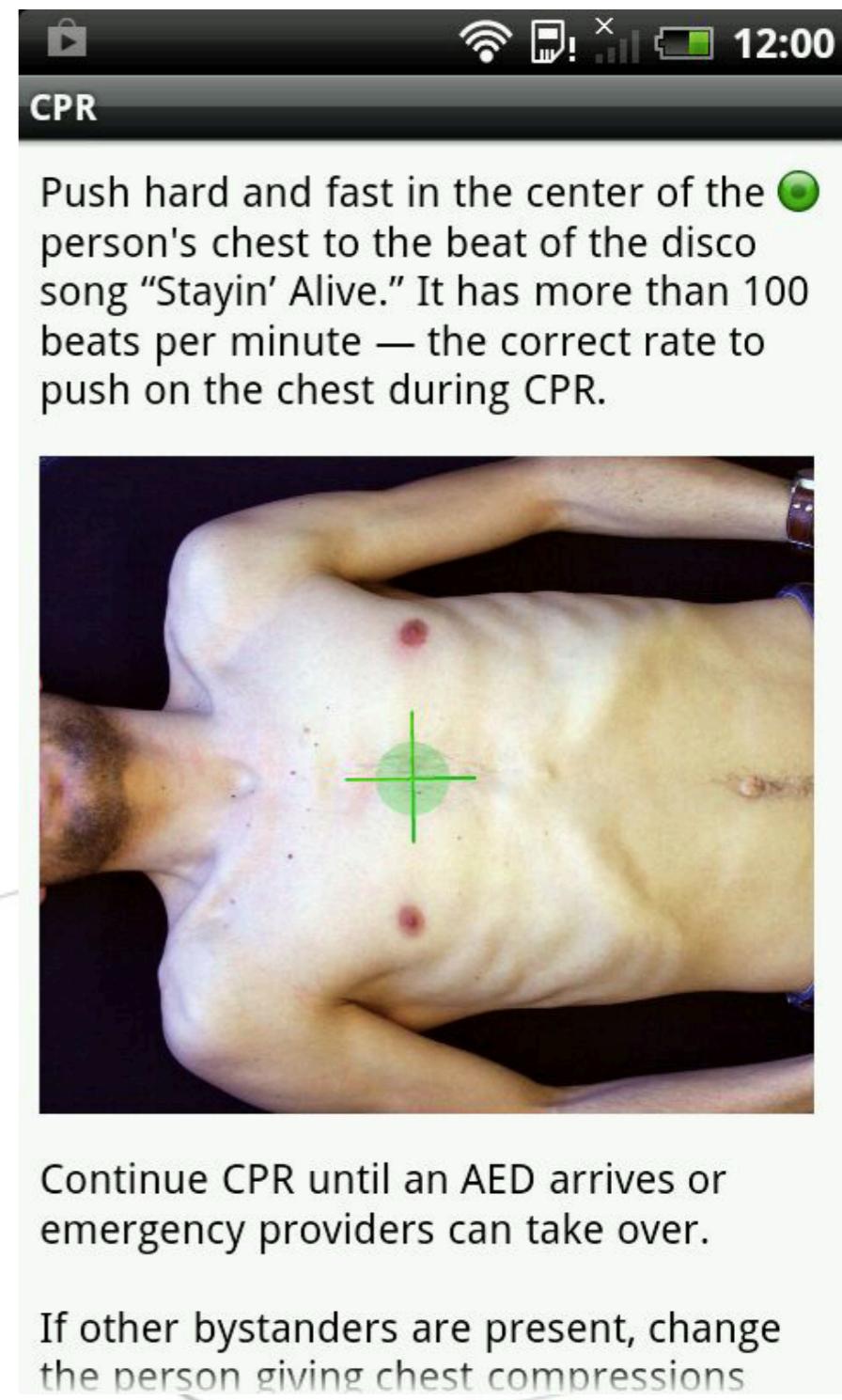
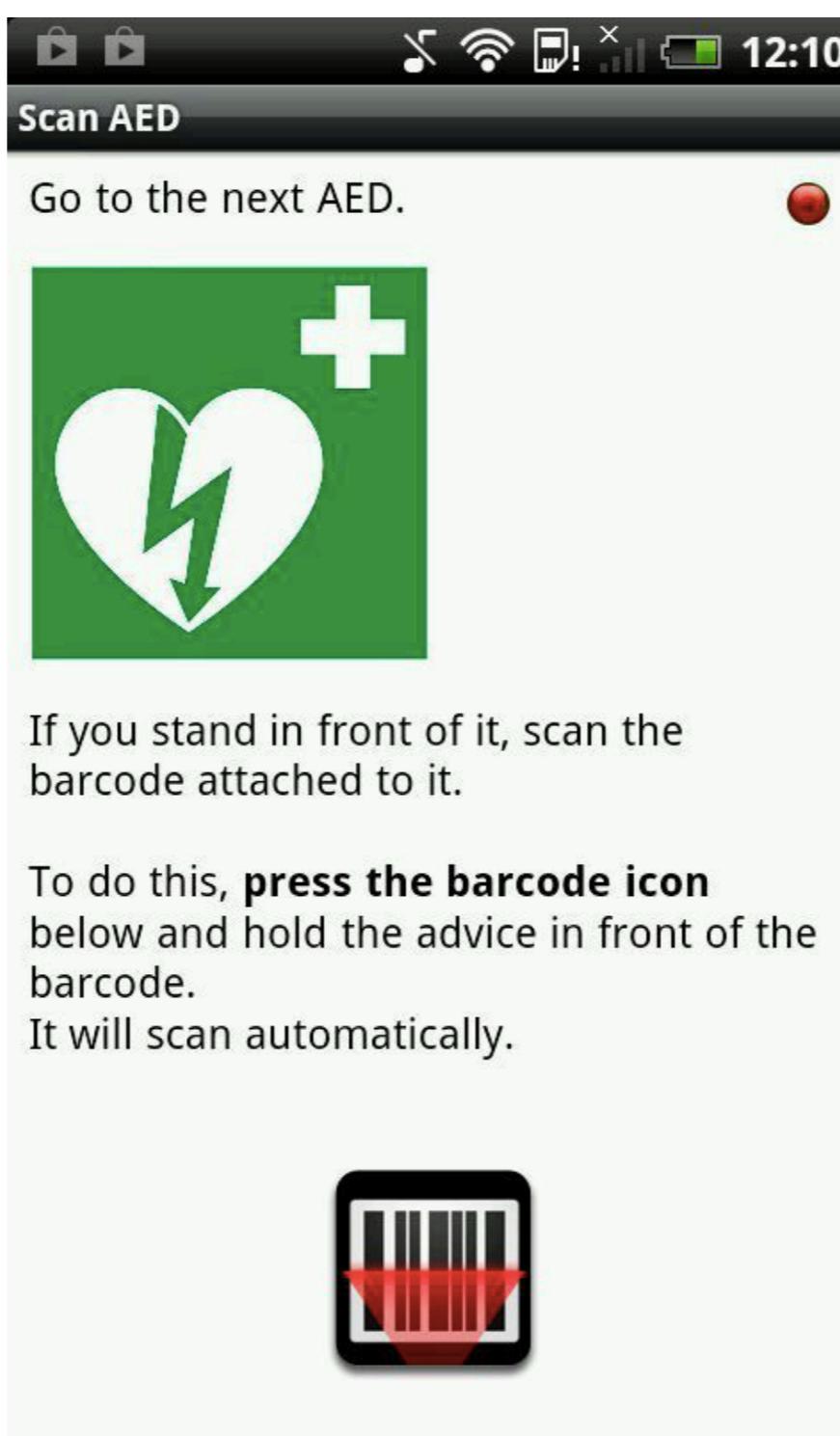
Provide Answer



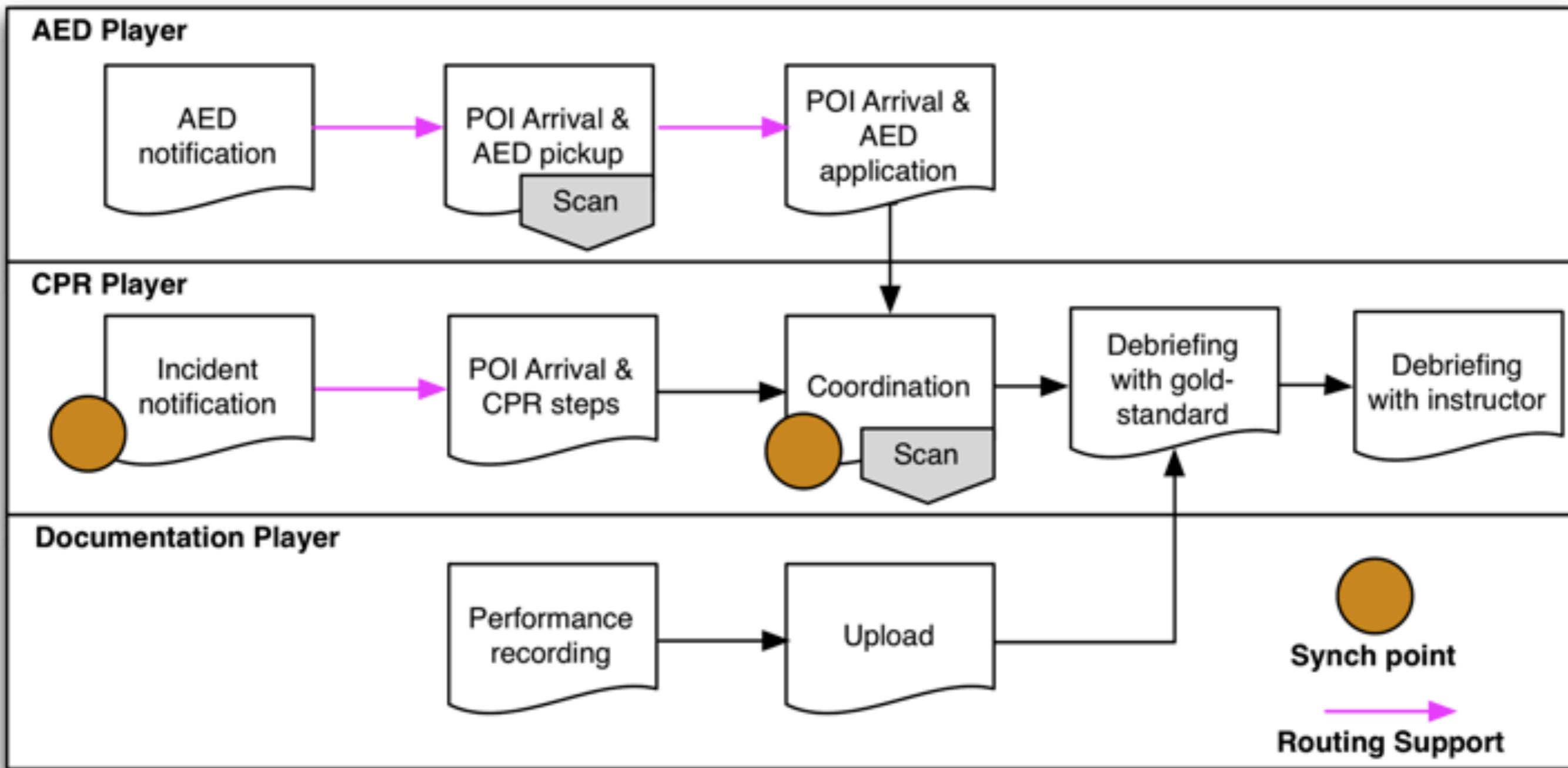
# HeartRun: Screendesign



The game is based on messages which will appear on your device. When closing this message, you will already see the next one. You close this message by using the BACK Button. To open a message, you have to click on it. Messages which you have read are greyed out.

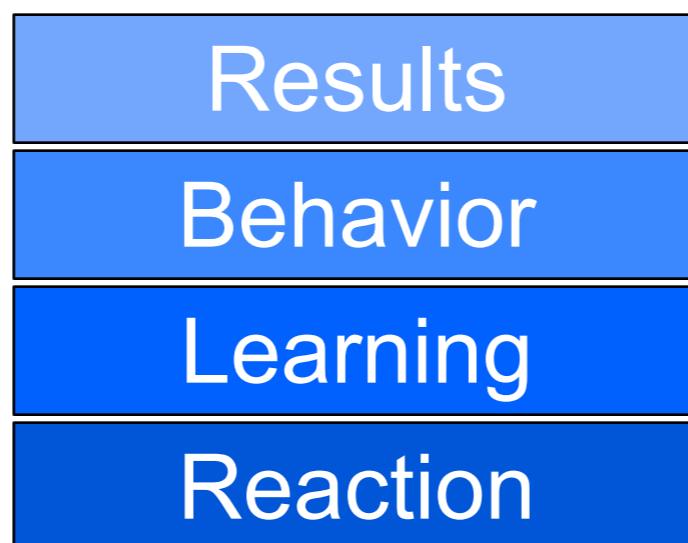


# Fallstudie 2: Learning/Game Design



# Fallstudie 2: Zusammenfassung

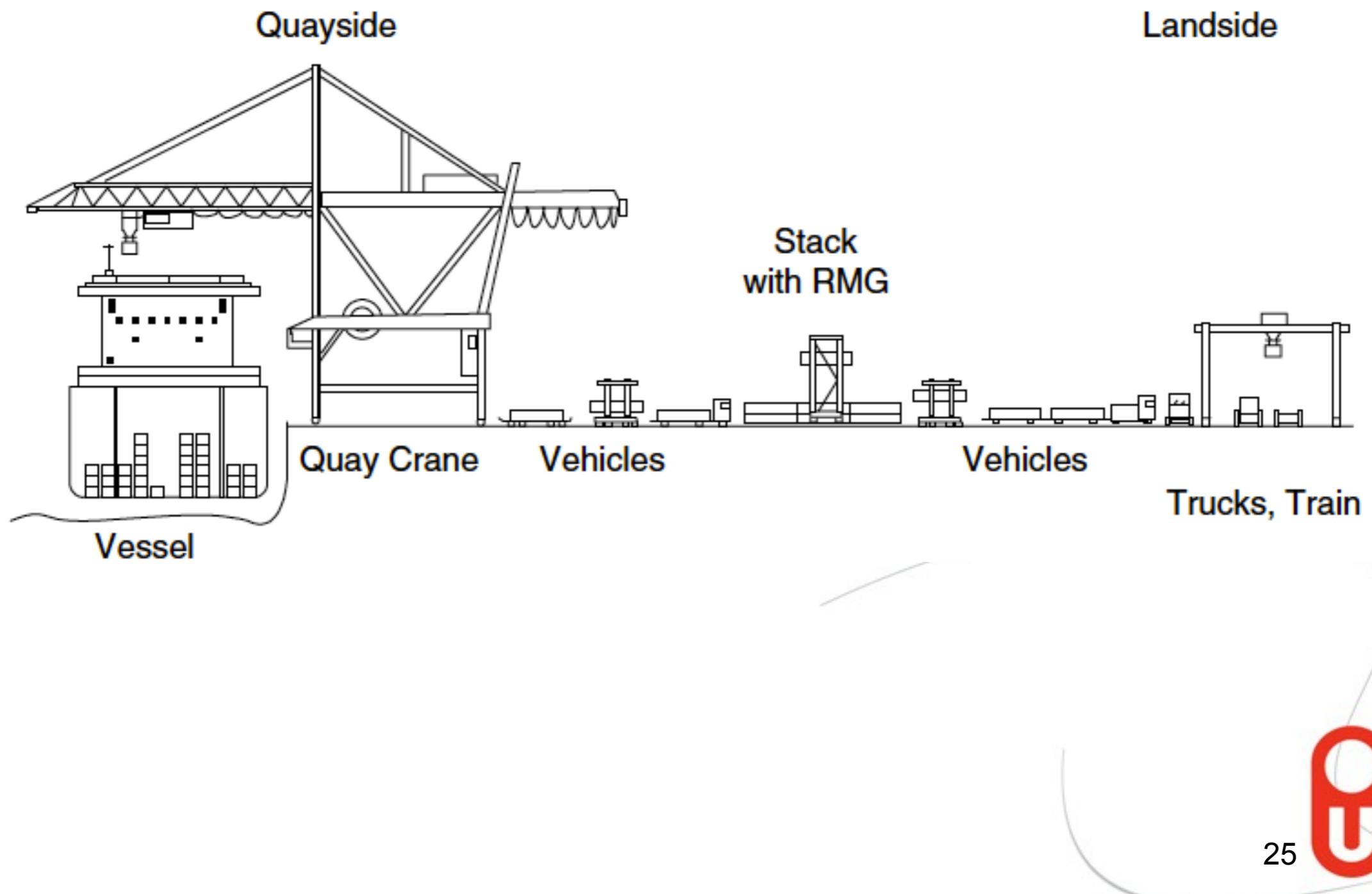
- Formative Studien zur Evaluation des Spielprozesses inklusive Neukonzeption abgeschlossen (Kalz et al., 2013; Schmitz et al., 2013)
- Derzeit Datensammlung für Evaluation auf Level 2 bzw. 3 nach Kirkpatrick (1994)



# Fallstudie 3: Logistik in Rotterdam



# Fallstudie 3: Logistik in Rotterdam



# Betriebsstörungen



# Fallstudie 3: Setup

- Rollen:
  - Mitarbeiter im Control-Tower
  - Containerplaner
  - Platzplaner
  - Salesmitarbeiter
  - Ladungsplaner



- Ziele:
  - Erhöhung der 'situational awareness'
  - Weniger Unfälle, Optimierung von Prozessen
  - Kosteneinsparung/Vermeidung von Mehrkosten
  - Aufzeichnung der Aktivitäten für Debriefing

# Fallstudie 3: 2 Spielversionen



Version 1: Brettspiel

The image displays two screenshots of a mobile application interface for the digital version of the game. The left screenshot shows a "Message List" screen with the following items:

- General Introduction: Welcome to the SALOMO game.
- Round 1 Start: Round one starts. Read your information card and choose corresponding actions!
- Round 1 Resource planner Information: Round 1 A trucker strike was announced on the news this morning, it will go on till negotiations are [...]
- Round 1 Communication: Do you want to communicate in this round prior to taking your decision?
- Round 1 Resource planner decision: Take your decision
- Round 1 Wrap-Up: Round 1 is over
- Round 2 Start: Round one starts. Read your information card and choose corresponding actions!

The right screenshot shows a "Round 1 Resource planner decision" screen with the following content:

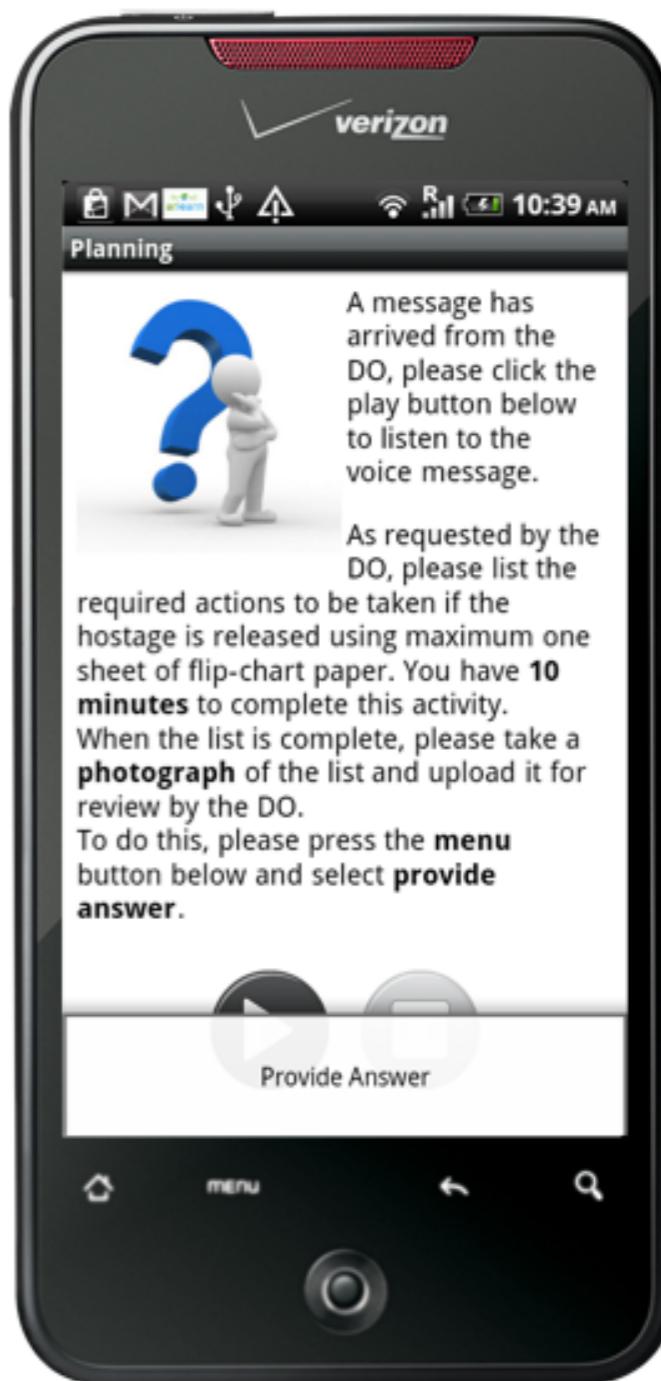
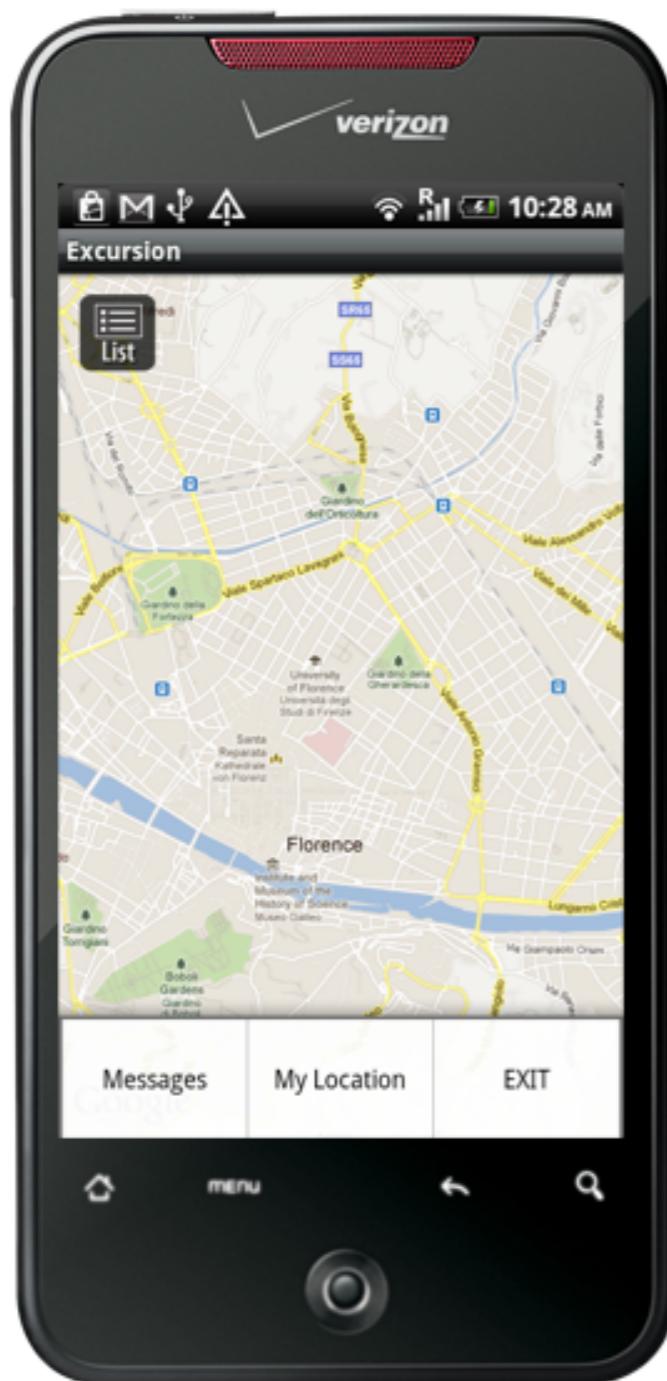
Take your decision

Call missing personnel  
 Arrange external assistant to help you coordinate the crisis

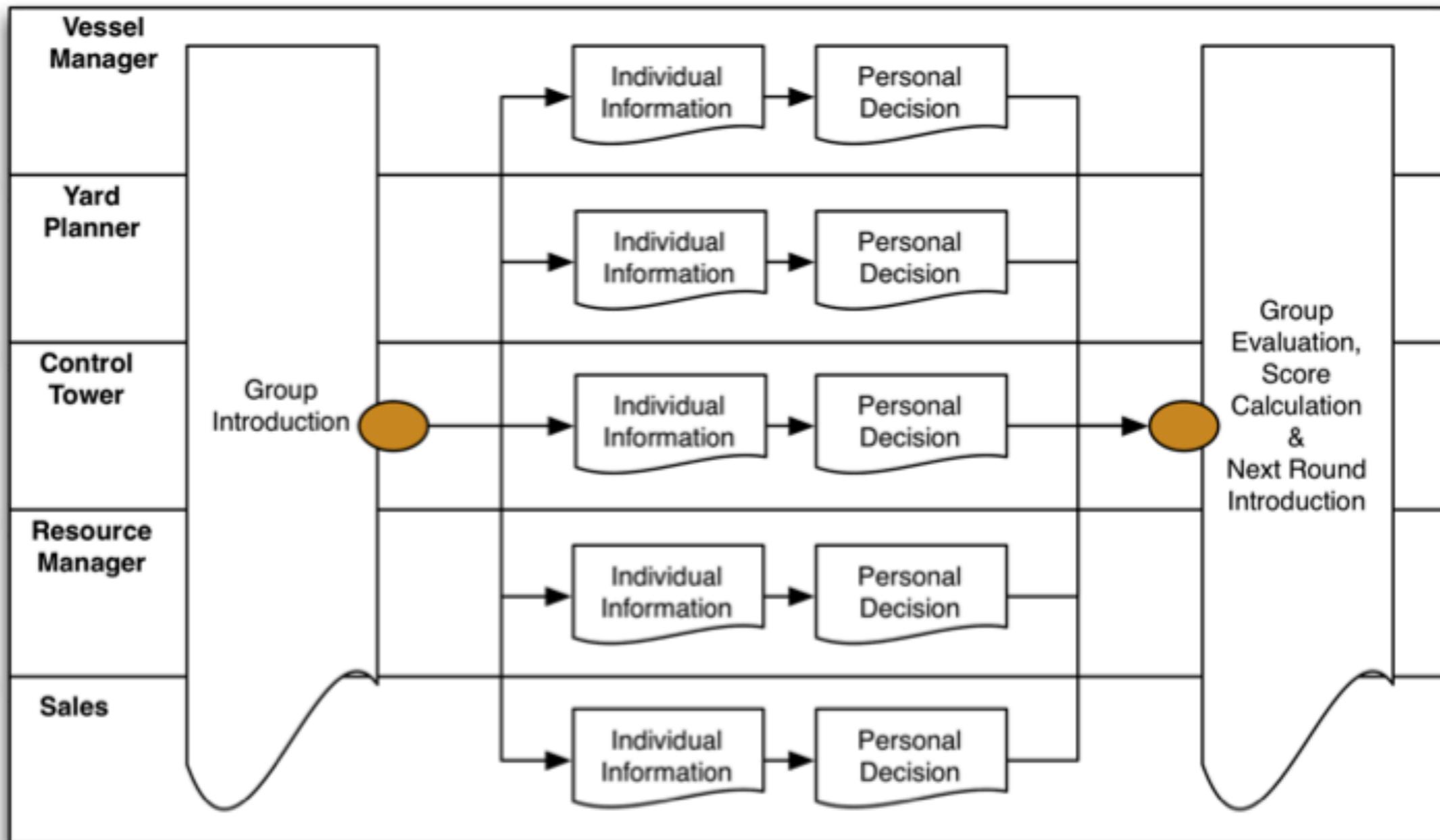
Submit vote

Version 2: Digitale Version

# Fallstudie 3: Screendesign



# Fallstudie 3: Learning Design/Game Design

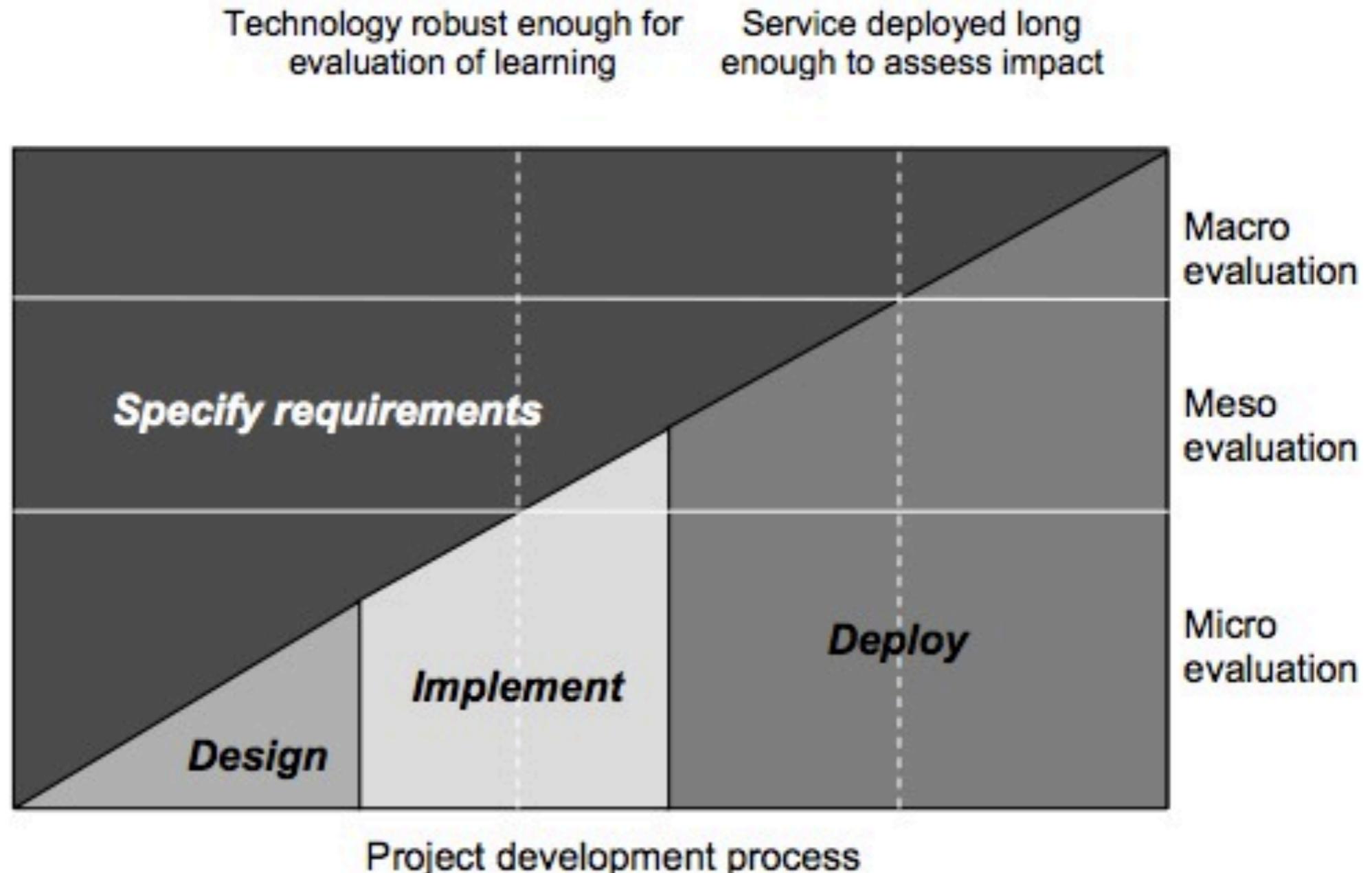


# Fallstudie 3: Zusammenfassung

- Derzeit noch Entwicklung und formative Evaluation des Spieldesign
- Potenzial für Vergleichsstudie zwischen Effekten des Brettspiels vs. digitales Spiel (Level 2 bzw. 3 nach Kirkpatrick (1994))



# Evaluationsperspektiven



Vavoula & Sharples, 2009

# Evaluationsperspektiven

	vagueness			
	Classroom	School museum visit or field trip	Personal or family visit	Personal mobile learning
<b>Physical setting</b>	<input checked="" type="checkbox"/> Conventional and static	<input checked="" type="checkbox"/> Moving around a fixed location	<input checked="" type="checkbox"/> Moving around a fixed location	<input checked="" type="checkbox"/> Unpredictable & changing
<b>Social setting</b>	<input checked="" type="checkbox"/> Fixed	<input checked="" type="checkbox"/> Pre-arranged	<input checked="" type="checkbox"/> Pre-arranged	<input checked="" type="checkbox"/> Unpredictable and changing
<b>Learning objectives and outcomes</b>	<input checked="" type="checkbox"/> Externally set	<input checked="" type="checkbox"/> Externally set	<input checked="" type="checkbox"/> Personally set or contingent	<input checked="" type="checkbox"/> Personally set or contingent
<b>Learning method and activities</b>	<input checked="" type="checkbox"/> Pre-determined	<input checked="" type="checkbox"/> Pre-determined	<input checked="" type="checkbox"/> Pre-determined or contingent	<input checked="" type="checkbox"/> Pre-determined or contingent
<b>Learning progress and history</b>	<input checked="" type="checkbox"/> Pre-determined	<input checked="" type="checkbox"/> Pre-determined or contingent	<input checked="" type="checkbox"/> Mostly contingent	<input checked="" type="checkbox"/> Contingent
<b>Learning tools</b>	<input checked="" type="checkbox"/> Provided	<input checked="" type="checkbox"/> Provided by school or museum	<input checked="" type="checkbox"/> Provided & personally owned	<input checked="" type="checkbox"/> Personal & serendipitous

Vavoula & Sharples, 2009

# ARLearn: Mobile Serious Game Platform

- OpenSource (<https://code.google.com/p/arlearn/>)
- Autorenenumgebung
- Spiel-Archiv (Repository)
- Portfolio-Ansicht



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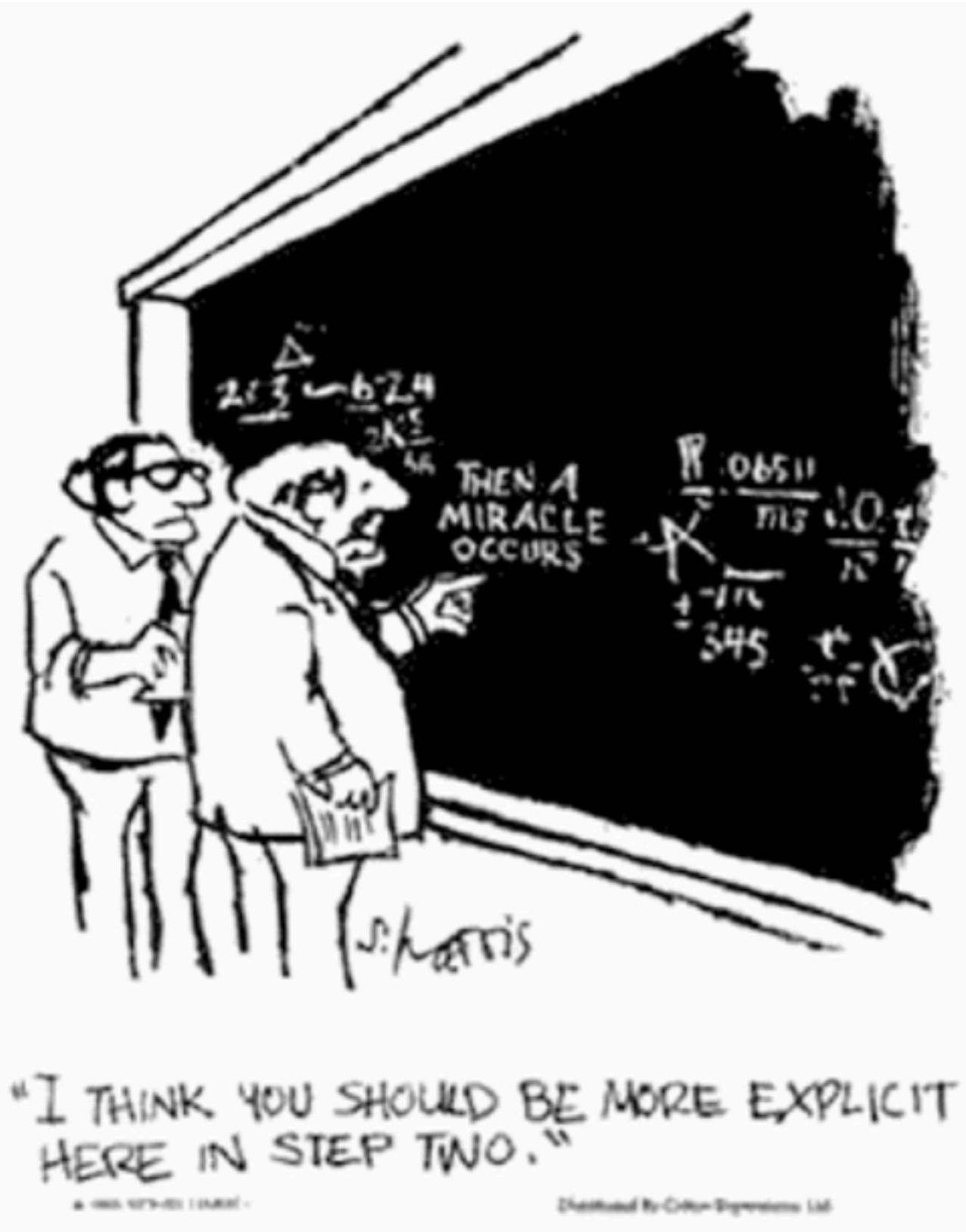
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Vielen Dank für Ihre  
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