

A playground for adaptation and adaptivity

VOCABULARY TREATMENT IN ADVENTURE AND ROLE-PLAYING GAMES

Adventure and role-playing games



the pioneers ^{70s}



the classics ^{80s}



interactive video ^{90s}

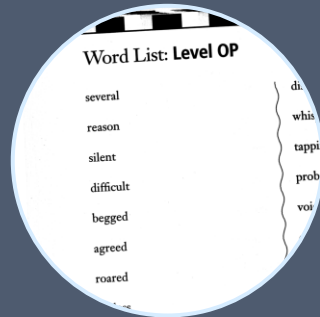


MMORPGs ^{today}

Suitable for L2 learning?

- learners improve significantly on program-specific vocabulary, needed to make progress in the game (Cheung & Harrison, 1992)
- better vocabulary retention, even though students feel more at ease with traditional ways of teaching vocabulary (Neville et al, 2009)
- significant increase in program-specific vocabulary for students that receive supplementary materials, especially when materials are not optional but obligatory (Miller & Hegelheimer, 2006)
- highest mean score on program-specific vocabulary test for students that receive supplementary materials (Ranalli, 2008)

L2 vocabulary learning techniques (Oxford & Crookall, 1990)



decontextualizing

word lists, flashcards,
dictionary lookup



semi-contextualizing

word-grouping,
multimedia,
keyword, TPR,
semantic maps, ...



fully contextualizing

reading & listening,
writing & speaking



Involvement load hypothesis

(Laufer & Hulstijn, 2001)

- incidental vocabulary acquisition
- focus on cognitive processes

Task	Status of target words	Need	Search	Evaluation
Reading with questions	Glossed, not relevant to task	-	-	-
Reading with questions	Glossed, relevant to task	+	-	-
Reading with questions	Needed words looked up	+	+	+
Reading and filling in	Given	+	-	+
Writing sentences	Given	+	-	++
Writing composition	Not given	++	++	++

Involvement load hypothesis

(Laufer & Hulstijn, 2001)

- incidental vocabulary acquisition
- focus on cognitive processes

Task	Status of target words	Need	Search	Evaluation
Point & click dialogue	not relevant to quest, meaning given	-	-	-
Point & click dialogue	relevant to quest, meaning given	+	-	-
Point & click dialogue	relevant to quest, meaning looked up or derived	+	+	-
Typed input	Needed words given	+	-	+
Typed input	Needed words looked up	+	++	+

Implications for L2 game design

- create a **need** for vocabulary acquisition (Cheung & Harrison, 1992; Oxford & Crookall, 1990)
- where possible, make adapted materials **mandatory** rather than optional (Miller & Hegelheimer, 2006)
- deal with the issue of **unpredictable exposure** to lexical items (Ranalli, 2008)
- create opportunities for **noticing** vocabulary by adapting in-game text (Ranalli, 2008; Purushotma, 2005)

How to adapt language in games?



We have had severe problems with cash flow lately.

What could we do to remedy the situation?

What could be the cause of that?

How severe?

Cash flow?

How to adapt language in games?



Well, cash flow is the difference between the money that goes in and the money that goes out of a company. It is crucial to ...

What could we do to remedy the situation?

What could be the cause of that?

How severe?

How to adapt language in games?

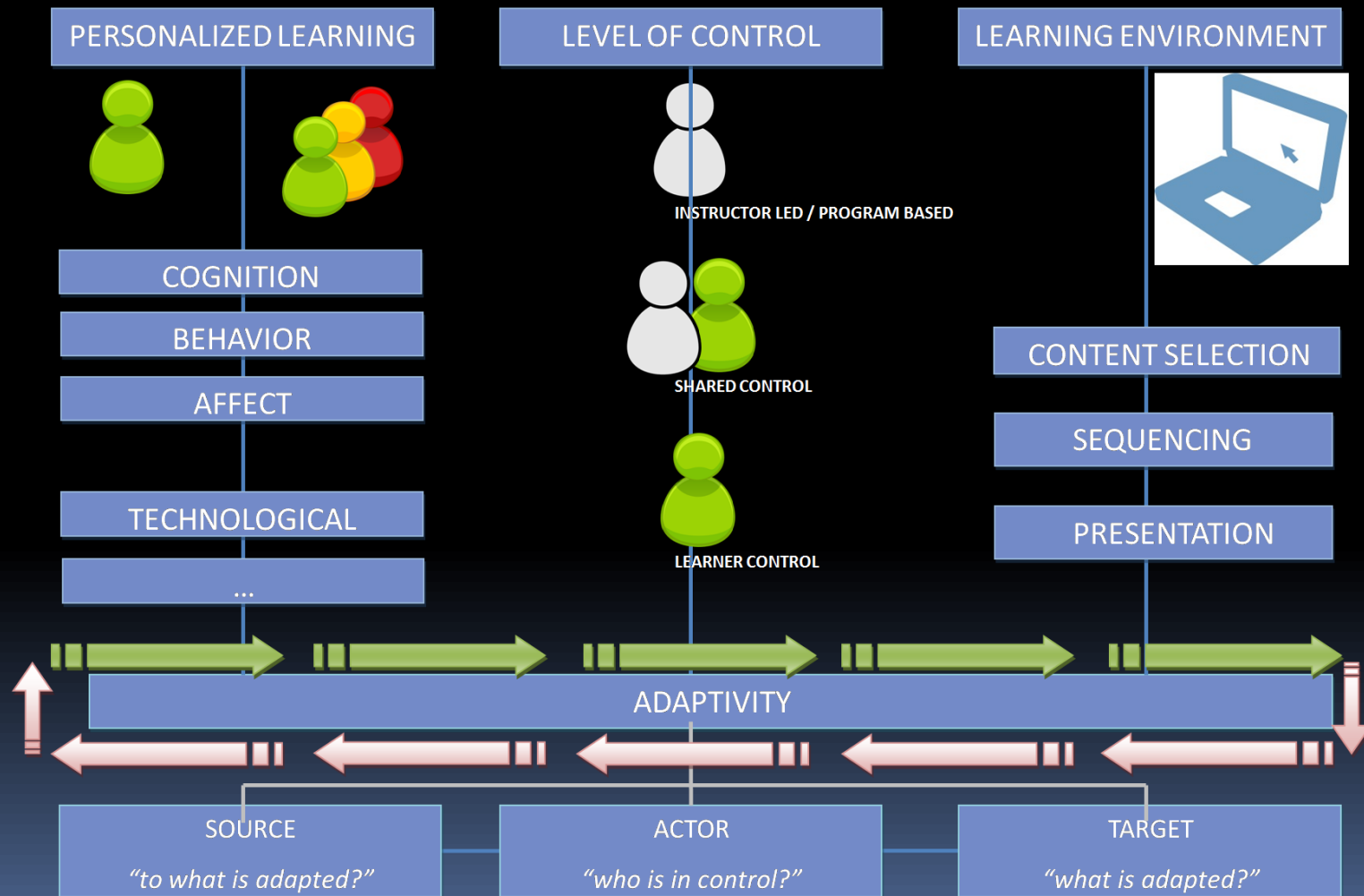
- low-level
 - pre-modified input
 - through highlighting
 - interactionally modified input
 - through elaborations
- high-level
 - through side-quests

Adaptivity

Which items should be adapted?

- estimate lexical difficulty by means of frequency
- assess learner's vocabulary proficiency in the game itself
- match proficiency to lexical difficulty

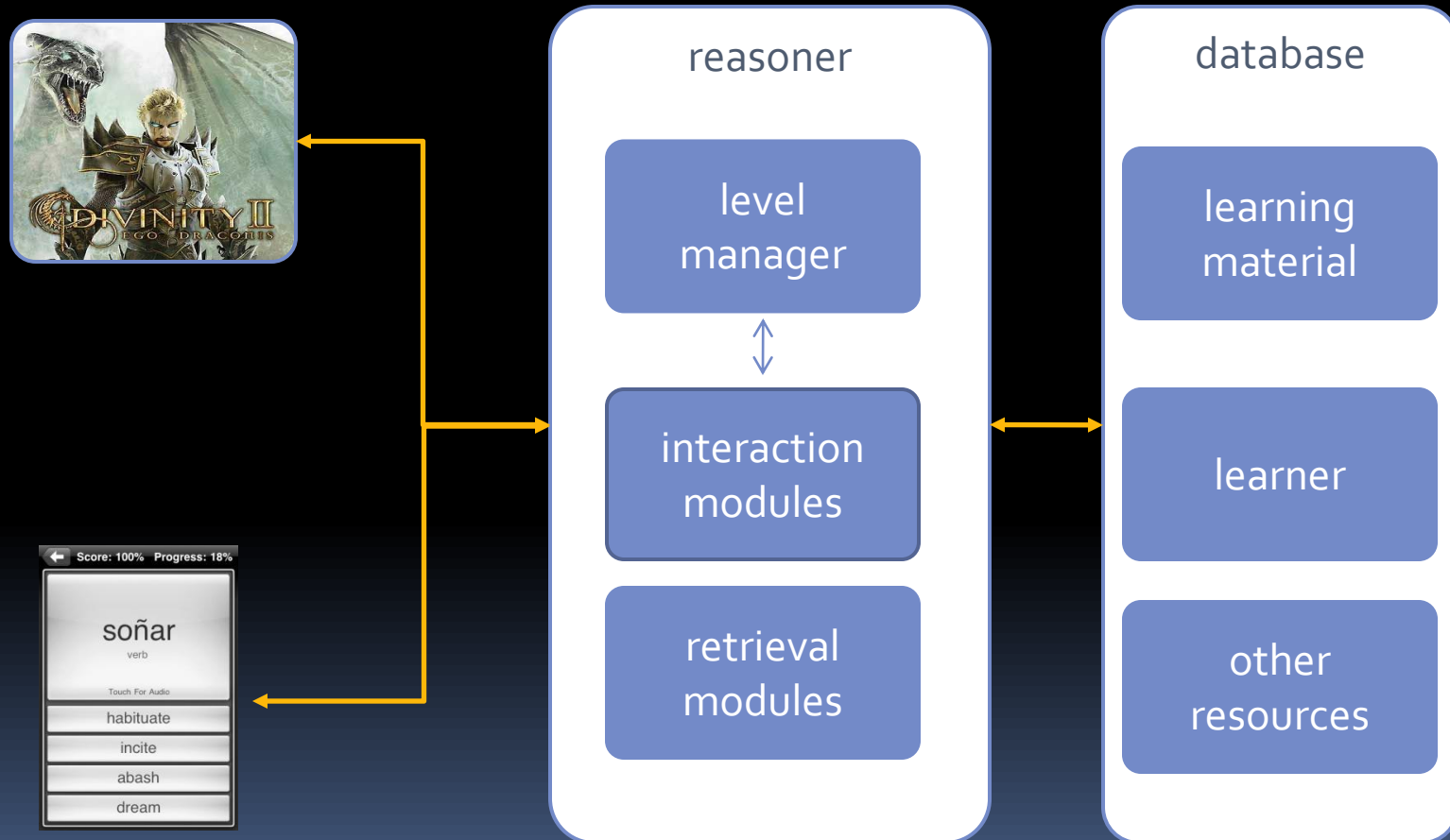
Adaptivity (M. Vandewaetere)



Obstacles for adaptivity

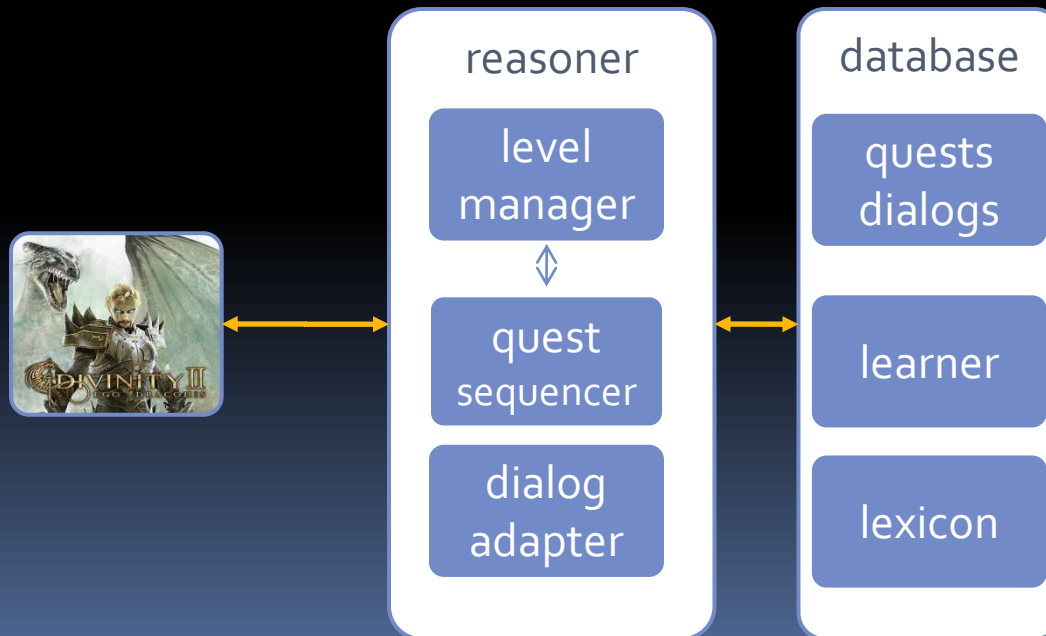
- methodology
 - lack of knowledge to measure learning progress
 - inadequate adaptivity logic
- implementation
 - hardcoded implementations

Approach: the reasoner



Use case: noticing vocabulary

- Adaptivity
 - dialog adapter: match lexical frequency to level
 - quest sequencer: introduce (side-)quests



Use case explained

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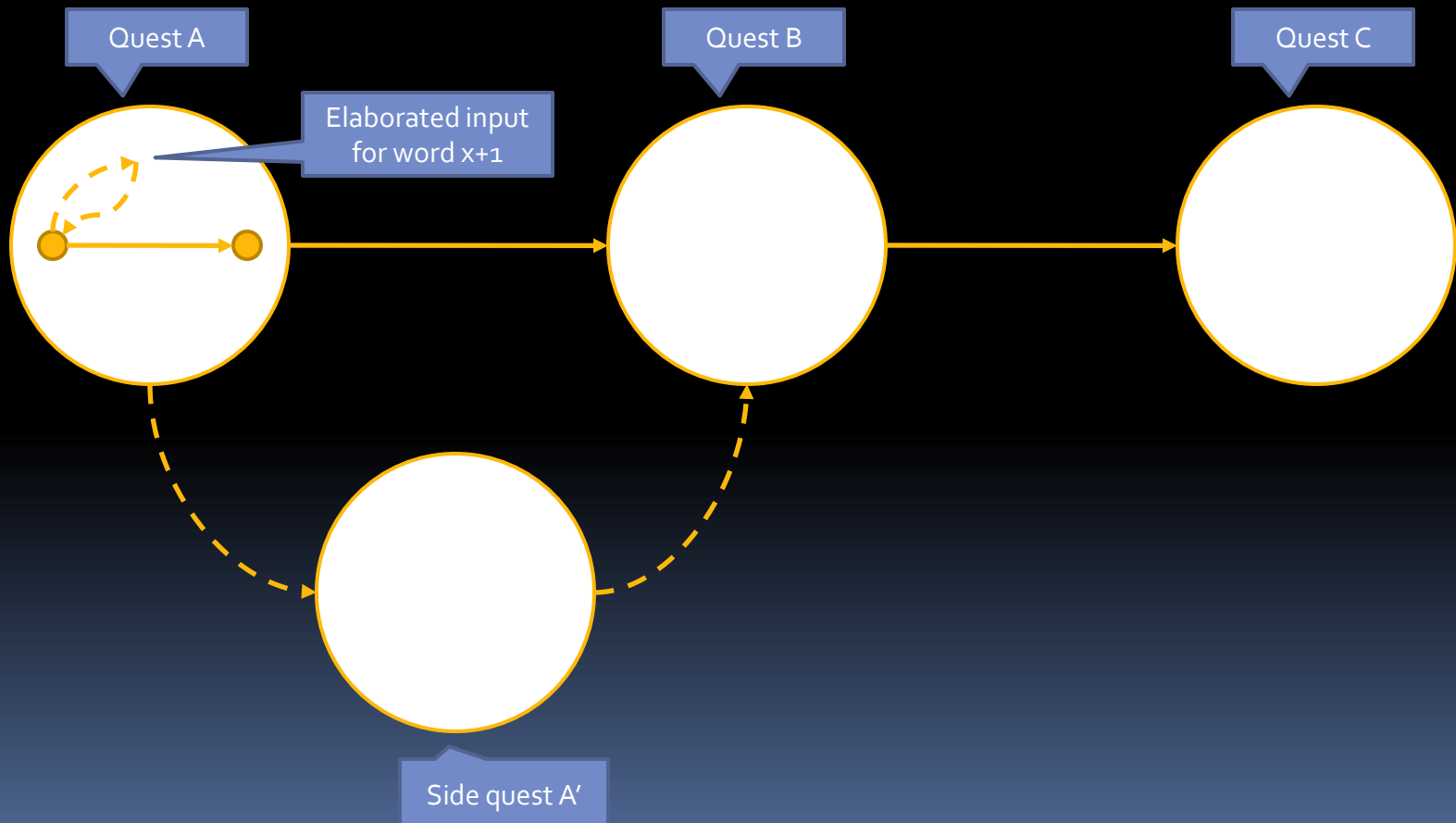


Man

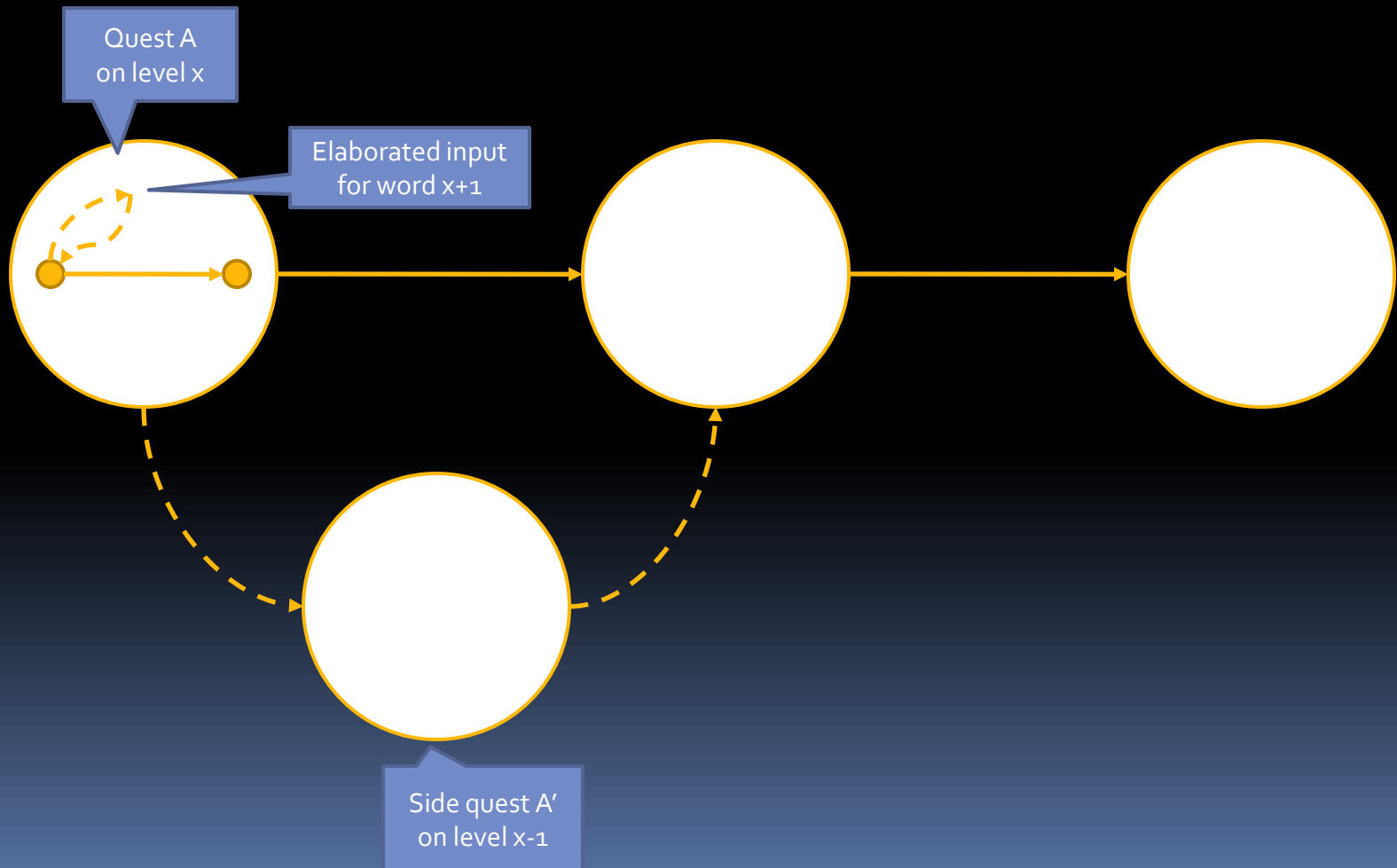
We have had severe problems with cash flow lately.

1. What can we do to remedy the situation?
2. What could be the cause of this cash flow problem?
3. How severe is the situation?
4. Cash flow ?

Use case explained



Use case explained



Thanks !

Questions?

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