

The Cognitive Basis for an MR Image Tutor

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Abstract This paper describes the cognitive basis for an MR image tutor. The tutor is designed to help medical students learn to interpret MR images. The tutor is based on a model of the cognitive processes involved in interpreting MR images. The model is based on the work of experts in the field. The tutor is designed to help students learn to interpret MR images by providing them with a series of questions and answers. The questions are designed to help students learn to identify the key features of an MR image. The answers are designed to help students learn to interpret the key features of an MR image. The tutor is designed to help students learn to interpret MR images by providing them with a series of questions and answers. The questions are designed to help students learn to identify the key features of an MR image. The answers are designed to help students learn to interpret the key features of an MR image.

Introduction

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Cognitive Support Systems

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p^f on o nn n o o p, - on v ppo v n o
n, v op n n A n p^foo n on ED CA
o n v ppo f o p n C EC, o p o n p o
o^f p n o q n^fo n^f o q p n⁻
o n on^f o n v ppo p n , pp q o
o
n n v n o v :-
p ov ppo^f o n n' o n on^f own n o^f p o
p , n p n ow o on-
o n v o n w o o^f n n ow v v n
o^f o n p n n n w n ow n , p ov n p o
o^f o p v n n n p on o p own n
v n n^f o on n on v p o^f -
n n o^f v , p^fo n^f w n o^f o op n
n w o^f n p n n n nn o po o o^f o n
wo. nv on n -
-no no on on v o n nn p n on n op on, o

Explain the terms to be used in labelling the concepts and their attributes (Stones, 1979)

o^f po n n o p on n v op Bo
 n o o on D on^f o n v p ov o p n v o^f n n o
 v op o n n p o o o p o n nno v o^f n n o
 p n^f o o n p po -A po on o^f p n n o^f v o^f p n n o
 p n^f on own n -An n p n n v on o^f n o^f p n n o^f
 nno p n - pp o o po n, n o^f n o^f

ar n

any s arp

Gra

ap

oun

lrr u ar

Ar a sq

Con or n to an anato a atur

Int r, or patt rn

Ho o n ous

H t ro n ous

Cont n a l, st n t o a stru tur

E -A po on^f p D p on n n o pp n o^f on

non o^f p on n p pp op o o p o n, n p ov
 p n o v o n n p n n n o^f n p
 n Bo , , v po n n p n p n on p n p o o -
 , p o o n n o n n n n o^f o^f , v n o

Provide a definition of each concept in terms of its critical attributes (Tennyson and Park, 1980)

C o^f o on^f o p, n on n , o o
 o n o n v , o o^f o non - o o
 no n, v n n o^f n v p own n o n
 o p n , on o^f v o n v p ov p o o
 n o^f pp op on-

Provide concept maps showing the relationships between concepts (Novak et al., 1983)

n nv n o^f v o n on p o o v n n ov v o^f
 p n q o^f o pon n n n p ov p p o^f
 o p - o^f o n o p p po n po n
 o pon n o n v o n on p n v n p - n o o^f
 v n n on o^f ov on o^f p n o o n p o^f
 own o n n p o o pon n n n p ov o v p o^f
 o n n n n p o^f n o^f v n -
 p ov v v n n n n o^f v n n on
 o^f o n n o o^f p n ov o^f o^f -A n p p o
 n ov o -An p o^f o ov v v o p o n n on
 ov v v o v n o p -

Start by showing a series of simplified exemplar images, with few and obvious attributes, to emphasise the critical attributes (Stones, 1979)

o v n on p ov n on p n n on -

Arrange the exemplars in order from easy to difficult (Tennyson and Park, 1980)

An po n p o o n on n op o n p own p on v n o on o v on o v o A p op on p o n on v p o n on o on o n ow o -

Teach coordinate concepts by presenting examples according to their coordinate relations (Tennyson and Park, 1980)

Coo n on p o ov pp n n n on n on p n n o n no on o p n on p n o on o v o p on n p on n p o n p on n n v p oo o n v p oo q n wn o p on q no on o n no o o n ow v p oo n v n v n v -

Provide suitable cueing so that learners gradually become independent in their ability to identify novel exemplars of the concepts (Stones, 1979)

pon o on -A n o p o n n n ov v n f o n v -A n p ov n o on n p o o o v Bo -

Implementation

p o n nv on n nn n n X n ow on n wo on - ow n p o n v n o wo v o ow n o v n f o n o n o -An ov v v p o v n p oo own ow o n n n n o o po n p -E po n n ov v n n q n n n on po n o n o v n on o o o on n n n n o oo on o n o n n - n p o o pp n no p on n o p n n on o ov ov n o n on ov v ow f n n p f o v o p on v n o n o n f A n n n o p n o w p o n n n n

f n on q n n pon o o p n on ; , n v n on o n
A o v v p n o op on , o n o pon n o
p n -

Conclusions

D v op o p o n v p oo n on o n n v
n n on p oo n if o n- p n n n np oo n
o n on n n o o o on o nq o n on p , n p ov p
n o n o on o p n o o n n n n
pp o n n q n p on n pp o n o n
n n p p no o o n o pp o n o o p
o n o v on p , n oo , o n , n n o , n v n
p C p o o n Do on -
n v o on on p o n n n on o p ov n n o

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np D on n v o -
- n , - Correspondence Analysis in Practice-A -
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w n o oo -*Science Education* , 4 -
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- p , -oo , n on D v op n A ; A n- n - *Technology
and Writing: Readings in the Psychology of Written Communication*- on on n -
- p , n ; C- A wo o D n o A ; A n- n - *Artificial
Intelligence and Human Learning: Intelligent Computer-Aided Instruction*- on on C p n n -
- , D- o ED CA Co n v ppo o -*IMES Working Paper WP-6*,
n o o o o E ono o o n v u no-
- on , E- *Psychopedagogy*- n on on-
- , D- , B-A- , - , Bo , - , D- wo , - n o , A-
Ev on o Co p A v o n n p on o -*Neuroradiology* , -
- , D- , B-A- p , - , Bo , B- Bo , - 4 n n o n
o n o n C D -*Proceedings of Twelfth International Congress of the
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o n on^f o n v ppo p n , pp q o
o
n n v n o v :-
p ov ppo^f o n n' o n on^f own n o^f p o
p , n p n ow o on-
o n v o n w o o^f n n ow v v n
o^f o n p n n n w n ow n , p ov n p o
o^f o p v n n n p on o p own n
v n n^f o on n on v p o^f -
n n o^f v , p^fo n^f w n o^f o op n
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 nno p n - pp o o po n, n o f n o

ar n

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lrr u ar

Ar a sq

Con or n to an anato a atur

Int r, or patt rn

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Cont n a l, st n t o a stru tur

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 own o n n p o o pon n n n p ov o v p o
 o n n n p o n n o n o v n -
 p ov v n n n n o n n n n on
 o n n o p n ow o o -A n p p o
 n ow o -An p o on ov v o p n n on
 ov v o n o p -

f n on q n n pon o o p n on ; , n v n on o n
A o v v p n o op on , o n o pon n o
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n n p p no o o n o pp o n o o p
o n o v on p , n oo , o n , n n o , n v n
p C p o o n Do on -
n v o on on p o n n n on o p ov n n o

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