

# Transfer From Everyday Models to a Complex Situation\*

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## Outline

- Teaching activities for Positron Emission Tomography (PET)
- College students prior ideas and their inappropriate applications
- Helping students activate appropriate ideas

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## Research Context

- Spring 2006 at Kansas State University
- Teaching interview\* of PET learning activities with students enrolled in algebra based physics course
- Examine the role of model in learning process

\* Engelhardt and et.al.(2004)

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## Physics of PET



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## Hands- on Teaching Activities

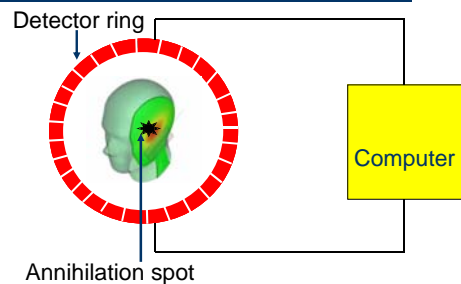


Light activity

Cart activity

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## Teaching Activity PET Problem



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## Influence of Central Tendency

- The center of the circle the origin of light (14/16)



...I am so used to think that if you are gonna have two points at the end on the circle then obviously their start point is the center....

- The center of the line the origin of event (12/16)

...kinda guess where the center is ...I said the light source is at the center...I think the light source is at the middle of the line...

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## Influence of Event Location Determining Factors

- 'Closer is brighter' (7 out of 11 students)

... I would have to look the light again ...if the

- 'Closer is bigger' (2 out of 11 students)

intensity of the light is same at both the sides, which I believe it is ... I believe that the

... have happened at the

- 'Closer is quicker' (2 out of 11 students)

...the diameter of the light was the same ...you have to see when the lights turned on ... I thought they turned on at the exact same time...

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## Activation of Appropriate Idea

- 'Closer is quicker' the appropriate idea even in the context of light activity
  - The idea held by only very few participants in light activity
- When cart activity introduced before light activity
  - All participants (5/5) of this trial used the idea 'closer is quicker' in light activity

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## Conclusion

- Students transfer ideas from everyday experience to a complex situation
- Such transfer may be inappropriate sometimes
- Students can be helped to trigger and transfer their appropriate prior ideas by using activities in right order

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# Thank You!!!

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