

# Universal Design for Instruction: Practical Techniques for Post- secondary Education



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# Objectives

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Participants will

1. **understand the need** to universally design instruction.
2. learn the **guiding principles** of universal design for instruction (UDI).
3. learn **specific procedures** consistent with UDI.



# Overview of Presentation

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- Overview of UDI
- Guided Notes
- The Pause Procedure
- Graphic Organizers
- Questions, Comments, and Ideas
- Application Activity



# The Need for UDI

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- **Increasingly diverse** college student body
  - 40% age 25 or older
  - 31% racial/ethnic minorities
  - 34% attending college part-time
  - 20% increase in international students from 1998 to 2004
  - **Students with disabilities**
    - 2.3% in 1978 to 9.8% in 1998



# The Need for UDI

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- **Student retention**
- Shift in pedagogy from delivering instruction to **promoting learning**
- **Barriers** include:
  - **Unclear expectations**
  - **Textbooks inaccessible**
  - **Lectures** requiring **extensive notetaking**
  - Difficulty attaining accommodations



# Origins of UDI

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- Buildings **designed** for the “**average**” person
  - Require **retrofitting** to accommodate others
- Retrofits **expensive**, call attention to user, **solve one problem at a time**



# Origins of UDI

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- Universal design “consider[s] ... **broadest possible range of users** from the **beginning**” (Ron Mace, architect)
- Increases access for many **unintended users**
- Exs: Ramps, curb cuts, electric doors, captions on TV, easy grip tools



# What is UDI?

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“The design of instructional materials and activities that **makes the learning goals achievable by individuals with wide differences in their abilities** to see, hear, speak, move, read, write, understand English, attend, organize, engage, and remember”  
(Council for Exceptional Children)





# What is UDI?

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- Simply stated, UDI is an essential element of **good teaching** to proactively meet the needs of diverse learners.



# Principles of UDI (or L or E)

(Scott, McGuire, & Shaw, 2001)

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- Equitable use
- Flexibility in use
- Simple and intuitive
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use
- A community of learners
- Instructional climate



# Equitable Use

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- Instruction is **identical** whenever possible, **equivalent** when not.
- Ex: All students use **pause procedure, guided notes, and graphic organizers**; not just those with disabilities/low achievers.



# Flexibility in Use

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- Instruction **accommodates a wide range** of individual abilities.
- Provide **choice** in methods of use.
- Ex: Use varied instructional methods
  - group activities (**pause procedure**)
  - hands-on activities
  - web-based discussions



# Simple and Intuitive

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- Instruction is **straightforward** and **predictable**.
  - Eliminate *unnecessary* complexity.
- Examples:
  - clear grading rubric
  - accurate and comprehensive syllabus



# Perceptible Information

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- **Necessary** information is **communicated effectively**.
- Examples:
  - reading material in digital format and/or on-line
  - **graphic organizers, guided notes, pause procedure**
  - repeat key terms/phrases



# Tolerance for Error

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- Instruction **anticipates variation** in learning pace and prerequisite skills.
- Examples:
  - provide frequent feedback
  - on-line “practice” exercises
  - **pause procedure, guided notes**



# Low Physical Effort

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- **Minimize nonessential physical effort**
  - does not apply when physical effort is integral to course
- Ex: Allow students to use a word processor for writing essay exams





# Size and Space for Approach and Use

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- Consider **appropriate size and space** for approach, reach, manipulations, and use.
- Ex: circular seating arrangement allows students to see and face speakers during discussion



# A Community of Learners

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- The instructional environment **promotes interaction and communication**
- Examples:
  - structure study/discussion groups, e-mail lists, chat rooms
  - learn students' names
  - acknowledge excellent performance



# Instructional Climate

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- Instruction is **welcoming and inclusive**.
- **High expectations** for all.
- Ex:
  - highlight diverse thinkers
  - share innovative approaches developed by students



# Another View of UDI's Guiding Principles

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- Multiple/alternative means of:
  - Representation
  - Engagement
  - Expression
    - Students can do an oral presentation, write a paper, or take a multiple choice test



# UDI – The Research Base

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- **No experimental research located** on the effectiveness of UDI in post-secondary environments.
- UDI is an **umbrella or conceptual term**
- Research does support procedures consistent with UDI



# Notetaking & Postsecondary Ed.

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- Dominant instructional mode is **lecture**
  - Demands extensive **note-taking**
- Students typically take poor notes
  - Quality and completeness of notes are strong predictors of student outcomes



## Text Reading in Postsecondary Ed.

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- **Discrepancy** between texts and students' reading level
- Typically, little or **no guidance/explanation** given with readings.
- **Reading comprehension** particularly difficult for many students.
- Students complain **not enough time** to read and digest texts.



# Guided Notes

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# Guided Notes:

## What is it and How to ...

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- GN = handouts that guide students through a lecture
- Identify the **most important course content**
  - Less can be more
- **Delete key facts, concepts, and relationships** from lecture outline
- Remaining information structures and contextualizes notes



# Guided Notes:

## What is it and How to ...

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- **Insert cues** (\*,  $\Rightarrow$ ) to indicate where and how many facts/concepts to write.
- **Other symbols** for adding own examples/questions for review (!) or emphasizing “big ideas” (👍)
- Leave **plenty of space**
- Don't require too much writing
- Include **additional resources** such as URLs and references



# Guided Notes: Rationale

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- Consistent with **UDI principles**
- Improves **accuracy** of notes
- **Frees** students from **excessive writing**
- **Actively involves** students in constructing notes and following lecture



# GNs: Research Highlights

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- Lazarus (1993): College students **w/ LD** increased quiz scores after using GNs.
- Russell et al. (1983): Positive effects of GNs when using **case studies**, not lecture
- Austin et al. (2002): College students **preferred** using GNs.



# Pause Procedure

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# The Pause Procedure: What is it?

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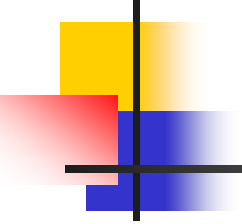
- **Short** (e.g., 2-minute), **periodic breaks** to review notes and discuss content
- Pause at **natural breaks**, app. every 15 ms.
- Set timer for end of break.
- Pauses can
  - Be **independent** review of notes and/or short writing assignment
  - Be **group** (e.g., dyad) discussion of notes
  - Include time for unresolved questions



# Pause Procedure: Rationale

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- Consistent with **UDI principles**
- Increases **accuracy** of notes
- Provide students time to reflect, integrate, and ask questions
- Provides students and instructor with **breaks**
  - Even the best students have limited attention spans

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- With 1 or 2 colleagues, discuss how and why the pause procedure works
  - Timer will sound after 2-minutes, at which time I'll need you to stop talking and we'll move on

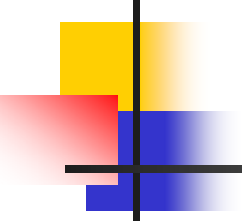




# PP: Research Highlights

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- PP=higher **free recall** and **test scores** (Ruhl et al., 1990) and more **complete notes** (Ruhl & Suritsky, 1995) for college students with LD.
- Higher exam scores when using pauses (**personal written or discussion**) of students' **preference** (Braun & Simpson, 2004).

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- Take two minutes to make written reflections about PP and how you might apply it in your classroom.



# Graphic Organizers

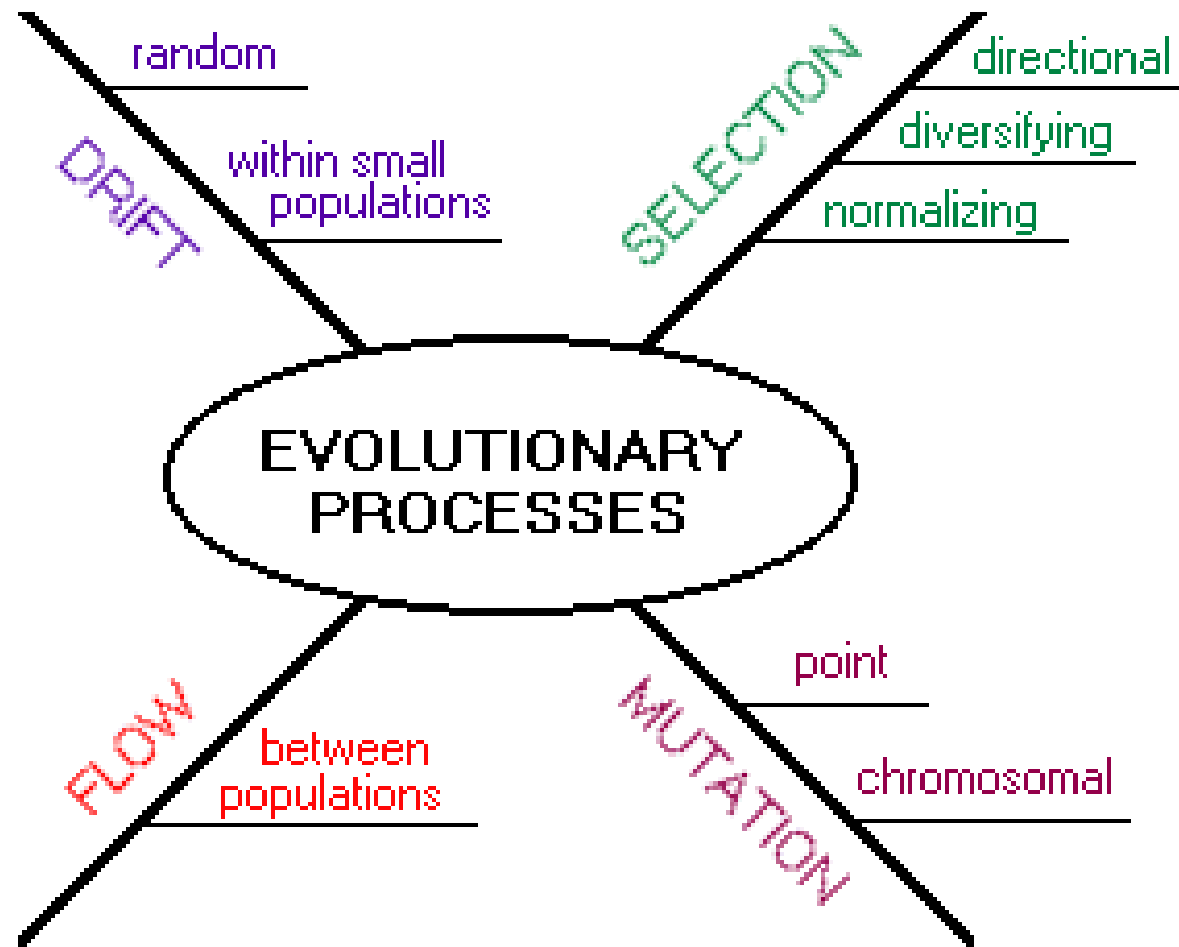
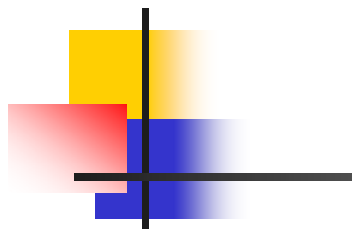
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# Graphic Organizers: What are They?

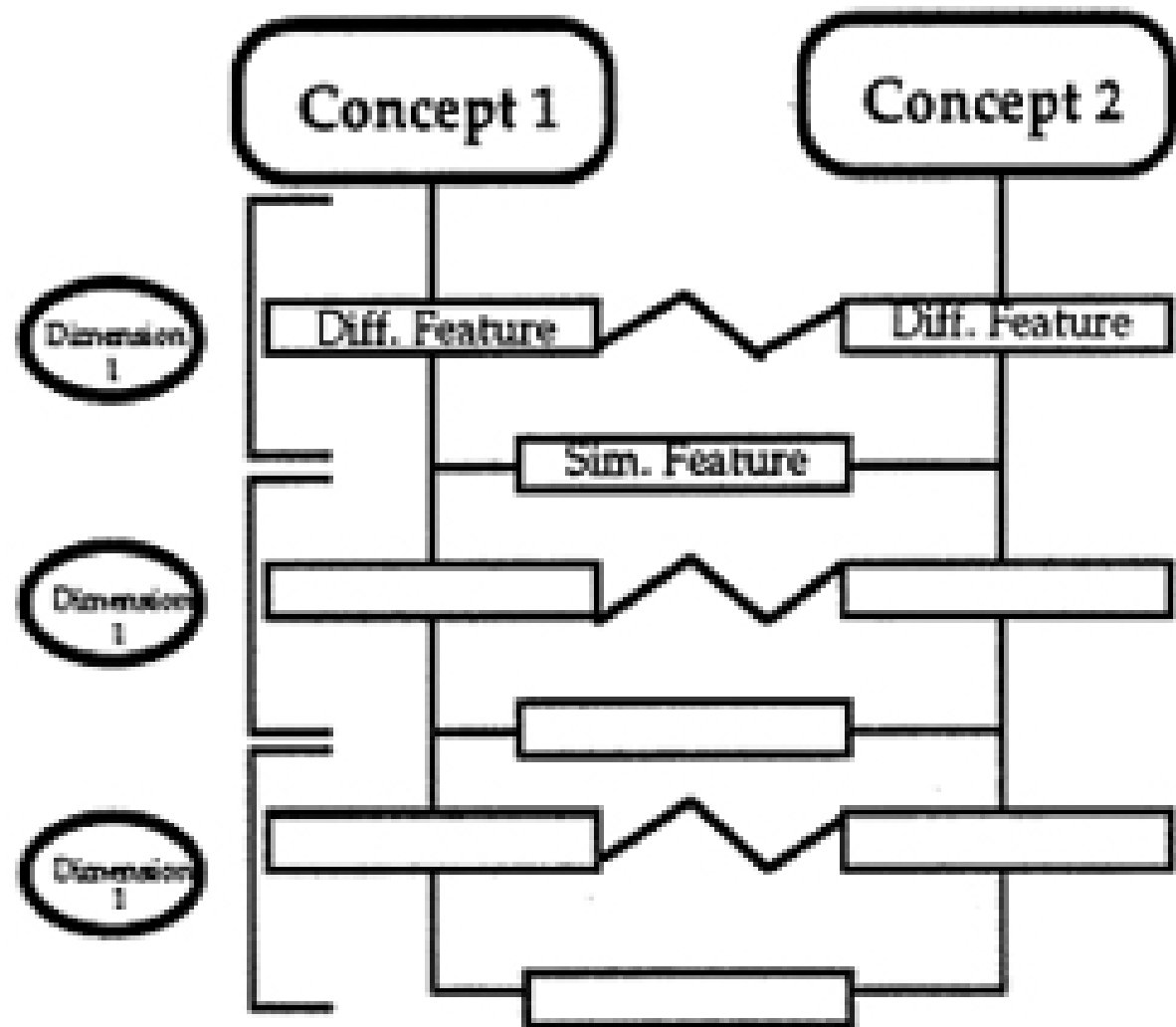
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- A **visual and graphic display** depicting **relationships** in course content
- Advanced organizers, Venn diagrams, concept/spider/story maps, flowcharts, hierarchies
  - Not one-dimensional outlines



(D. Applegate, CAL)

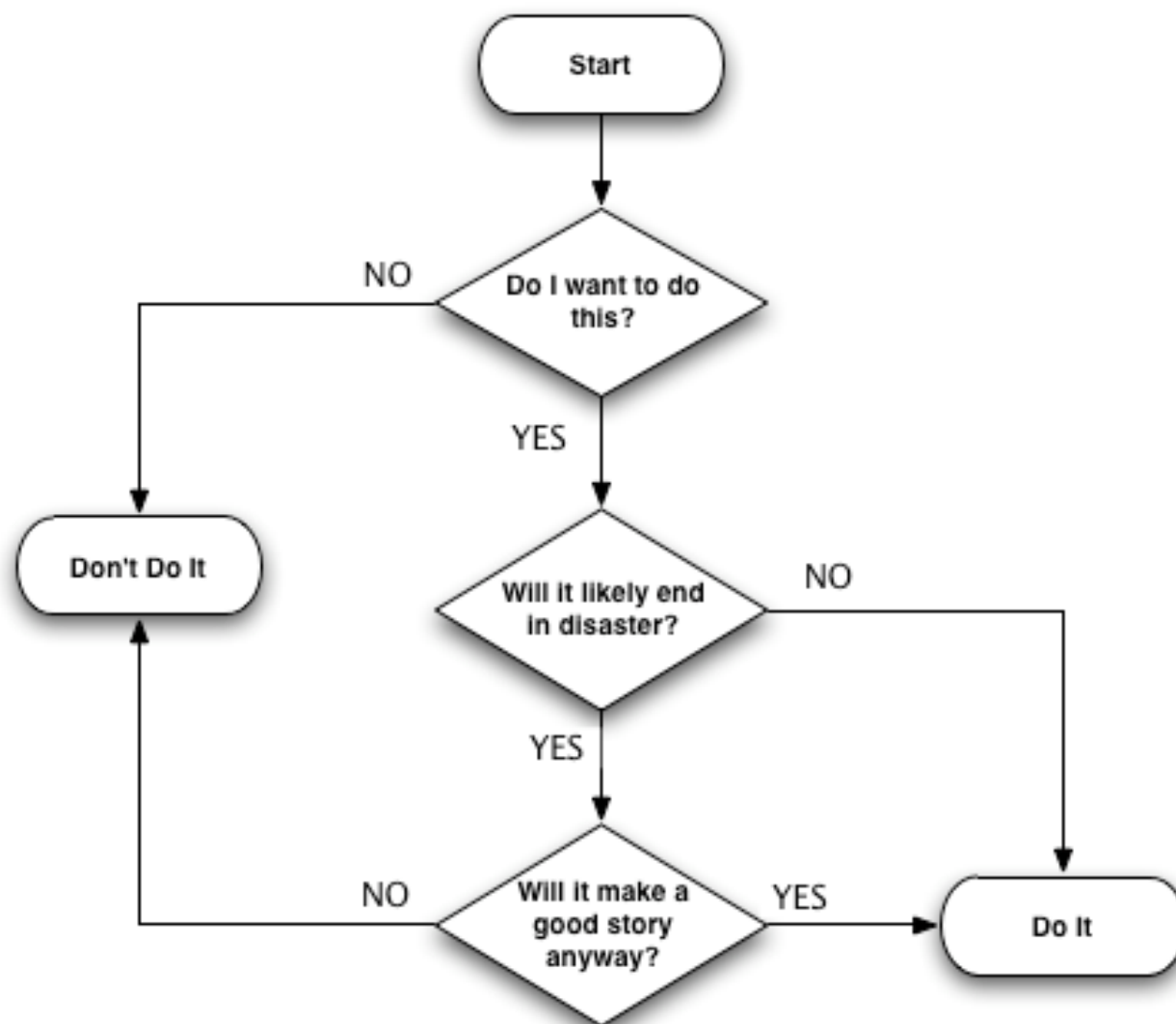
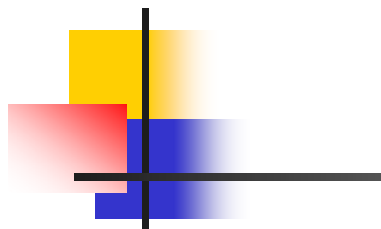
## *Comparative and Contrastive Map*





## MASLOW'S HIERARCHY OF NEEDS









# Graphic Organizers: How to ...

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- Can provide **completed** GOs to students
  - Learn by viewing
- Students can **construct own** GOs
  - Learn by doing
- Students can finalize **partially completed** GOs



# Graphic Organizers: Rationale

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- Consistent with **UDI principles**
- Explicitly and visually present **relationships** between concepts
- Facilitate “**nonmemorization**” study strategies.



# GOs: Research Highlights

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- No research located on GOs for college students w/ disabilities.
- **Positive effects on higher order knowledge** but not on facts (Robinson & Kiewra, 1995); on **delayed** but not immediate tests (Robinson et al., 1998).
- Quiz scores higher using **partially complete** GOs (Robinson et al., 2006)
  - Lead to many students constructing own GOs



# Concluding Thoughts: UDI and Accommodations

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- **Students with disabilities** are legally entitled to, and will often **still need, reasonable accommodations.**
- Promising notion, but **more research** warranted
- Maintain **academic integrity** of programs and courses
  - Fair treatment and evaluation across students



# Discussion Questions

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- For whom will UDI be effective?
- How can we as individuals implement and maintain UDI related instruction?
- How can we foster a broader adoption of UDI?



# Activity I

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- In groups, using this powerpoint
  - Determine and justify how you would use the pause procedure
    - When would you pause? What would students do?
  - Select one section and construct guided notes
  - Construct a graphic organizer to highlight the relation between at least two concepts discussed
    - Would you use a blank, partially complete, or complete GO? Why?
- Share with larger group



## Activity II (time permitting)

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- Consider which technique(s) you would be most likely to use in your instruction
- Think of a particular lecture or lesson and make specific plans for applying at least one of the techniques
- Discuss with small group



# Links to UDI Resources

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- [www.cast.org/](http://www.cast.org/), center for applied special technology site devoted to UDI
- [www.washington.edu/doit/](http://www.washington.edu/doit/), U. of Washington's Do-It program's site, extensive resources for UDI
- [www.facultyware.uconn.edu/](http://www.facultyware.uconn.edu/), U. of Connecticut's site devoted to UDI for faculty
- [http://www.washington.edu/doit/Brochures/PDF/equal\\_access\\_uddl.pdf](http://www.washington.edu/doit/Brochures/PDF/equal_access_uddl.pdf), brochure regarding UDI for distance learning
- [www.olin.org/ILT/ada/Fame/help\\_1.html](http://www.olin.org/ILT/ada/Fame/help_1.html), Ohio State's site devoted to UDI for faculty and administrators
- [www.ferris.edu/htmls/colleges/university/disability/faculty/udl.cfm](http://www.ferris.edu/htmls/colleges/university/disability/faculty/udl.cfm), overview of UDI





# More Links to UDI Resources

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- [www.zeff.com/4C-UDL/UDresources.htm](http://www.zeff.com/4C-UDL/UDresources.htm), list of UDI resources
- <http://telr.osu.edu/dpg/fastfact/fastfactcolor/Universal.pdf>, fast facts regarding UDI and good teaching
- [teachingeverystudent.blogspot.com/2007/01/free-technology-toolkit-for-udi-in-all\\_12.html](http://teachingeverystudent.blogspot.com/2007/01/free-technology-toolkit-for-udi-in-all_12.html), free technology-related resources
- [gwired.gwu.edu/dss/Newsletters/Fall05UDL/](http://gwired.gwu.edu/dss/Newsletters/Fall05UDL/), guide for making assignments/syllabi accessible
- <http://kysig.louisville.edu/whatis.htm>, UDI description with specific examples



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- Ruhl, K. L., & Suritsky, S. (1995). The pause procedure and/or an outline: Effect on immediate free recall and lecture notes taken by college students with learning disabilities. *Learning Disability Quarterly*, 18, 2-11.
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