```
                    ┌─────────────────────────────┐
                    │   Ch. 12: Multimedia Principle │
                    └─────────────────────────────┘
                                  │
                                  ▼
          ┌───────────────────────────────────────────────────┐
          │                      p. 223                        │
          │ "People learn better from words and pictures than  │
          │            from words alone."  ...                 │
          └───────────────────────────────────────────────────┘
```

┌──────────────┐
│ definitions │
└──────────────┘
        │
        ▼
┌──────────────┐   ┌─────────────────────────────┐   ┌──────────────────────────────────┐
│ words...   │   │   p. 228   │   │   p. 228   │
└──────────────┘   │ "...words and pictures are two│   │ "The instructor's job is not only │
        │   │ qualitatively different systems│   │ to present material but also to │
        ▼   │ for representing knowledge." │   │ help guide the learner's cognitive│
┌──────────────┐   └─────────────────────────────┘   │ processing of the presented   │
│ learn better.│   │ material."   │
└──────────────┘   └──────────────────────────────────┘

┌──┐
│   p. 229   │
│ "...the act of building connections between verbal and pictorial mental   │
│   models is an important step in conceptual understanding..."   │
└──┘

┌──┐
│   p. 260   │
│ "It is not possible to determine whether differences in what students   │
│ learn from text-based and computer-based presentations are caused by the   │
│ medium or by the content and study conditions that are inseparable   │
│ from the medium."   │
└──┘

┌──┐
│   p. 236   │
│   Categorization of text illustrations...   │
│   [possible model for the possible analysis of   │
│   curricular material used with students who are d/hh] │
└──┘

┌──┐
│   p. 240   │
│   Implications for Multimedia Instruction   │
│   │
│   "The multimedia principle is perhaps the most   │
│   fundamental principle of multimedia design: Present │
│   words and pictures rather than words alone."   │
└──┘

Ch. 12: Multimedia Principle

I.   **p. 223**

"People learn better from words and pictures than from words alone." ...

p. 223

"When words and pictures are both presented, learners have an opportunity to construct verbal and visual mental models and to build connections between them."

p. 235

"...adding pictures to words resulted in improvements in students'

understanding of the explanation."

p. 235

"...classic research on memory for prose shows that people learn better from printed text and supporting illustrations than form printed text alone."

    A.   **p. 228**

        "...words and pictures are two qualitatively different systems for representing knowledge."

    B.   **p. 228**

        "The instructor's job is not only to present material but also to help guide the learner's cognitive processing of the presented material."

    C.   **p. 229**

        "...the act of building connections between verbal and pictorial mental models is an important step in conceptual understanding..."

  II. **p. 240**

    Implications for Multimedia Instruction

    "The multimedia principle is perhaps the most fundamental principle of multimedia design: Present words and pictures rather than words alone."

definitions

  I. **words...**

p. 224

"By 'words' I mean printed or spoken text..."

  II. **learn better...**

p. 225

"I use the term 'learn better' to refer to improvements in understanding of the presented material...Instead of focusing on the quantitative question of 'how much' is learned..."

p. 260

"It is not possible to determine whether differences in what students learn from text-based and computer-based presentations are caused by the medium or by the content and study conditions that are inseparable from the medium."

p. 236

Categorization of text illustrations...

[possible model for the possible analysis of curricular material used with students who are d/hh]

p. 236

"...categorized each illustration as belonging to one of the following categories:

decorative - illustrations that are intended to interest or entertain the reader but that do not enhance the message of the passage, such as a picture of a group of children playing in a park for a lesson on physics principles;

representational - illustrations that portray a single element, such as a picture of the space shuttle with a heading, 'The Space Shuttle';

organizational - illustrations that depict relations along elements, such as a map or chart showing the main parts of the heart;

explanative - illustrations that explain how a system works, such as the frames explaining how pumps work in Figure 12.2.

The results were that the overwhelming majority of illustrations served no important instructional purpose; 23 percent were decorational and 62 percent were representational. By contrast, only a small minority of the illustrations enhanced the instructional message; 5 percent were organizational, and 10 percent were explanative. From this kind of analysis, we can conclude that the potential power of graphics is not being met."

p. 238

"Overall, research on illustrations in text yields two important results relevant to the multimedia effect: (a) textbook authors who add illustrations to their text often fail to take full advantage of the potential power of graphics as an aid to understanding, and (b) adding a carefully designed graphic advance organizer to a text passage can greatly enhance student understanding."