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Task classification scheme

Intrinsic Task Characteristics

. Overall task type

. . Jonassen (2000) task type $Jonassen 2000#

. . . *Logical task*
   DF: A specific solution path exists. (e.g. Tower of Hanoi, Puzzle)

. . . *Algorithmic task*
   DF: A finite set of rules applies. (e.g. Math questions)

. . . *Story task*
   DF: Take verbal form but basically the same as algorithmic problems.

. . . *Rule-using task*
   DF: Finite rules are necessary.

. . . *Decision-making task*
   DF: Finite outcomes exist. Comparison and argumentation are necessary. (e.g. Which school to attend)

. . . *Troubleshooting task*
   DF: Multiple solutions paths exist. (e.g. Fix a car)

. . . *Diagnosis-solution tasks*
   DF: Multiple solutions paths. Justification of a selected solution is required. (e.g. Medical diagnosis)

. . . *Strategic performance task*
   DF: Multiple solution paths exist. Situated case or design problems. (e.g. Drive a car in different conditions)

. . . *Case analysis task*
   DF: Unclear outcome. Criteria for best solution are ambiguous. (e.g. Plan a menu for foreign dignitaries)

. . . *Design task*
   DF: Unclear outcome. Criteria for best solution are ambiguous. (e.g. Design a dog house)

. . . *Dilemmas*
   DF: No solution may exist. (e.g. Should abortions be banned?)

. . Whitley and Frost (1972) task type $Whitley and Frost 1972#

. . . *Responsibility task*

. . . *Extension task*

. . . *New development task*

. . . *Research task*

. Abstract task characteristic

. . Task abstractness $Jonassen 1997, Jonassen 2000 #

. . . Domain specificity

. . Task adaptability $ADDE project#
   DF: The degree to which a task is adaptable in different settings

. . Task analyzability $Perrow 1967, Daft & Macintosh 1981, Hart

& Rice 1991, Zeffane & Gul 1993#
. . Task complexity, task simplicity $Campbell 1988, McMullin & Taylor 1984, Byström, & Järvelin 1995#
. . Task difficulty $Bass et al 1958, Shaw 1973#
. . Task routineness $Hart & Rice 1991#
. . Task structuredness $Jonassen 1997#
. . . *Well-structured task*
. . . *Ill-structured task*
. . Task traceability $ADDE project#
. . Task usability $ADDE project#
    DF: The degree to which a task is easy to learn
. . Task variability $Poole 1978#
. . Task variety $Perrow 1967, Daft & Macintosh 1981, Zeffane & Gul 1993#
. **Task constraints**
. . Constraints that need to be satisfied $Campbell 1988#
. **Goal**
. . Satisficing vs. optimizing
. . . *Satisficing*
. . . *Maximizing/Optimizing* $Steiner 1972#
. . . . *Maximizing goal*
. . . . *Optimizing goal*
. . Quantitative vs. qualitative goal $Li 2004#
. . . *Quantitative goal*
. . . *Qualitative goal*
. **Product** $Li 2004#
. . *Physical product*
. . *Intellectual product*
. . *Decision/solution product*
. **Task structure**
. . Task classifications based on task structure
. . . Campbell (1988) task type based on task complexity $Campbell 1988#
. . . . *Decision task*
. . . . *Judgment task*
. . . . *Problem task*
. . . . *Fuzzy task*
. . Task clarity
. . . Assumptions agreed upon/not agreed upon $McMullin & Taylor 1984#
. . . Assumptions explicit/not explicit $McMullin & Taylor 1984#
. . . Given state clarity $Reitman 1965, McMullin & Taylor 1984#
. . . . *Well-defined given state*
. . . . *Ill-defined given state*
. . . Goal clarity $Reitman 1965, Frost 1976#
. . . . *Well-defined goal*
. . . . *Ill-defined goal*
. . . Solution path clarity $Frost 1976#
. . . . Rule usage $Hrebiniak 1974#

DF: The degree to which a task performer should follow standard procedures or rules

. . . . . *Prescribed process*
. . . . . *Non-prescribed process*
. . Task certainty, task predictability
. . . Given state certainty
. . . Goal certainty
. . . Solution path certainty $Campbell 1988#
DF: Presence of uncertainty or probabilistic linkages in the solution path
. . . . *Number of unexpected events in the task process*
. . Task diffuseness
. . Task multiplicity
. . . Given state multiplicity
. . . . *Single given state*
. . . . *Multiple given states*
. . . Goal multiplicity $Campbell 1988#
. . . . *Single goal*
. . . . *Multiple goals*
. . . Solution path multiplicity $Campbell 1984, Shaw 1973#
. . . . *Single path*
. . . . *Multiple paths*
. . Subtask structure
. . . Task stage $White 1975, Hersh 1999, Vakkari 2001#
. . . The number of subtasks
. . . Interrelated and conflicting subtasks $Campbell 1988#
. . . Task identity $Hackman & Oldham 1976#
DF: The degree to which a task requires completion of a "whole" and identifiable piece of work; that is, doing a task from beginning to ending with a visible outcome.
. . Task scope $Whitley & Frost 1972#
. . . *Task addressing local problems*
. . . *Task addressing global problems*
. **Task requirement and process**
. . Task classifications based on task requirement and process
. . . Carter et al. (1950) task type $Carter et al. 1950#
. . . . *Clerical task*
. . . . *Discussion task*
. . . . *Intellectual construction task*
. . . . *Mechanical assembly task*
. . . . Motor coordination and reasoning task
. . . McGarth (1984) task type $McGrath 1984#
. . . . *Generate*
. . . . . *Planning tasks*
. . . . . *Creativity tasks*
. . . . Choose
. . . . . *Intellectual task*
. . . . . *Decision-making task*

.　.　.　.　 Negotiate
.　.　.　.　. *Cognitive conflict task*
.　.　.　.　. *Mixed-motive task*
.　.　.　.　 *Execute*
.　.　.　.　. *Contests/Battle*
.　.　.　.　. *Performance*
.　.　. Intellectual task type (Hackman 1968)　　 $Hackman 1968#
.　.　.　. *Production task*
.　.　.　. *Discussion task*
.　.　.　. *Problem-solving task*
.　. Ability requirement　　　　　　　　　 $Hackman 1969#
.　.　. Required knowledge/skill
.　.　. Required experience
.　.　. Required cognitive capabilities　　　 $Campbell 1988#
.　.　. Skill variety　　　　　　　　　　 $Hackman & Oldham 1976#
　　 DF: The degree to which a task requires a variety of different activities, or the use of a number of different skills and talents, in carrying out the task.
.　. Behavior requirement　　　　　　　 $McGrath 1984, p. 54#
.　.　. Intellectual-motor requirement
.　. Materials requirement　　　　　　　　 $Algon 1999, Bikson 1987#
.　.　. *Tasks interacting with objects*
.　.　. *Tasks interacting with people*
.　.　. *Tasks interacting with ideas*
.　. Task feedback　　　　　　　　　　 $Hackman & Oldham 1976#
　　 DF: The degree to which carrying out work activities required by the task results in the task performer obtaining direct and clear information about the effectiveness of their personal performance.

Extrinsic Task Characteristics
.　Locus of task
.　. Degree of local decision making on task
.　Imposition　　　　　　　　　　　 $Li 2004, McMullin & Taylor 1984#
.　. *Internal imposition*
.　. *External imposition*
.　Task autonomy　　　　　　　　　　 $Hackman & Oldham 1976#
　 DF: The degree to which a task provides substantial freedom, independence and discretion of the task performer in scheduling the work and in determining the procedures to be used in carrying it out.
.　. Unity of control　　　　　　　　　 $Hrebiniak 1974#
　　 DF: The number of supervisors
.　. Closeness of supervision　　　　　 $Hrebiniak 1974#
　　 DF: The degree to which a supervisor influences on the task
.　. Closeness of control　　　　　　　 $Hrebiniak 1974#
　　 DF: The degree to which a supervisor influences on the task performer's control over his subordinates

. Task significance $Hackman & Oldham 1976#
   DF: The degree to which a task has a substantial impact on the lives or work of other people
. Task urgency $Li 2004#
. Task frequency
.   .   Quantitative frequency
.   .   Qualitative frequency $Li 2004#
.   .   .   *Unique*
.   .   .   *Periodical*
.   .   .   *Routine*
. Task risk $McMullin & Taylor 1984#
. Task reward $McMullin & Taylor 1984#

<u>**Task Performer**</u>
. Individual as task performer $Kraut et al. 1994#
. Group as task performer
.   .   Cooperating/Mixed-motive groups $Laughlin 1980#
.   .   .   *Cooperating groups*
.   .   .   .   *Intellective tasks*
.   .   .   .   *Decision-making tasks*
.   .   .   *Mixed-motive groups*
.   .   .   .   *Two-person, two-choice tasks*
.   .   .   .   *Bargaining and negotiation tasks*
.   .   .   .   *Coalition formation*
.   .   .   *Mixed-motive groups*
.   .   Division of labor $Steiner 1972#
.   .   .   *Unitary group*
.   .   .   *Divisible group*
.   .   Group contribution pattern $Steiner 1972#
.   .   .   *Disjunctive group*
.   .   .   *Conjunctive group*
.   .   .   *Additive group*
.   .   .   *Discretionary*
. Interaction of task performers
.   .   Task interdependence $Tushman 1978, *Zeffane & Gul 1993*#
   DF: The degree to which individuals need to work with other individuals in order to accomplish their tasks
.   .   Direction of interaction $Kiggundu 1981#
.   .   .   *Receive interaction*
.   .   .   *Initiate interaction*
.   .   Group integration $Kraut et al. 1994#
   DF: The degree to which a task performer considered himself as part of a work group, and the ease of maintaining working relationships with work group members.
.   .   Friendship opportunities $Sims et al. 1976#

Relationship between Task and Performer

. **Task familiarity** $McMullin & Taylor 1984, Shaw 1973#
. **Task novelty**
. **Task manageability** $Hrebiniak 1974#
. **Intrinsic interest** $Shaw 1973#
   DF: The degree to which the task in and of itself is interesting, motivating, or attractive to a task performer
. **Goal acceptance** $Frost 1976#
   DF: The degree of a willingness to exert an effort sufficient to meet the goal
. **Belief for success**
. **Salience of task** $Li 2004#

Measurement of Task Performance

. **Task productivity**