

► CLOSE TO HOME

McPHERSON

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"We're looking for a creative, innovative individual to head up our new Research and Development Department."

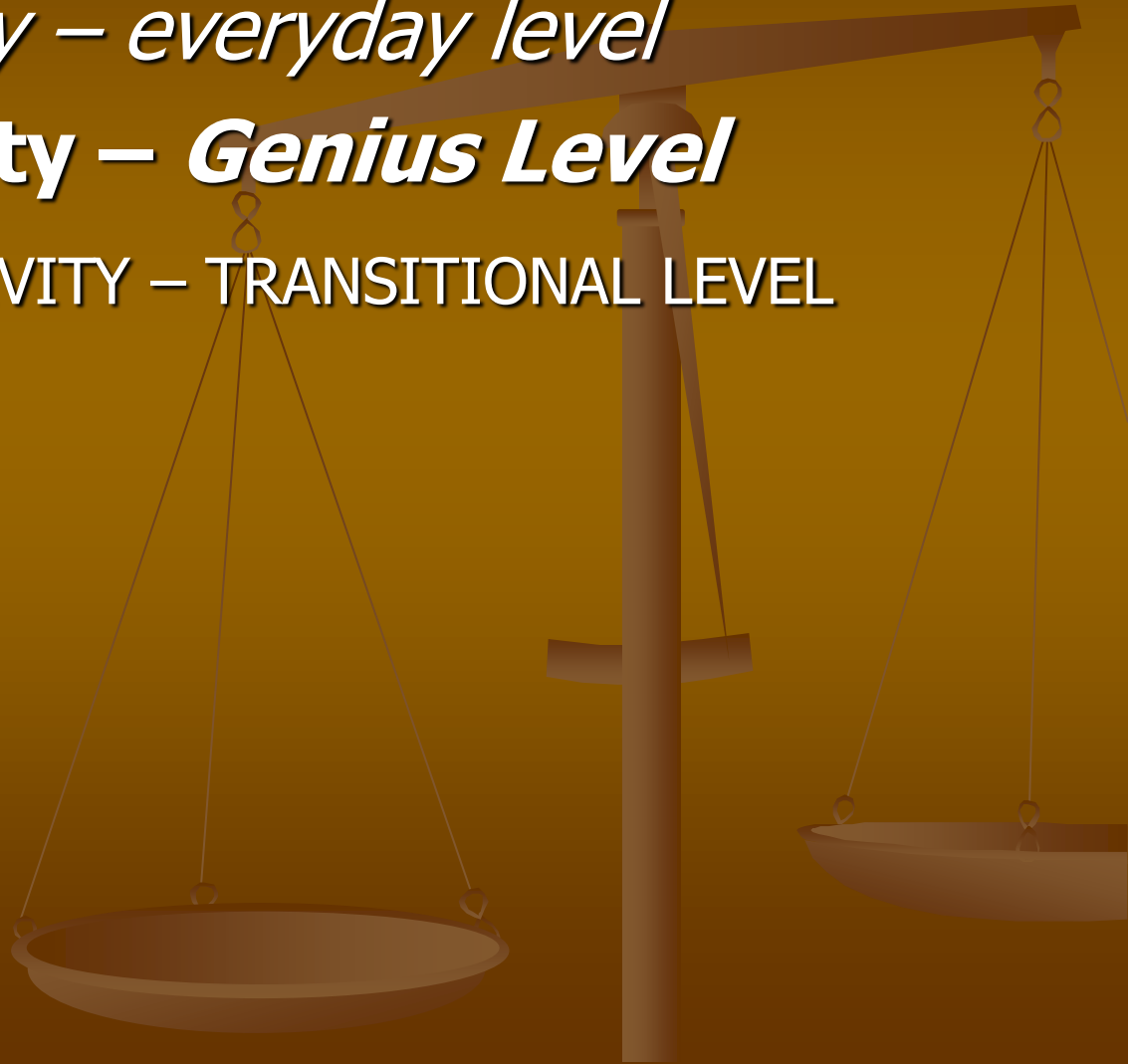


Creativity Measurement:

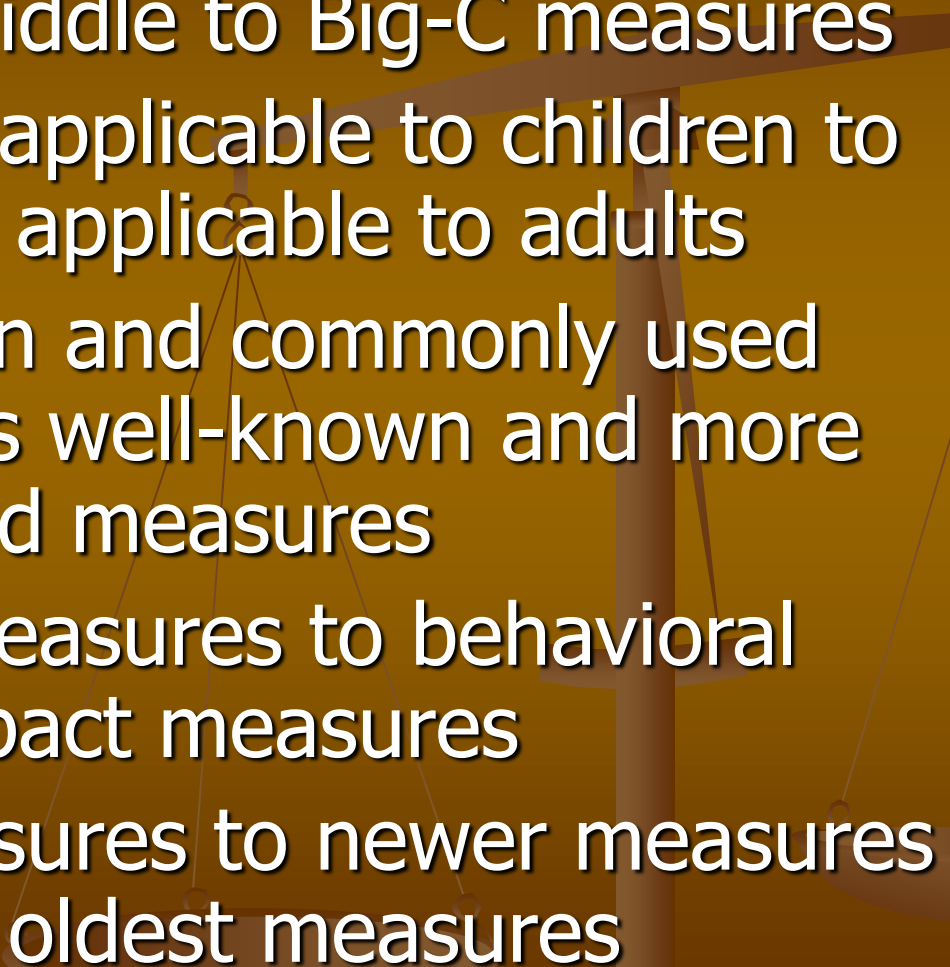
Big, Medium, and Little

Three Levels of Creativity

- *Little-c creativity – everyday level*
- **Big-C Creativity – *Genius Level***
- Medium-C CREATIVITY – TRANSITIONAL LEVEL



Grand Tour of Measures at the Three Levels

- From little to middle to Big-C measures
 - From measures applicable to children to measures solely applicable to adults
 - From well-known and commonly used measures to less well-known and more infrequently used measures
 - From process measures to behavioral measures to impact measures
 - From older measures to newer measures and back to the oldest measures
- 

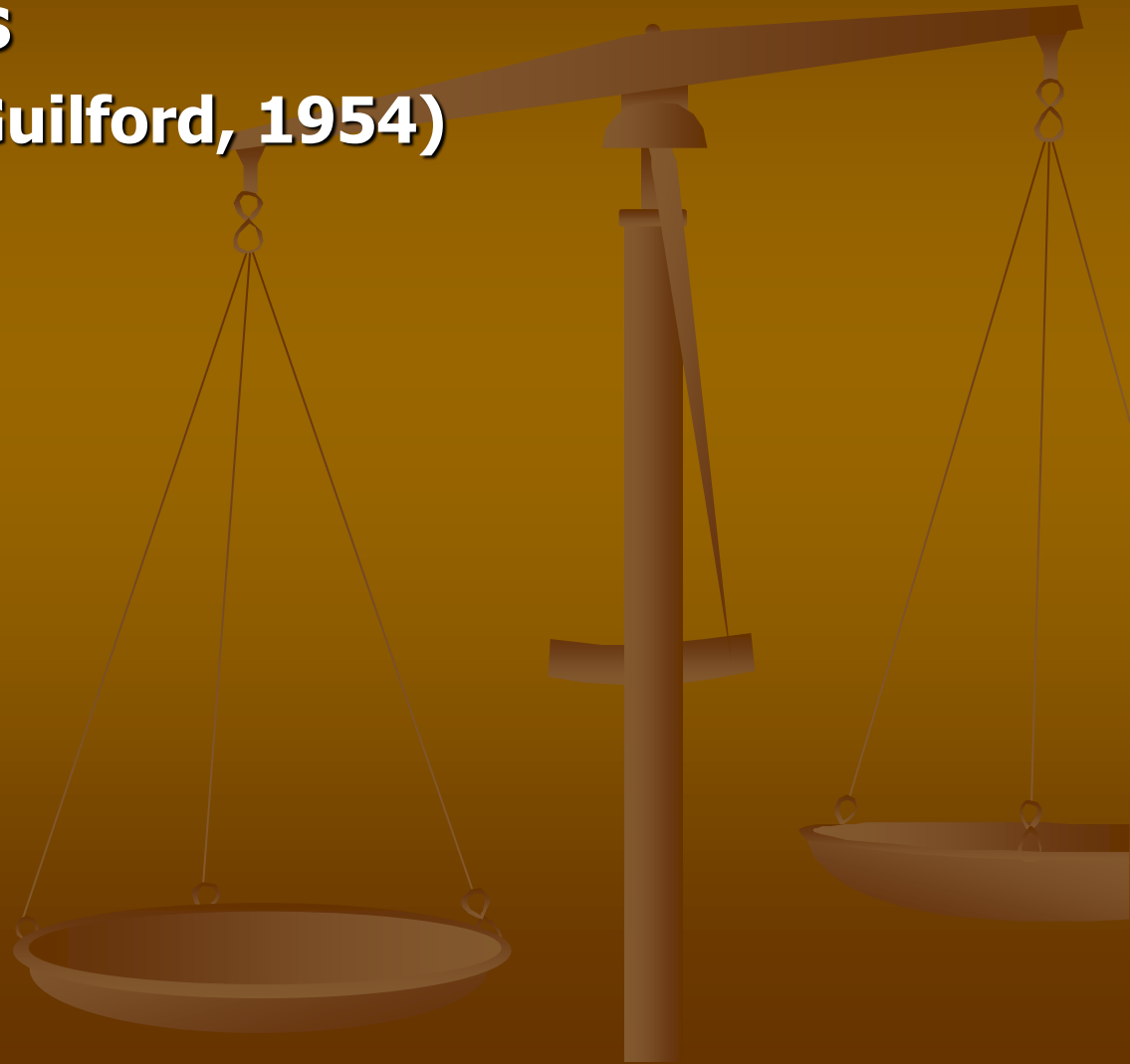
Little-c creativity measurement

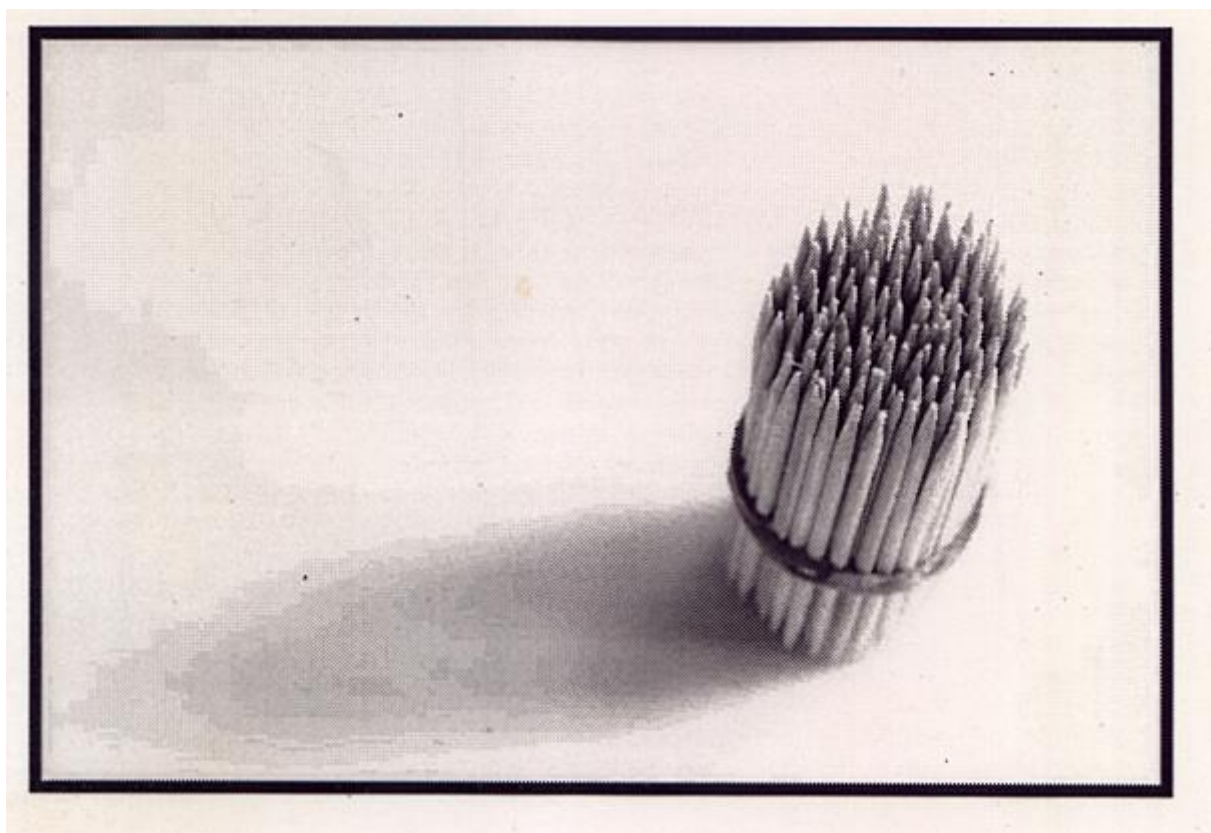
- **Process oriented**
- **Person oriented**

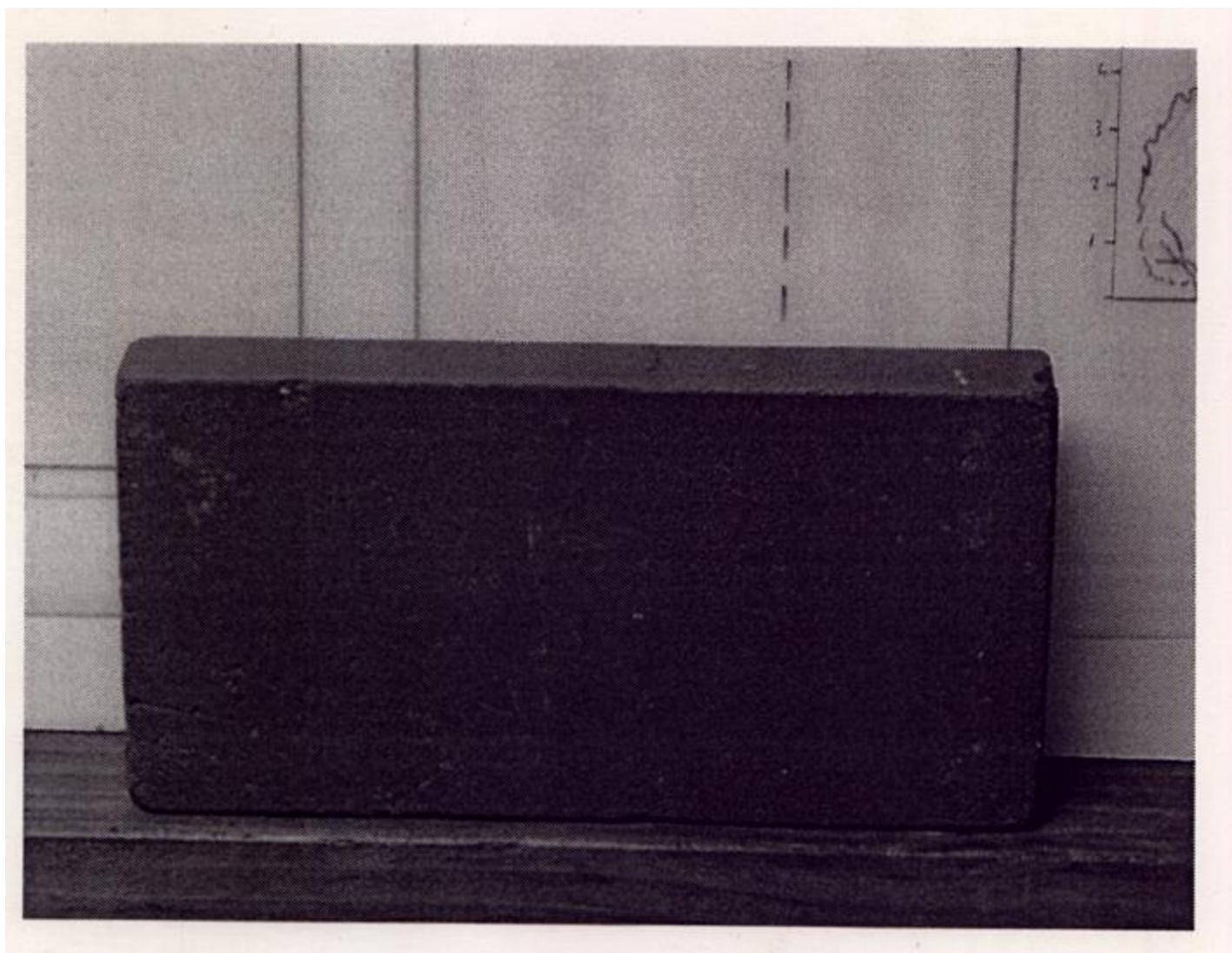


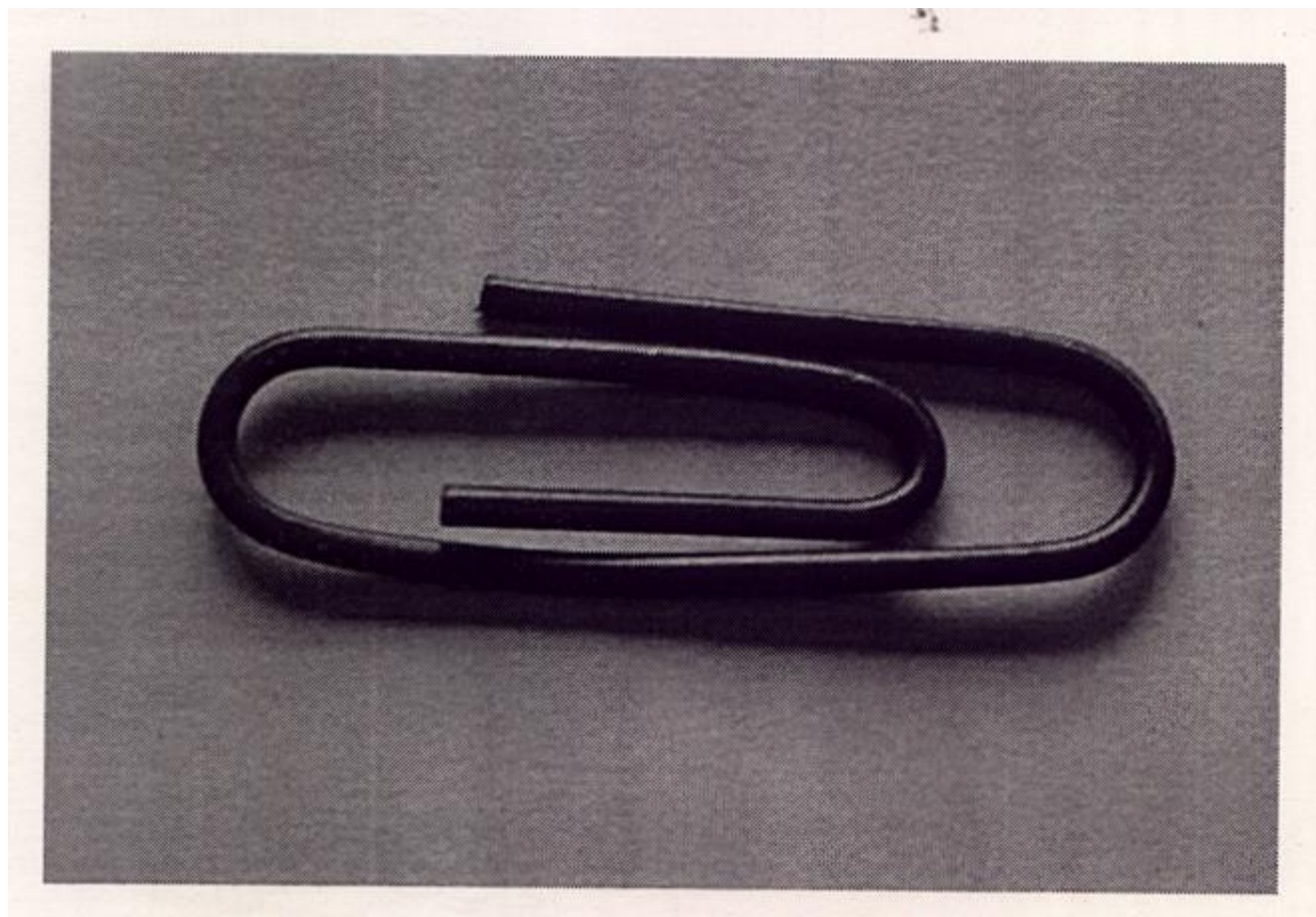
Little-c creativity measurement: process oriented

- **Visual measures**
 - **Unusual uses (Guilford, 1954)**



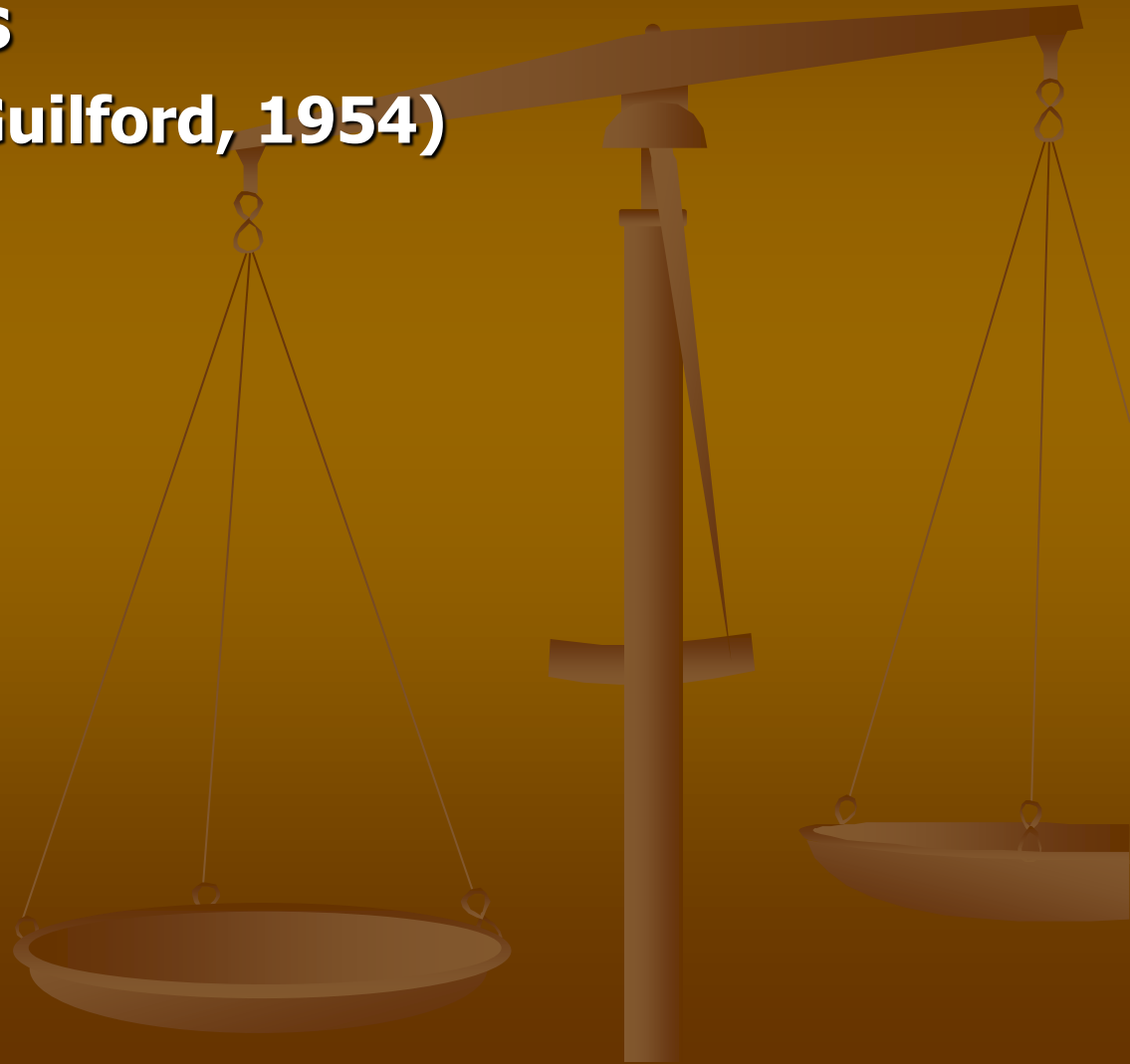






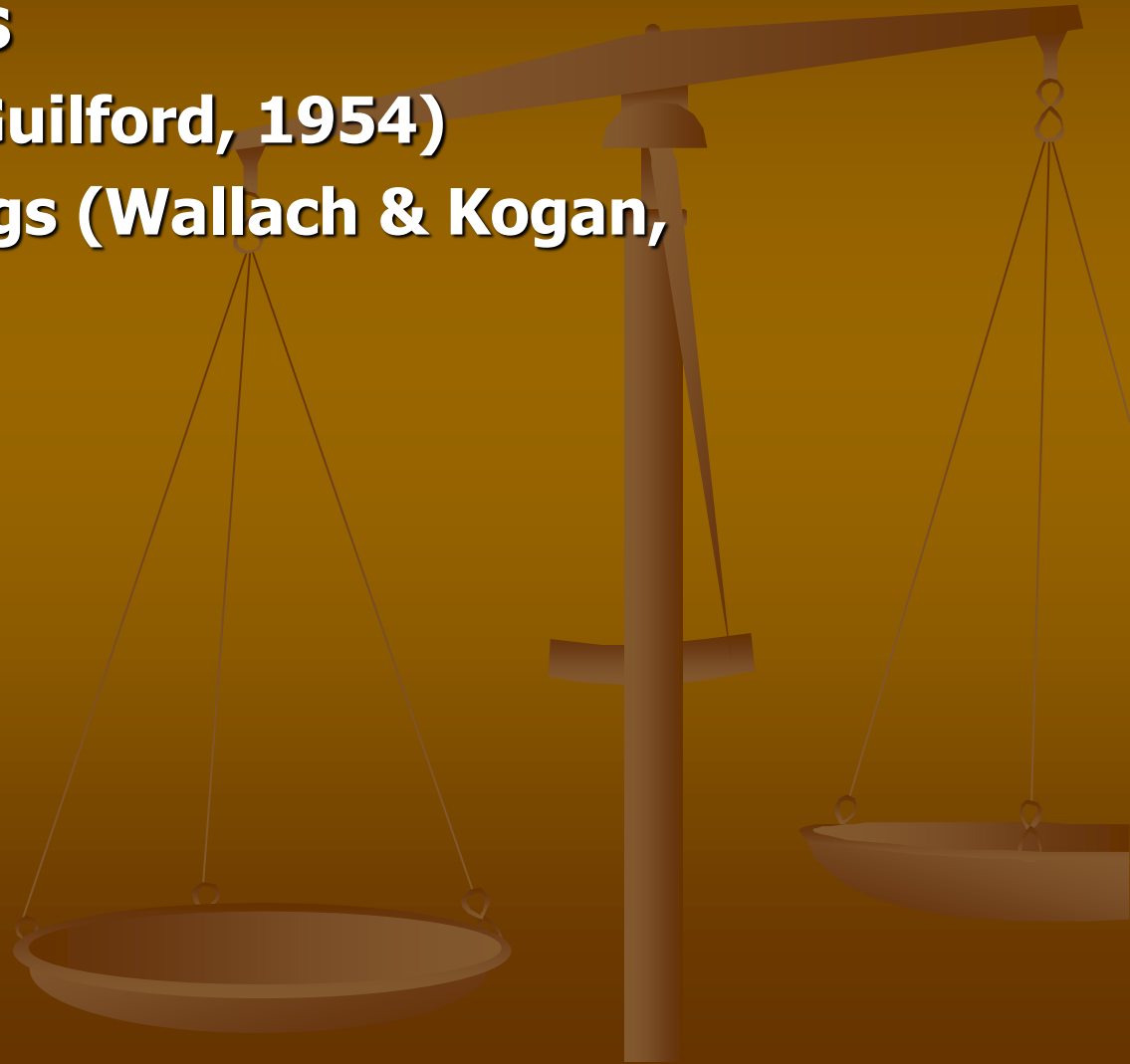
Little-c creativity measurement: process oriented

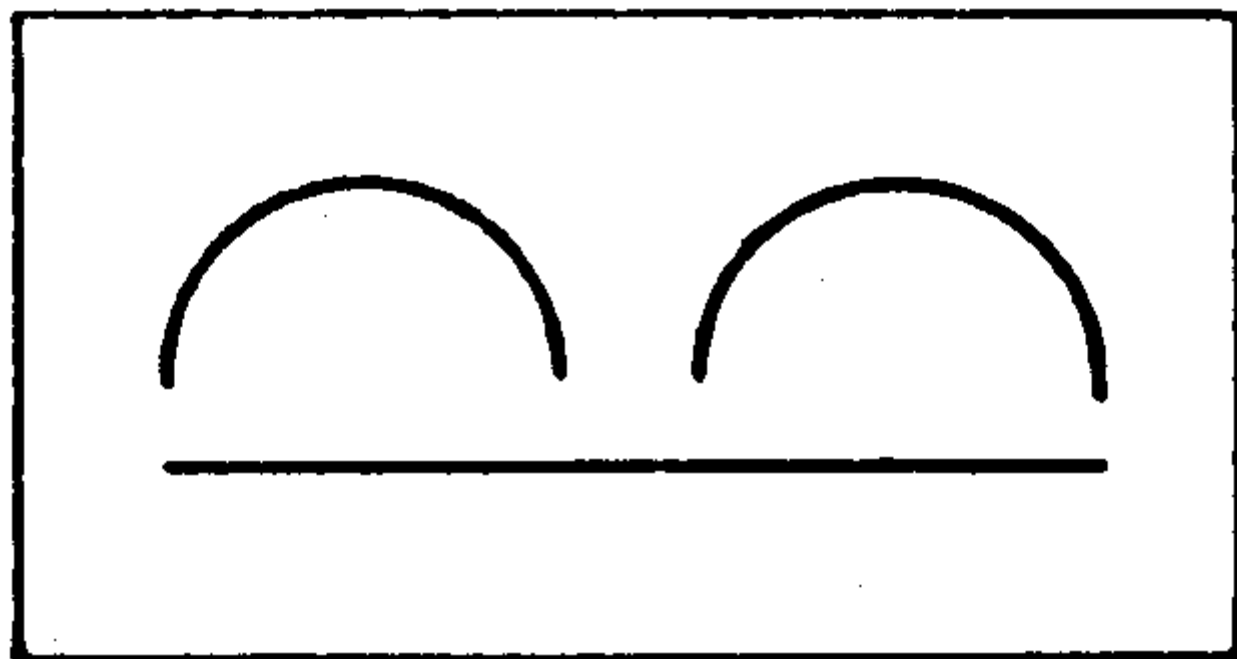
- **Visual measures**
 - **Unusual uses (Guilford, 1954)**
 - Scored for
 - Fluency
 - Originality
 - Flexibility

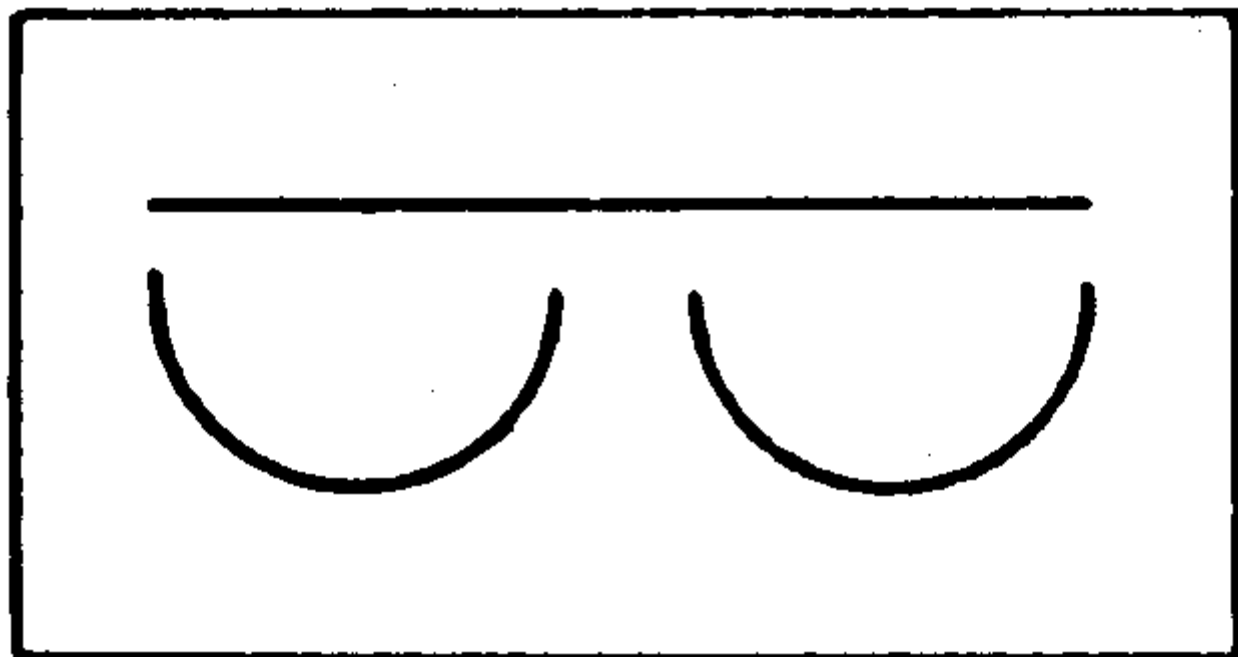


Little-c creativity measurement: process oriented

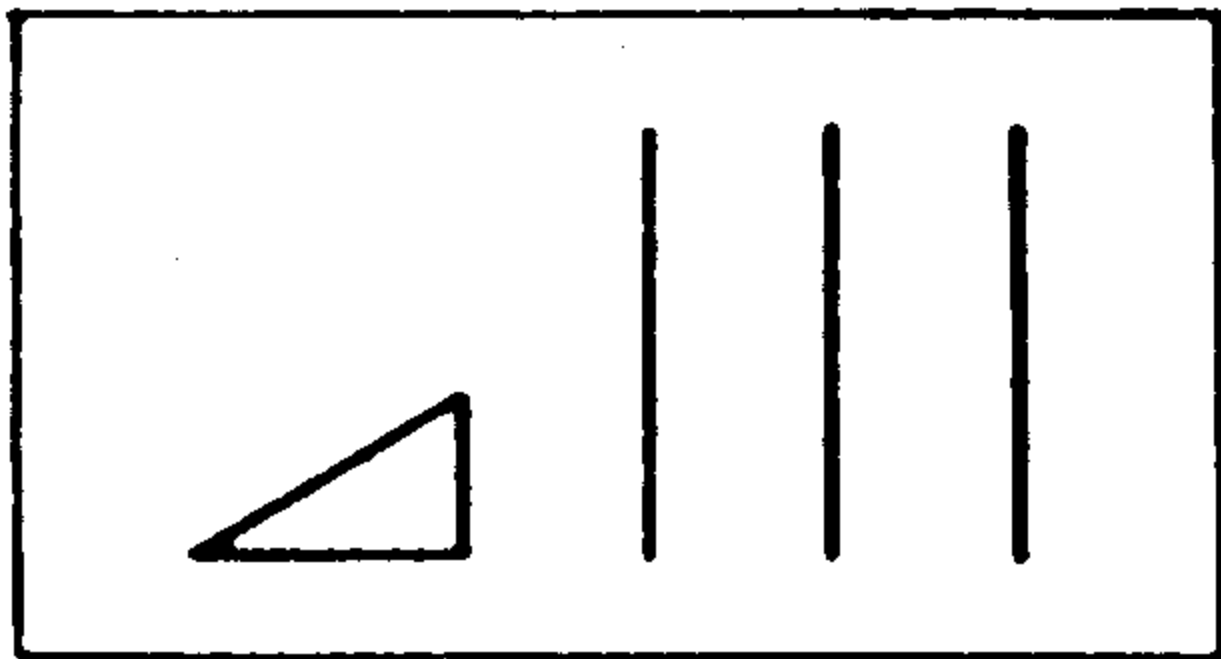
- **Visual measures**
 - Unusual uses (Guilford, 1954)
 - Pattern meanings (Wallach & Kogan, 1965)

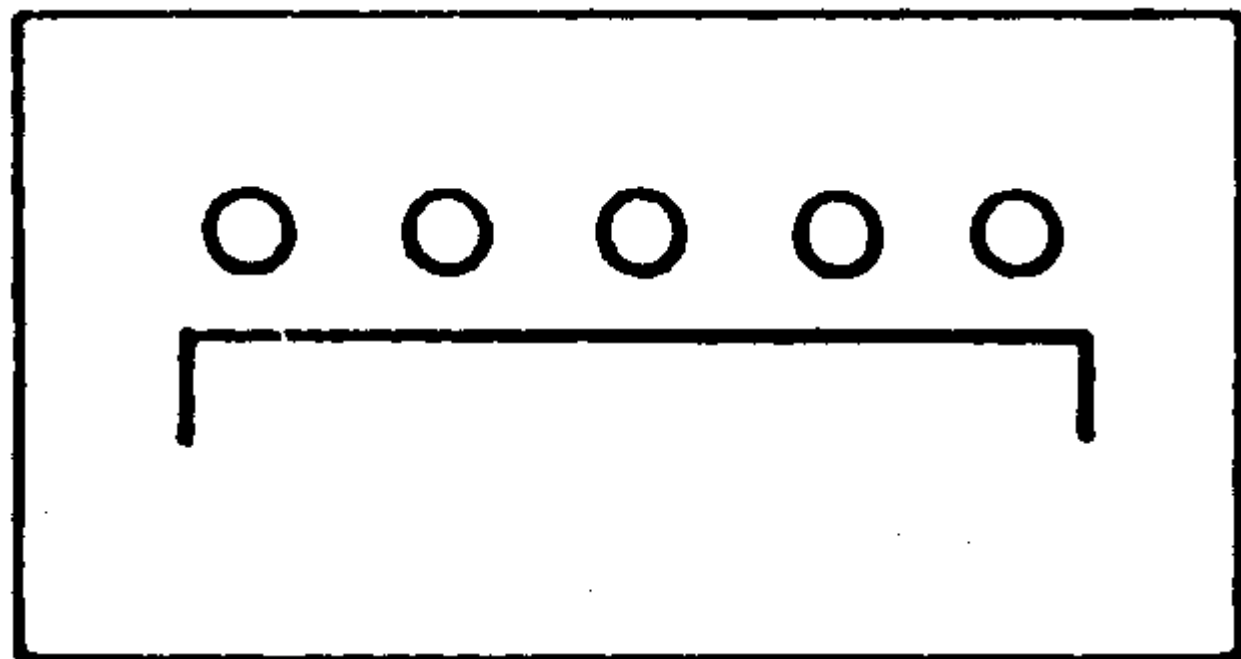


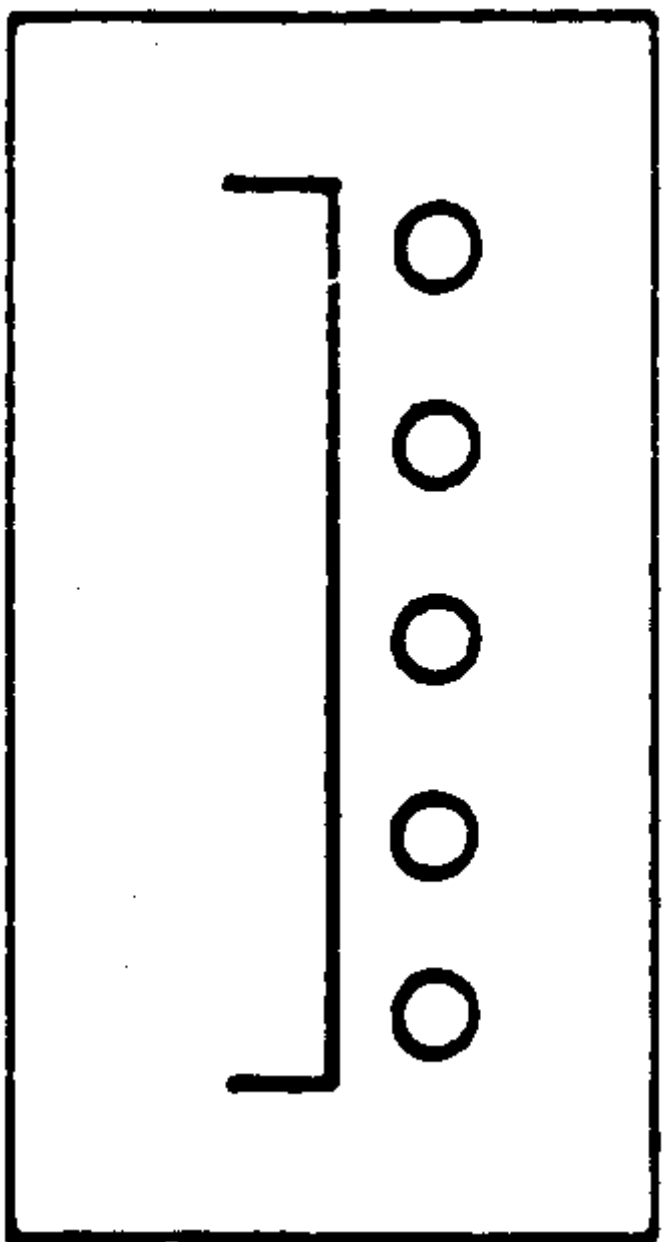


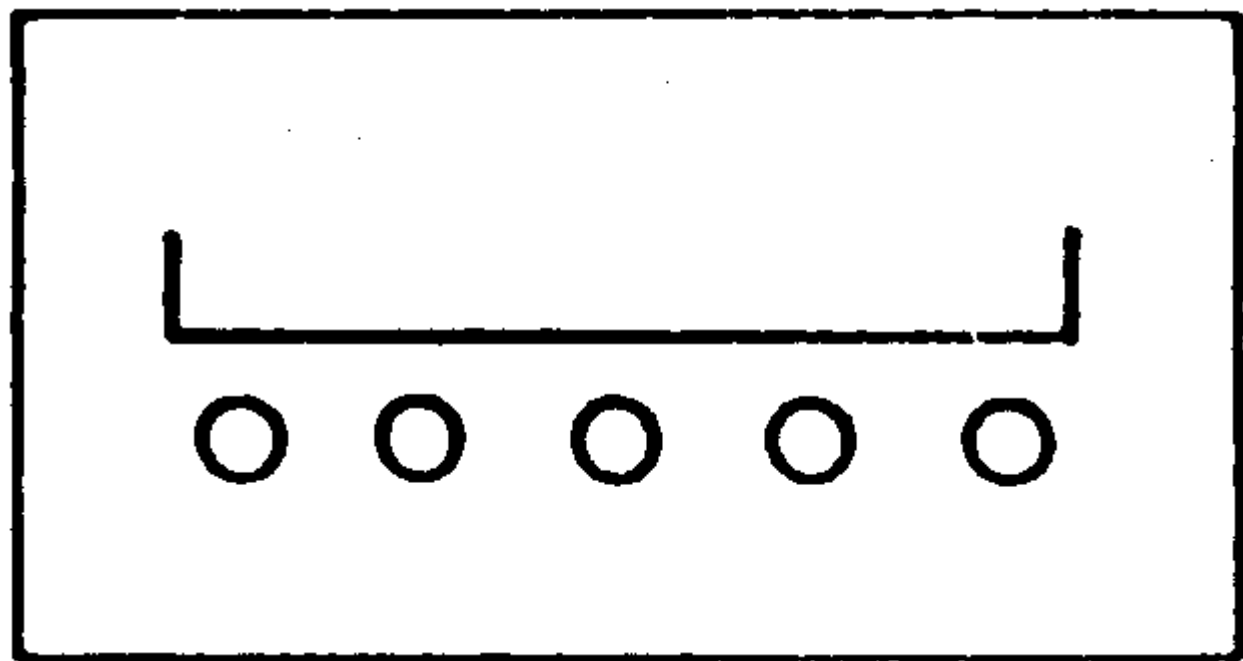


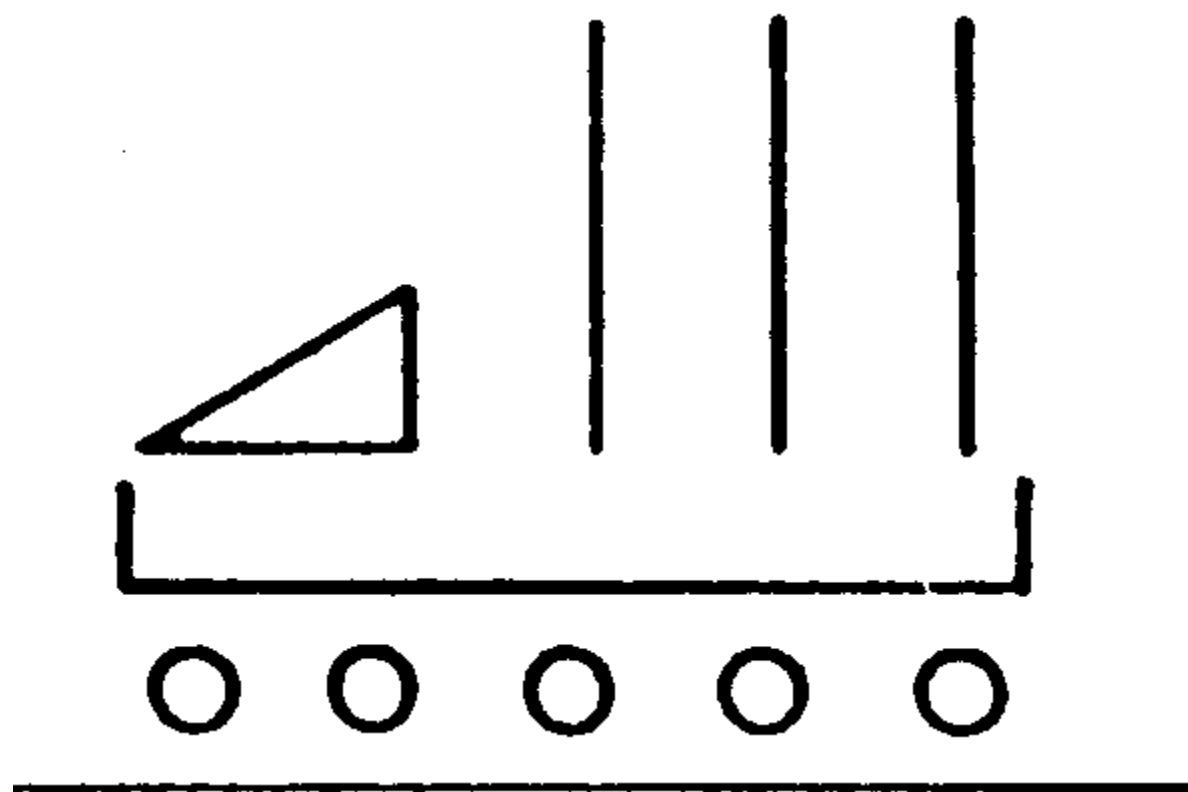








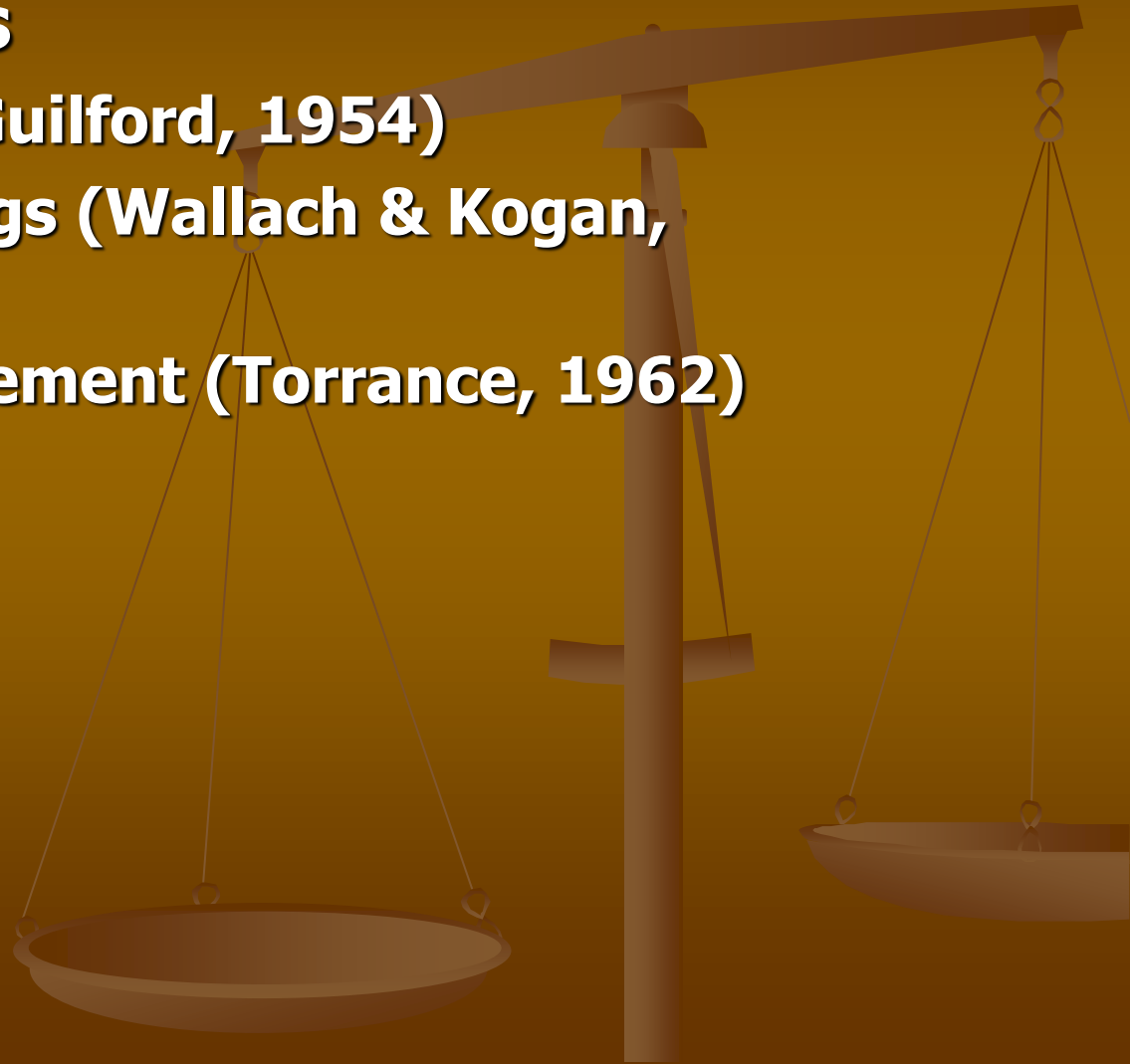




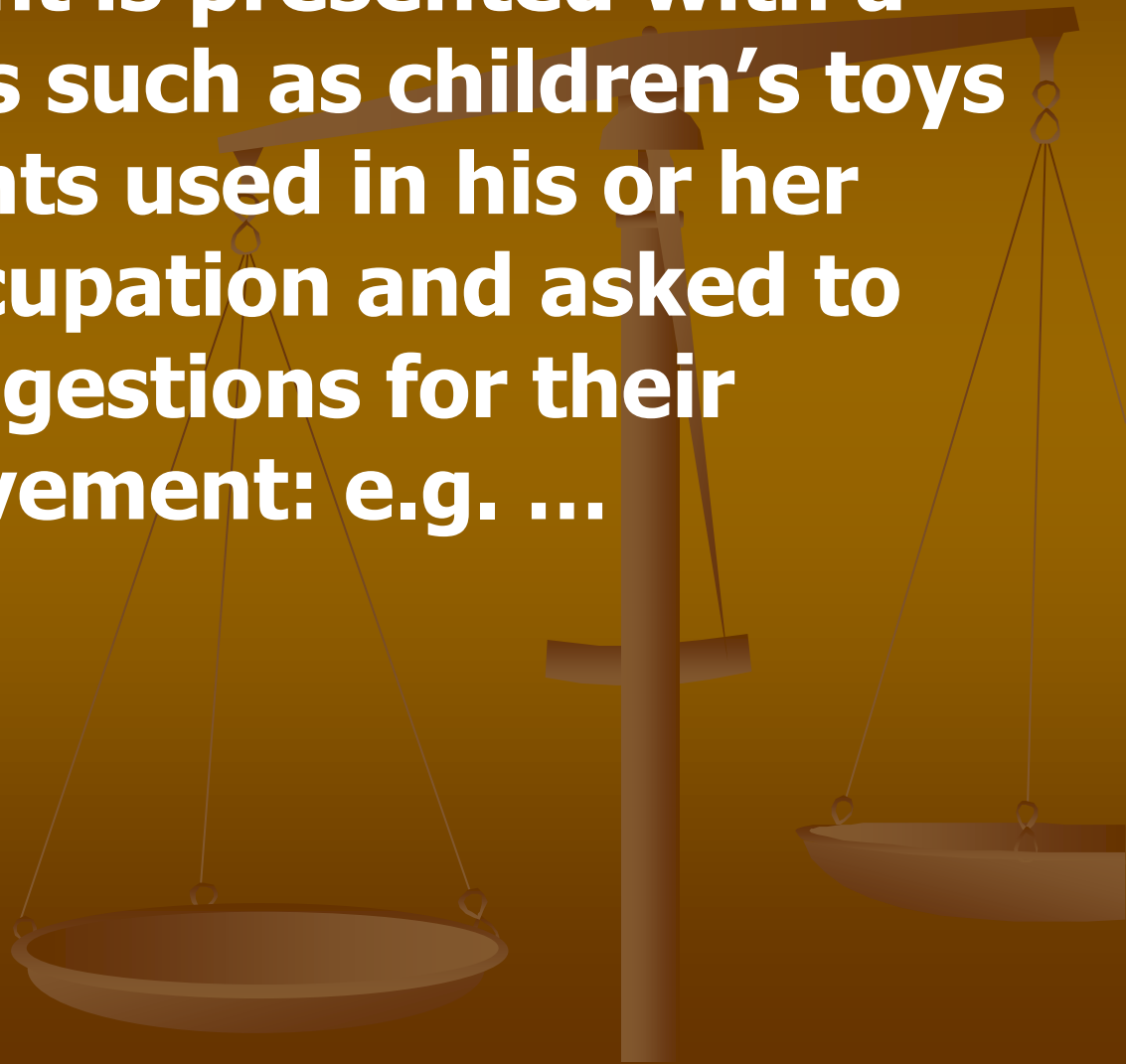
Little-c creativity measurement: process oriented

■ **Visual measures**

- **Unusual uses (Guilford, 1954)**
- **Pattern meanings (Wallach & Kogan, 1965)**
- **Product improvement (Torrance, 1962)**



The participant is presented with a series of objects such as children's toys or instruments used in his or her particular occupation and asked to make suggestions for their improvement: e.g. ...

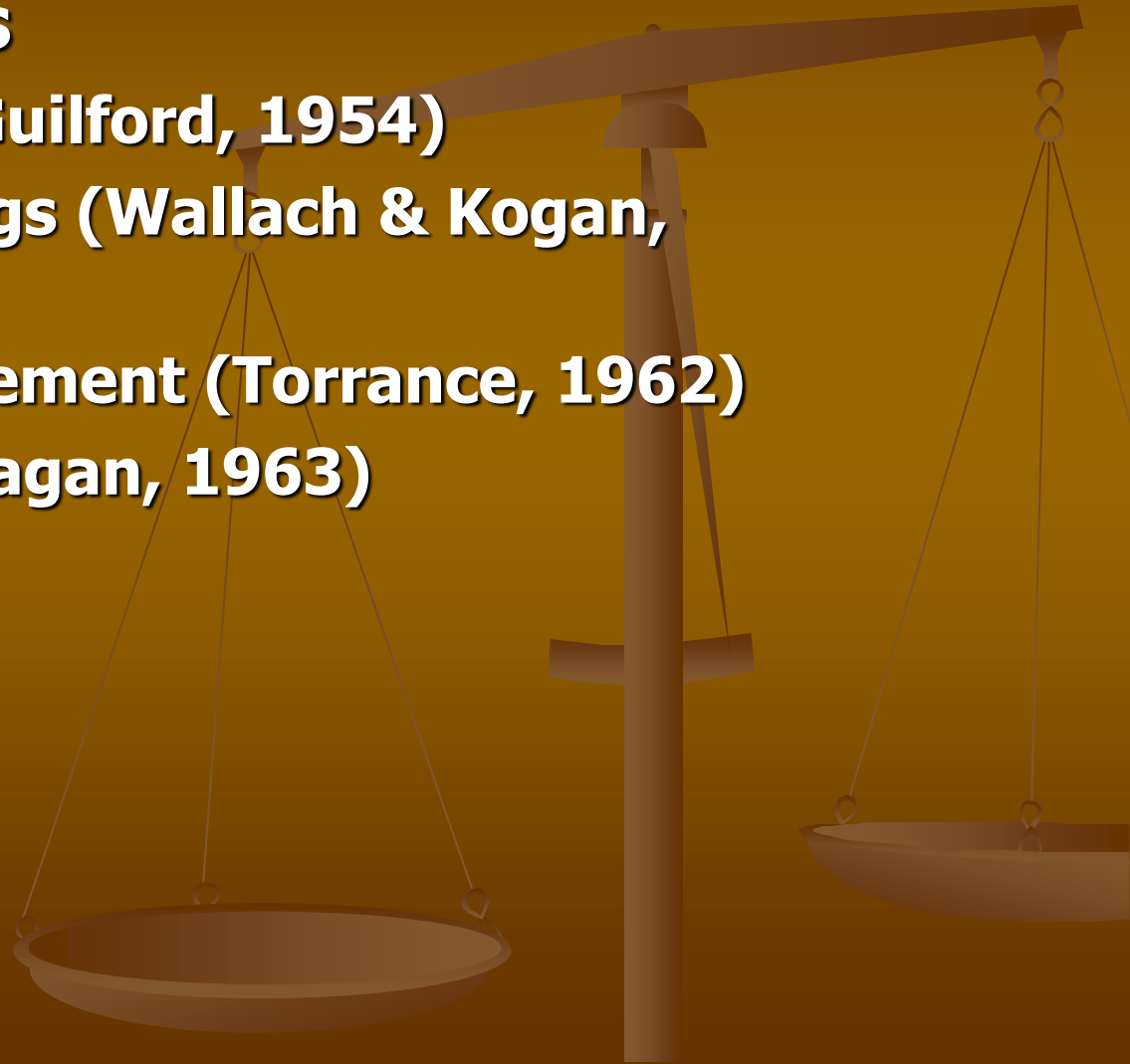




Little-c creativity measurement: process oriented

■ **Visual measures**

- **Unusual uses (Guilford, 1954)**
- **Pattern meanings (Wallach & Kogan, 1965)**
- **Product improvement (Torrance, 1962)**
- **Ingenuity (Flanagan, 1963)**

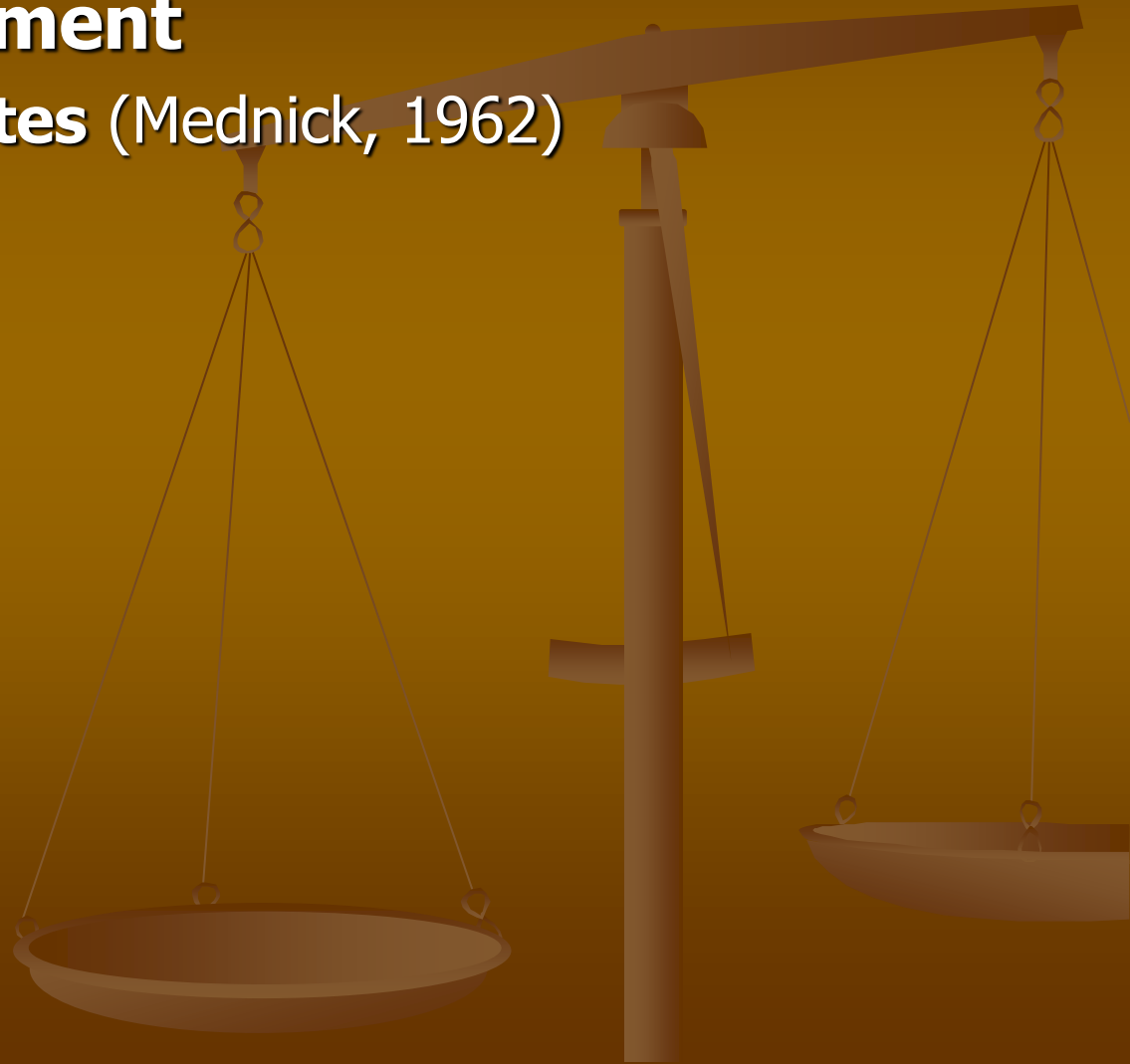


A very rare wind storm destroyed the transmission tower of a television station in a small town. The station was located in a town in a flat prairie with no tall buildings. Its former 300 foot tower enabled it to serve a large farming community, and the management wanted to restore service while a new tower was being erected. The problem was temporarily solved by using a _____.

As part of a manufacturing process, the inside lip of a deep cup shaped casting is machine threaded. The company found that metal chips produced by the threading operation were difficult to remove from the bottom of the casting without scratching the sides. A design engineer was able to solve this problem by having the operation performed _____.


Little-c creativity measurement: process oriented

- **Verbal measurement**
 - **Remote associates (Mednick, 1962)**




1	rat	blue	cottage

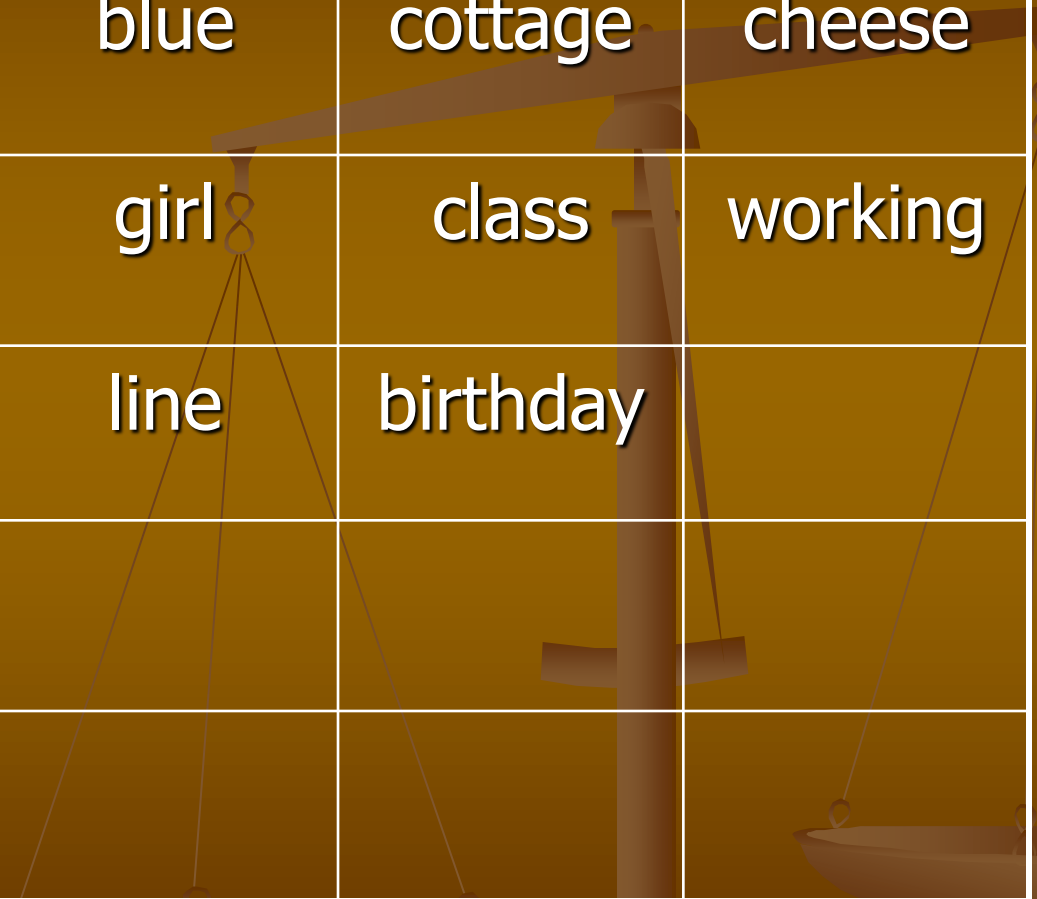
1	rat	blue	cottage	cheese



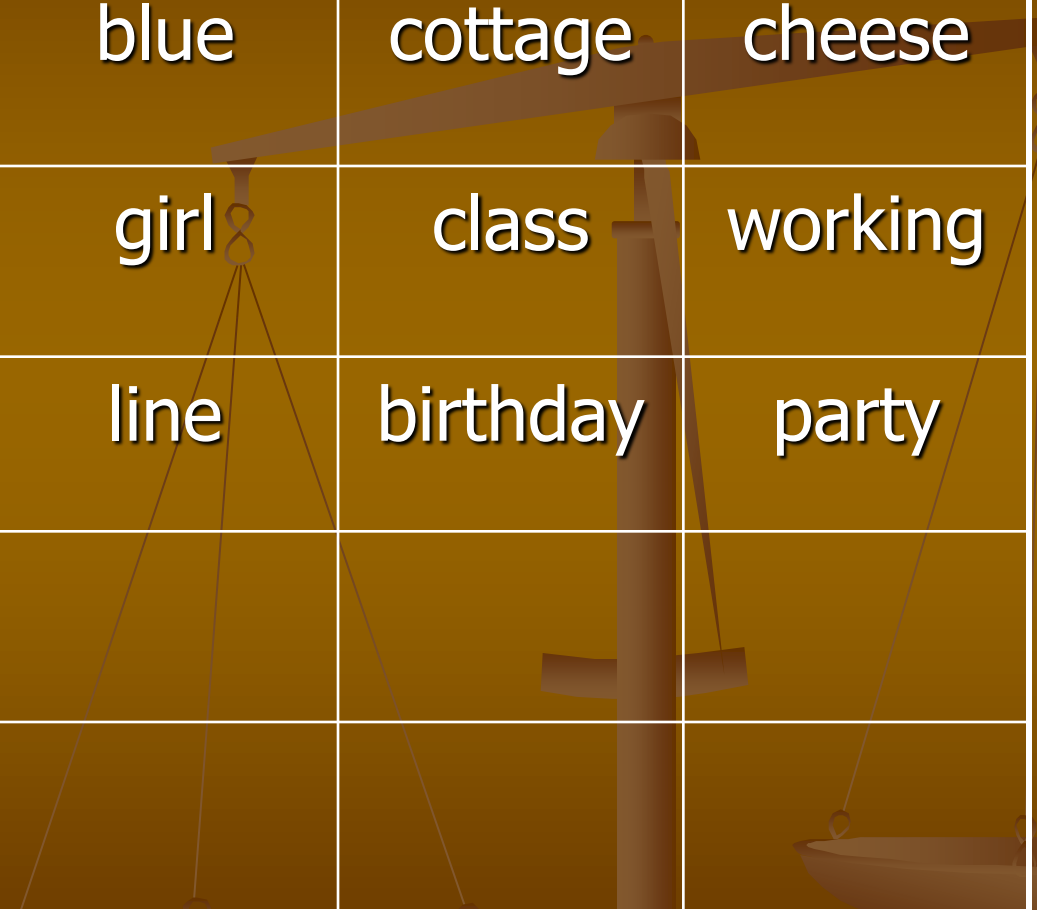
1	rat	blue	cottage	cheese
2	railroad	girl	class	



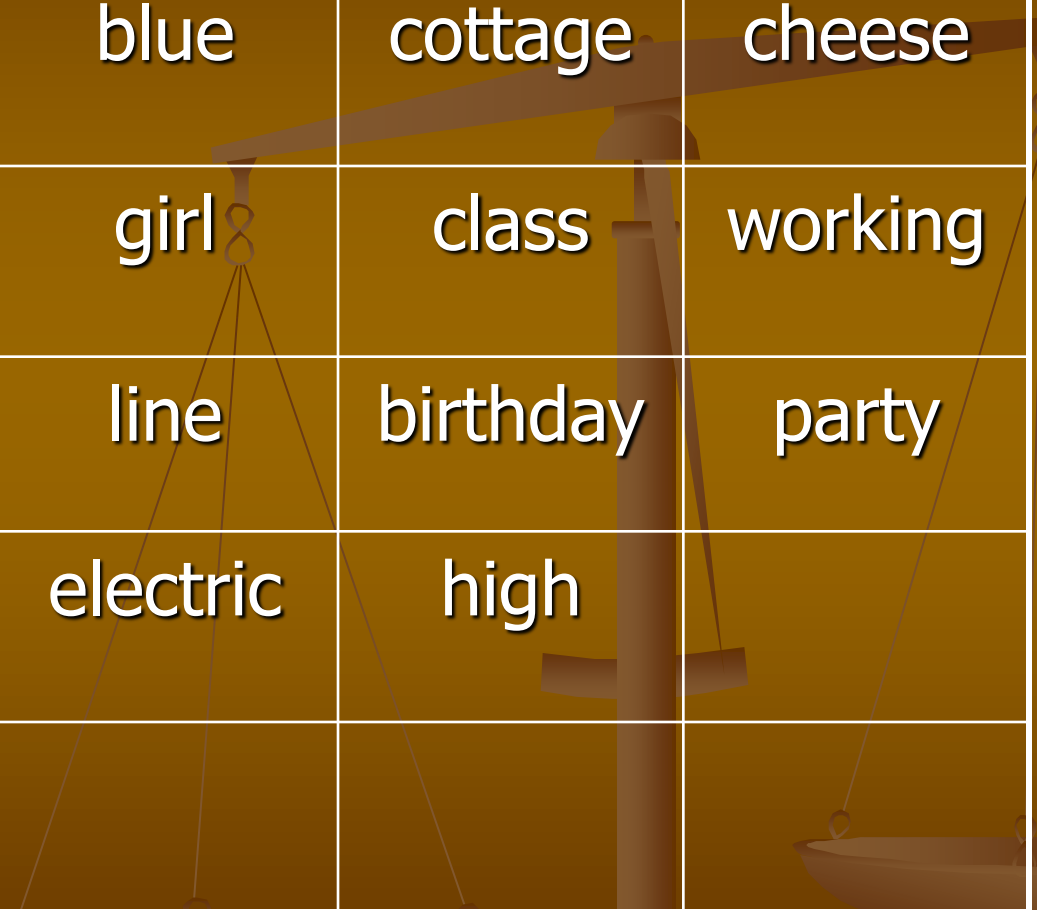
1	rat	blue	cottage	cheese
2	railroad	girl	class	working



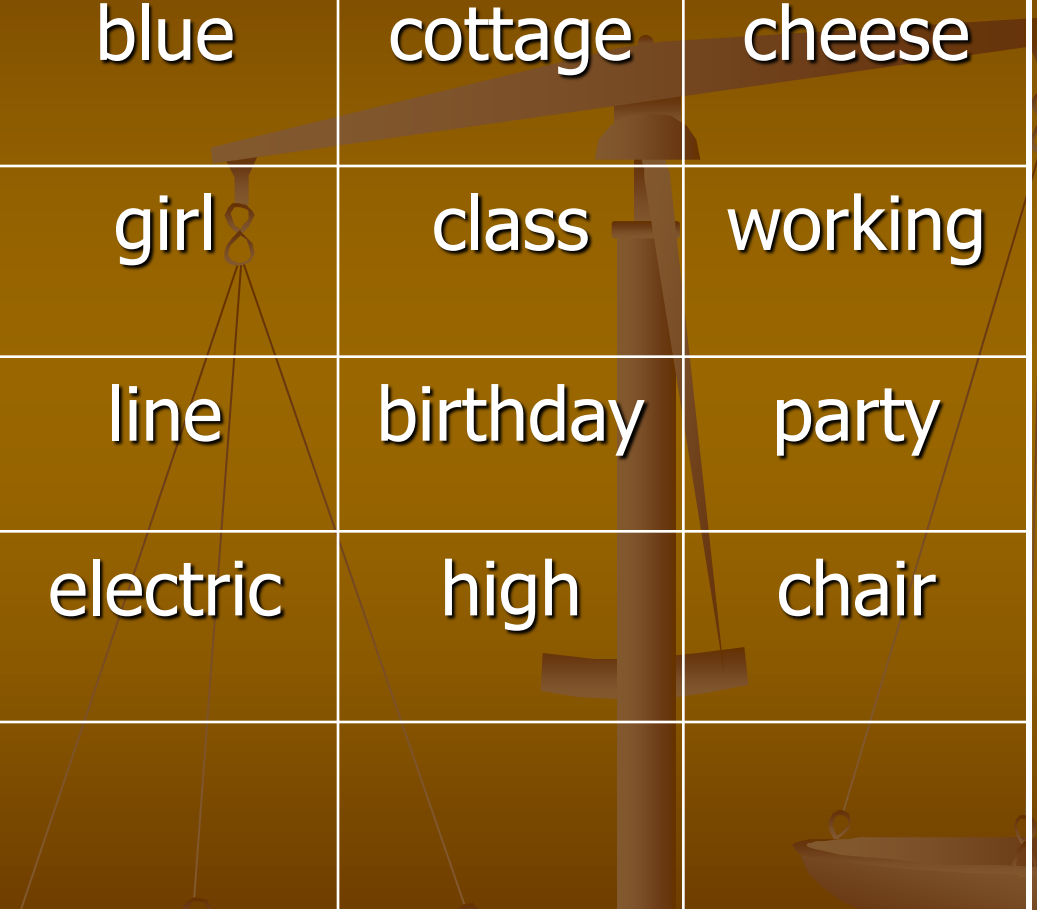
1	rat	blue	cottage	cheese
2	railroad	girl	class	working
3	surprise	line	birthday	




1	rat	blue	cottage	cheese
2	railroad	girl	class	working
3	surprise	line	birthday	party




1	rat	blue	cottage	cheese
2	railroad	girl	class	working
3	surprise	line	birthday	party
4	wheel	electric	high	



1	rat	blue	cottage	cheese
2	railroad	girl	class	working
3	surprise	line	birthday	party
4	wheel	electric	high	chair



1	rat	blue	cottage	cheese
2	railroad	girl	class	working
3	surprise	line	birthday	party
4	wheel	electric	high	chair
5	out	dog	cat	



1	rat	blue	cottage	cheese
2	railroad	girl	class	working
3	surprise	line	birthday	party
4	wheel	electric	high	chair
5	out	dog	cat	house

Little-c creativity measurement: process oriented

- **Verbal measurement**
 - Remote associates (Mednick, 1962)
 - Word associations (Getzels & Jackson, 1962)



**Write as many meanings as you can for
each of the following words:**

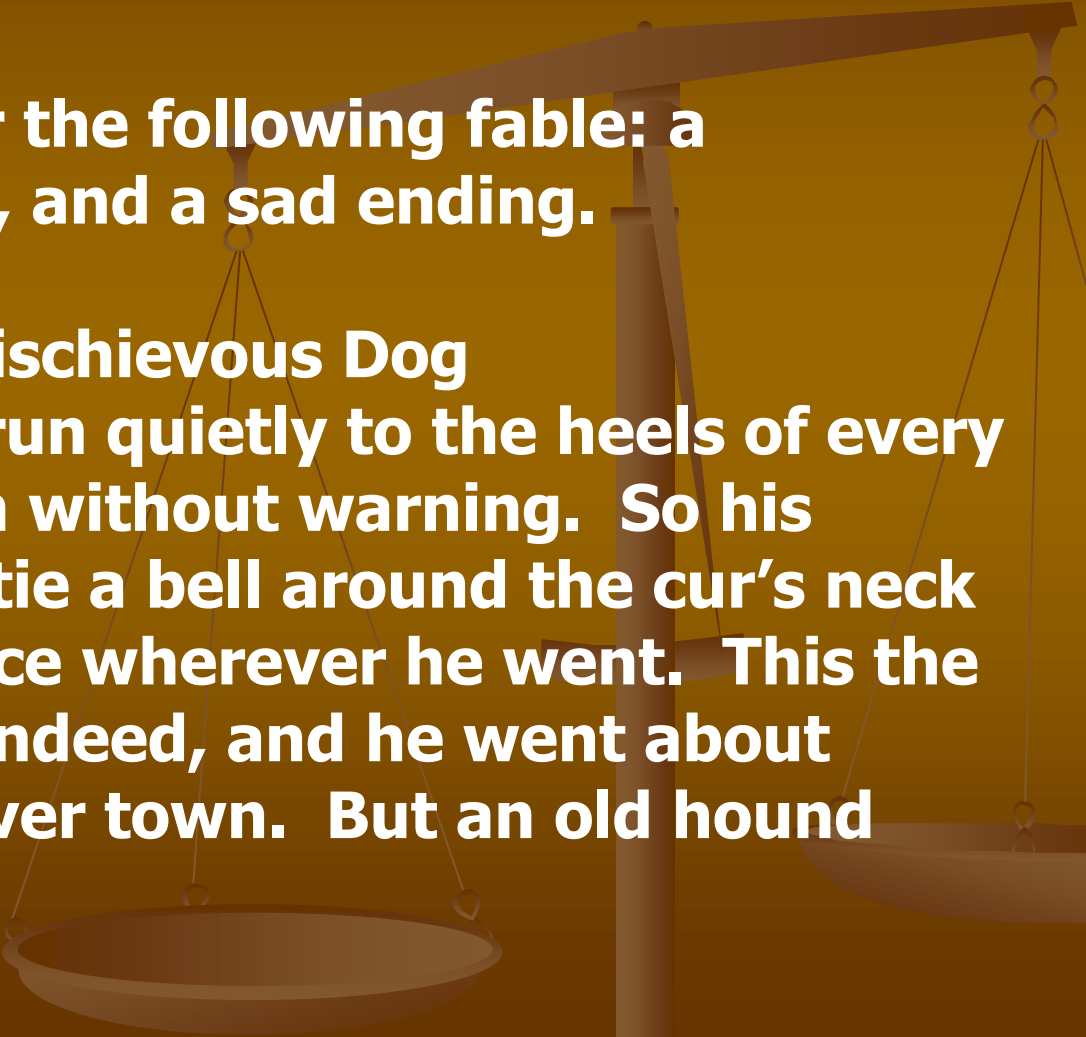
- **duck**
- **sack**
- **pitch**
- **fair**



Little-c creativity measurement: process oriented

- **Verbal measurement**
 - Remote associates (Mednick, 1962)
 - Word associations (Getzels & Jackson, 1962)
 - Fable endings (Getzels & Jackson, 1962)





Write three endings for the following fable: a moralistic, a humorous, and a sad ending.

The Mischievous Dog

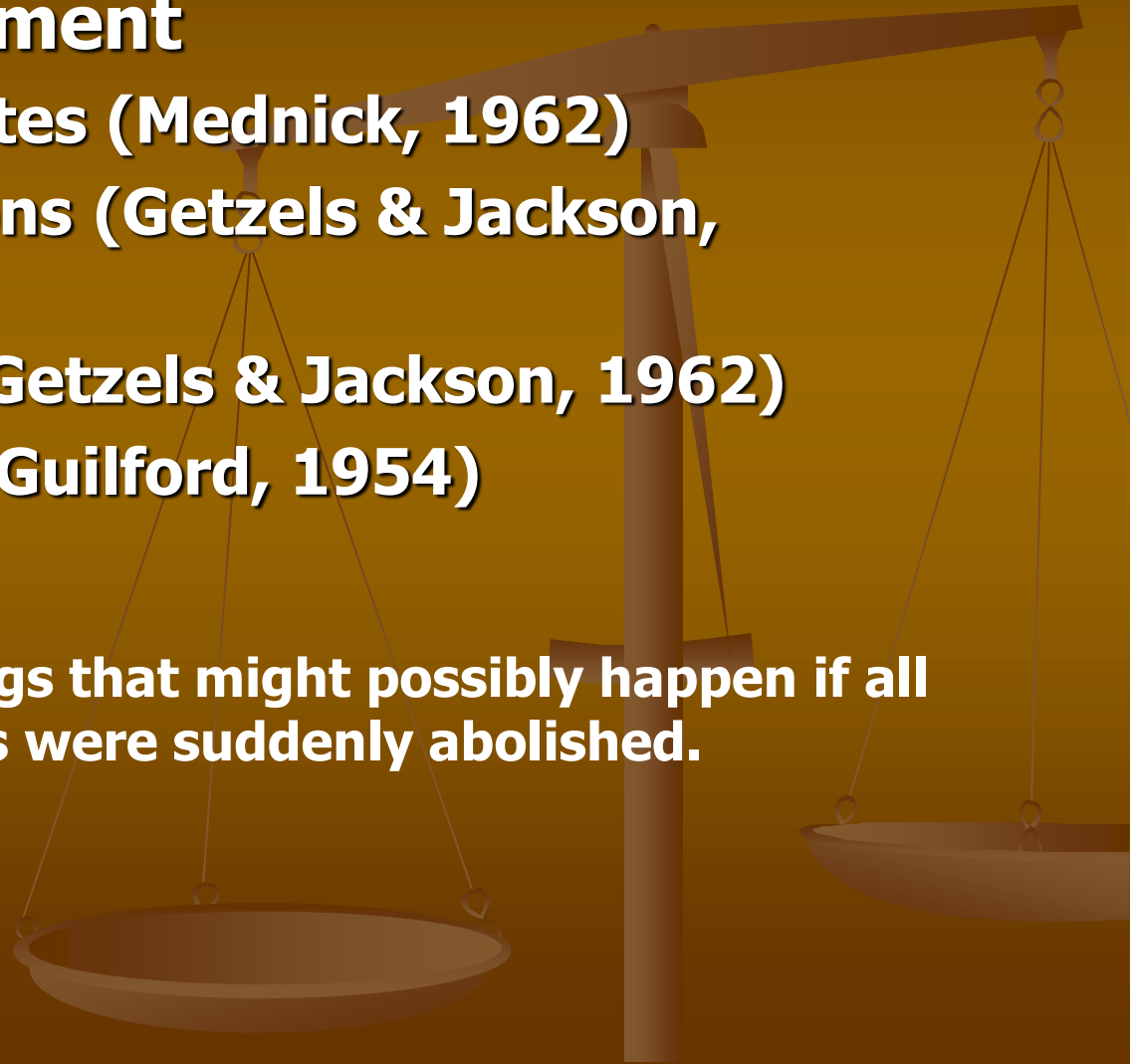
A rascally dog used to run quietly to the heels of every passerby and bite them without warning. So his master was obliged to tie a bell around the cur's neck that he might give notice wherever he went. This the dog thought very find indeed, and he went about tinkling it in pride all over town. But an old hound said

Little-c creativity measurement: process oriented

■ **Verbal measurement**

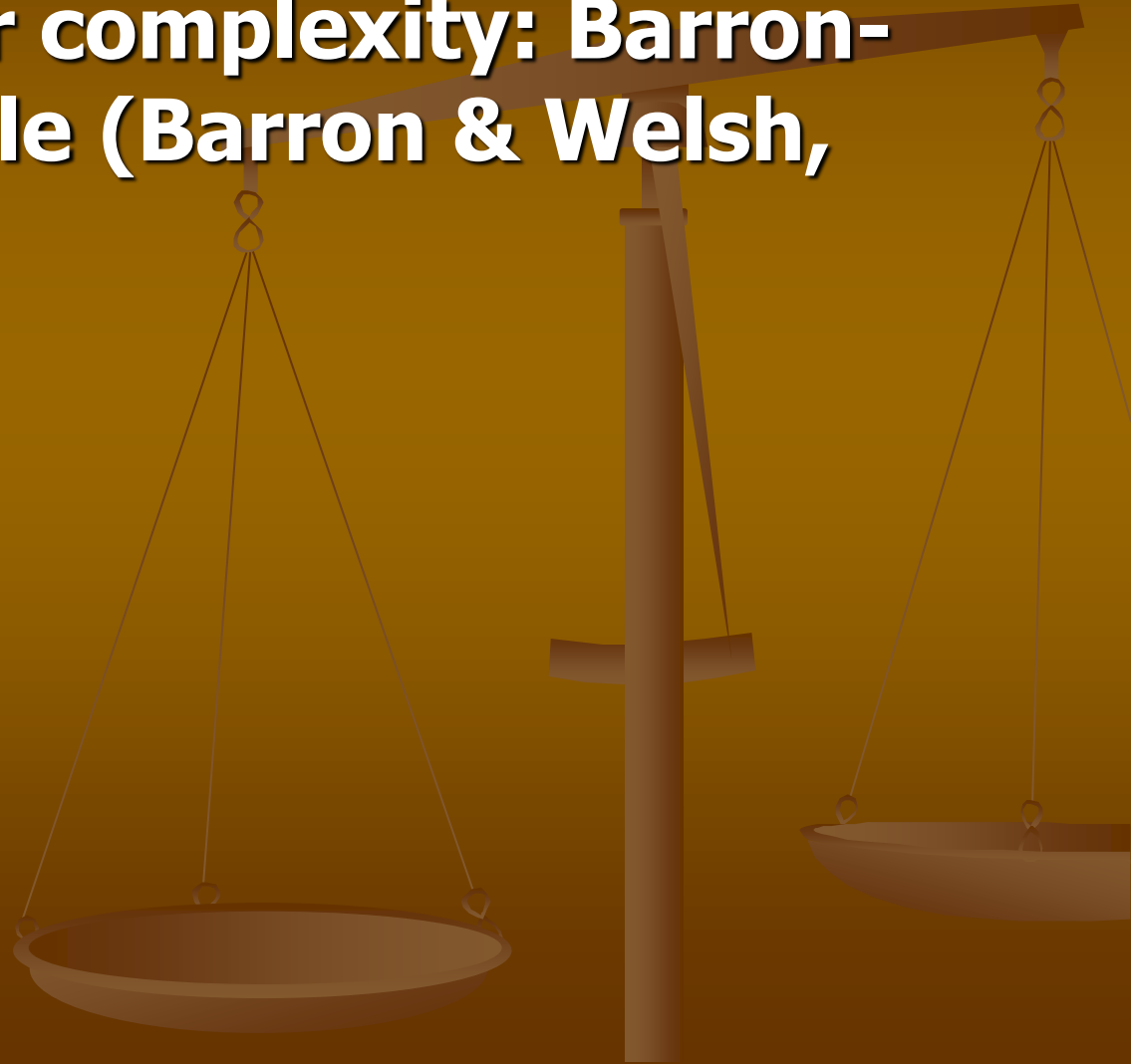
- **Remote associates (Mednick, 1962)**
- **Word associations (Getzels & Jackson, 1962)**
- **Fable endings (Getzels & Jackson, 1962)**
- **Consequences (Guilford, 1954)**

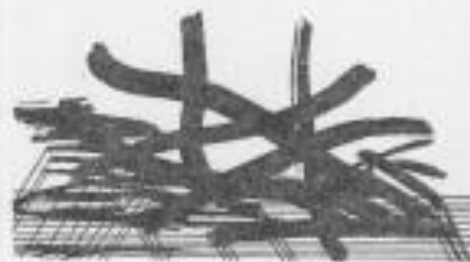
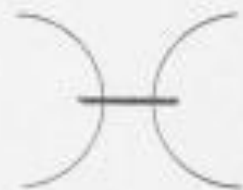
Imagine all of the things that might possibly happen if all national and local laws were suddenly abolished.



Little-c creativity measurement: person oriented

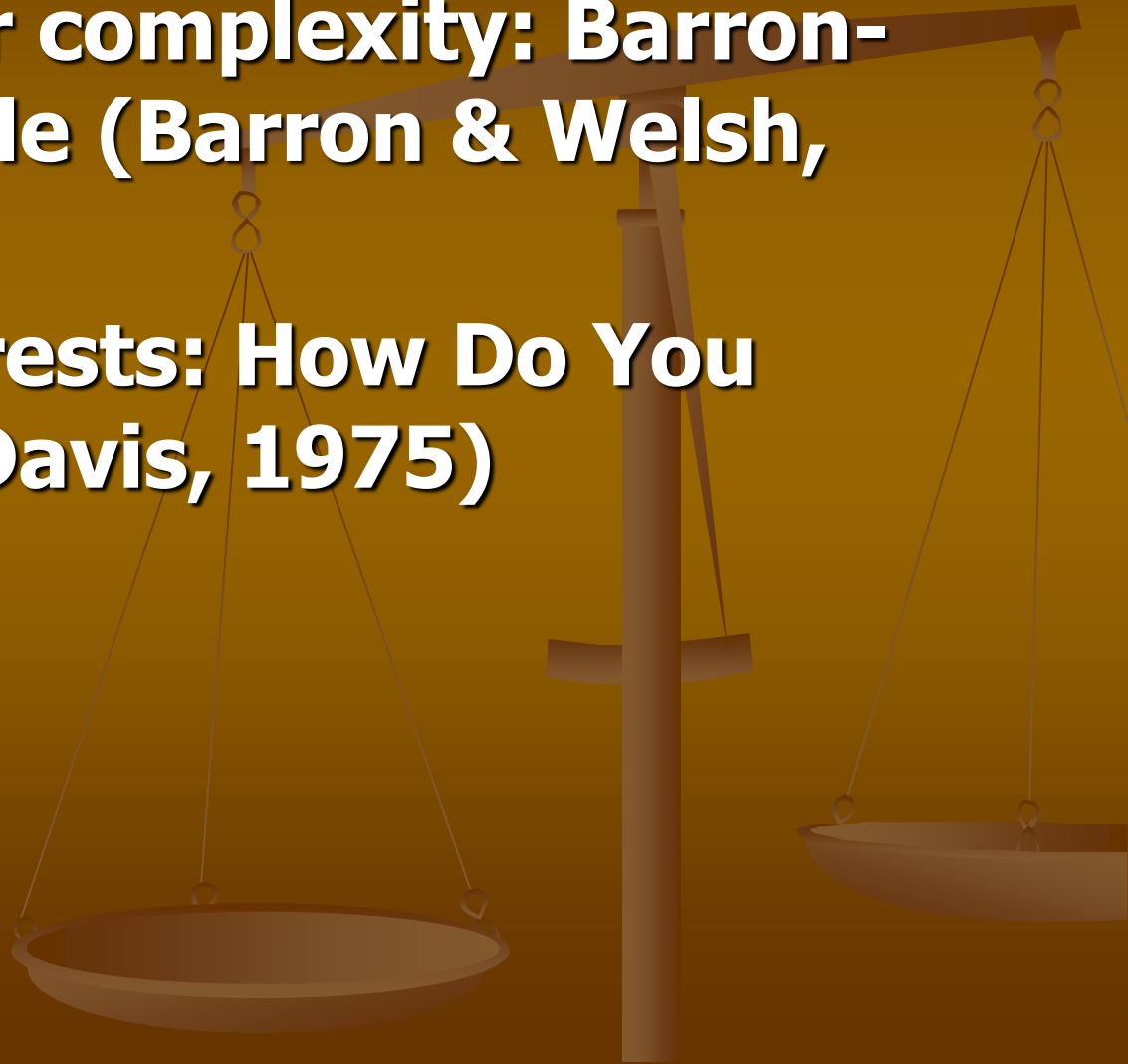
- **Preference for complexity: Barron-Welsh Art Scale (Barron & Welsh, 1952)**





Little-c creativity measurement: person oriented

- **Preference for complexity: Barron-Welsh Art Scale (Barron & Welsh, 1952)**
- **Values & interests: How Do You Think Scale (Davis, 1975)**



I. ENERGETIC ORIGINALITY (26 ITEMS)

- | | |
|--------------------|---|
| <i>Originality</i> | 24. I am often inventive or ingenious.
57. I am quite original and imaginative.
74. I like trying new ideas and new approaches to problems. |
| <i>Energy</i> | 53. I am a very active, energetic person.
76. I often become totally engrossed in a new idea.
83. The word "quick" describes me. |
| <i>Curiosity</i> | 55. I am very curious.
102. I have taken things apart just to find out how they work. |

II. CREATIVE INTERESTS AND ACTIVITIES (14 ITEMS)

- | | |
|---|---|
| <i>Artistic and
Aesthetic
Interests</i> | 49. I have always been active in drawing or painting. |
| | 81. I am very conscious of aesthetic considerations. |
| | 95. I often attend concerts. |
| <i>Reflectiveness</i> | 60. I am very idealistic. |
| | 68. I am very "reflective." |
| | 94. I often reflect on my personal values. |
| <i>Hobbies</i> | 8. When I was young I was always building or making things. |
| | 58. I have had many hobbies. |
| <i>Creative
Parents</i> | 16. My parents participated in, or were highly interested in, art or writing. |
| | 17. My parents were always in some form of hobbies or handicrafts. |
| | 96. My parents visit art galleries and museums. |

III. CREATIVE WRITING, ATTRACTION TO COMPLEX (7 ITEMS)

- | | |
|-----------------------------|--|
| <i>Creative
Writing</i> | 15. I have done a lot of creative writing.
84. I try to use metaphors and analogies in
my writing. |
| <i>Complexity</i> | 1. I enjoy the confusion of a big city.
11. I have a great many interests.
62. I enjoy some amount of ambiguity in
my life. |

IV. SELF-CONFIDENCE AND SENSE OF HUMOR (13 ITEMS)

- | | |
|--|---|
| <i>Independence
and Self-
Confidence</i> | 4. I am very independent.
23. I worry about being considered foolish.*
43. I would rate myself high in self-
confidence. |
| <i>Humor</i> | 48. I have a great sense of humor.
75. I am witty. |

V. FREEDOM AND FLEXIBILITY, BELIEF IN PSYCHICAL PHENOMENA (15 ITEMS)

- | | |
|--|---|
| <i>Free and
Flexible</i> | 5. I am very likely to do things on impulse.
14. I prefer to pre-plan and schedule vacations carefully.*
20. I am neat and well-ordered.* |
| <i>Belief in
Psychical
Phenomena</i> | 32. Psychics are able to predict such things as national disasters, election results, political assassinations, etc.
35. Flying saucers are visitors from outer space. |

VI. AROUSAL SEEKING, RISK-TAKING, AND PLAYFULNESS (27 ITEMS)

- | | |
|--------------------|---|
| <i>Stimulation</i> | 9. I would like to learn mountain-climbing.
51. I would like to get a pilot's license.
70. I avoid activities which are a little frightening.* |
| <i>Risk-Taking</i> | 27. I am a risk-taker.
72. I would take a college course which 50 percent flunk. |
| <i>Playfulness</i> | 2. I often think like a child.
56. I tend to become childishly involved with simple things.
66. I like to play tag, hopscotch, etc., with the kids. |

* Low score indicates creativity.

Little-c creativity measurement: person oriented

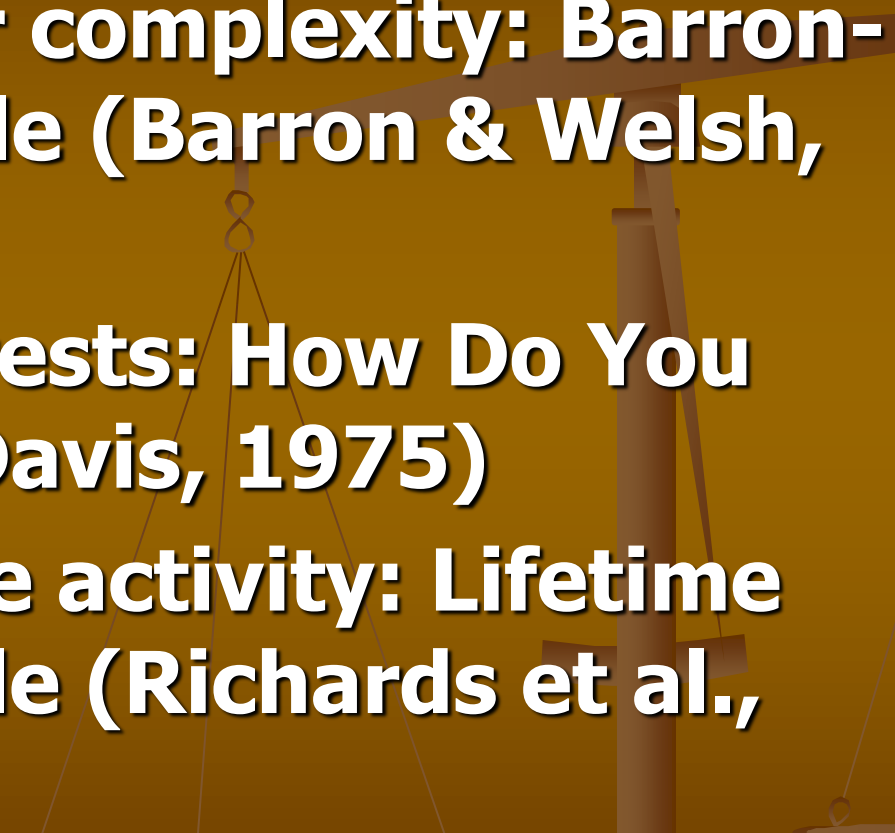
- **Preference for complexity: Barron-Welsh Art Scale (Barron & Welsh, 1952)**
 - **Values & interests: How Do You Think Scale (Davis, 1975)**
 - **Actual creative activity: Lifetime Creativity Scale (Richards et al., 1988)**
- 

Table 1
Definitions of Levels of Two Types of Creativity Scales

Rating	Level	Definition
Levels for peak creativity		
(0)	No significant	Routine or prescribed endeavors with negligible innovative aspects.
(1)	Minor	Small unexceptional departures from routine or prescribed endeavor.
(2)	Some	Greater innovativeness, but not unusual in the population.
(3)	Moderate	Central innovative elements that stand out in the population, although not markedly; these may involve major modifications of common practices or products.
(4)	High	Presence of markedly distinctive innovative elements that set endeavors well apart from others in the population.
(5)	Exceptional	Radical departures from the commonplace; these may require conceptual reorganization to be assimilated.
Levels for extent of creative involvement		
(0)	No significant	Highly prescribed or routine lifetime activity.
(1)	Minor	Prescribed or routine patterns, broken by brief, rare instances of innovative activity.
(2)	Some	Greater extent of innovative activity, but not unusual in the population, and other activity tends to predominate.
(3)	Moderate	Notable innovative activity in a pattern that tends to admix this with other forms of endeavor.
(4)	High	Markedly distinctive emphasis on innovation—a dominant life theme and primary commitment.
(5)	Exceptional	Pervasive, and perhaps compulsive, preoccupation with innovative activity to the virtual exclusion of other emphases.

Table 2

Abbreviated Examples of Subjects at Three Creativity Rating Levels

Level	Example 1	Example 2
Vocational history		
No significant peak creativity	Mixed and carried mortar for local brick layer for 20 years, then inherited a large income-paying trust fund and retired to a passive life on a country estate.	Washed store windows for 3 years under foreman's supervision, spent 5 years on assembly lines in two factories and, for the past 11 years, has done routine quality-control tasks in a brewery.
Some peak creativity	Longtime owner and manager of a small dairy farm who, after 10 years of producing cheese and other dairy products, expanded and began marketing through a local distributor.	Optician who spent 4 years selling optical items, then acquired a small optical shop, and now grinds lenses to prescription while managing the retailing of standard optical products.
High peak creativity	Former avant garde dancer and choreographer who developed and directed a variety of unusual productions for several dance companies, but postwar, has worked solely as a hotel clerk.	Entrepreneur who advanced from apprentice to independent researcher of new products before starting a major paint manufacturing company, and whose operation surreptitiously manufactured and smuggled explosives for the Danish Resistance during World War II.
Avocational history		
No significant peak creativity	Once read movie magazines intensively, but now spends most evenings with the new family television. Also does much needlepoint following specified patterns and, on weekends, watches spouse play handball.	Often reads in spare time, has a standing subscription to the local theatre, belongs to a health club, has been going daily for directed group calisthenics, attends a social club to watch weekly televised sporting events with friends, and occasionally attends local soccer games.
Some peak creativity	Active church member who has ushered at church services for over 20 years, has sung for the last 10 years in the alto section of the church choir and who, recently, has been volunteering on a committee designed to expand parish membership.	Avid reader and sports enthusiast who previously completed a night school journalism course and now gives brief accounts of sporting events for a monthly community newspaper. On weekends, also volunteers as an assistant coach for a children's swim team.
High peak creativity	Amateur archaeologist who for years has spent summers and other free time seeking new sites, initiating archaeological digs with professionals from a nearby university, researching artifacts, reconstructing aspects of primitive societies, and collaborating in articles on this work.	Invests much spare time in working with own handicapped child and once, over several years, designed and constructed a complex apparatus to help this child with locomotion, gross changes of posture, and fine motor manipulation of objects. Now works as a volunteer teacher twice a week to help other handicapped children use this invention.

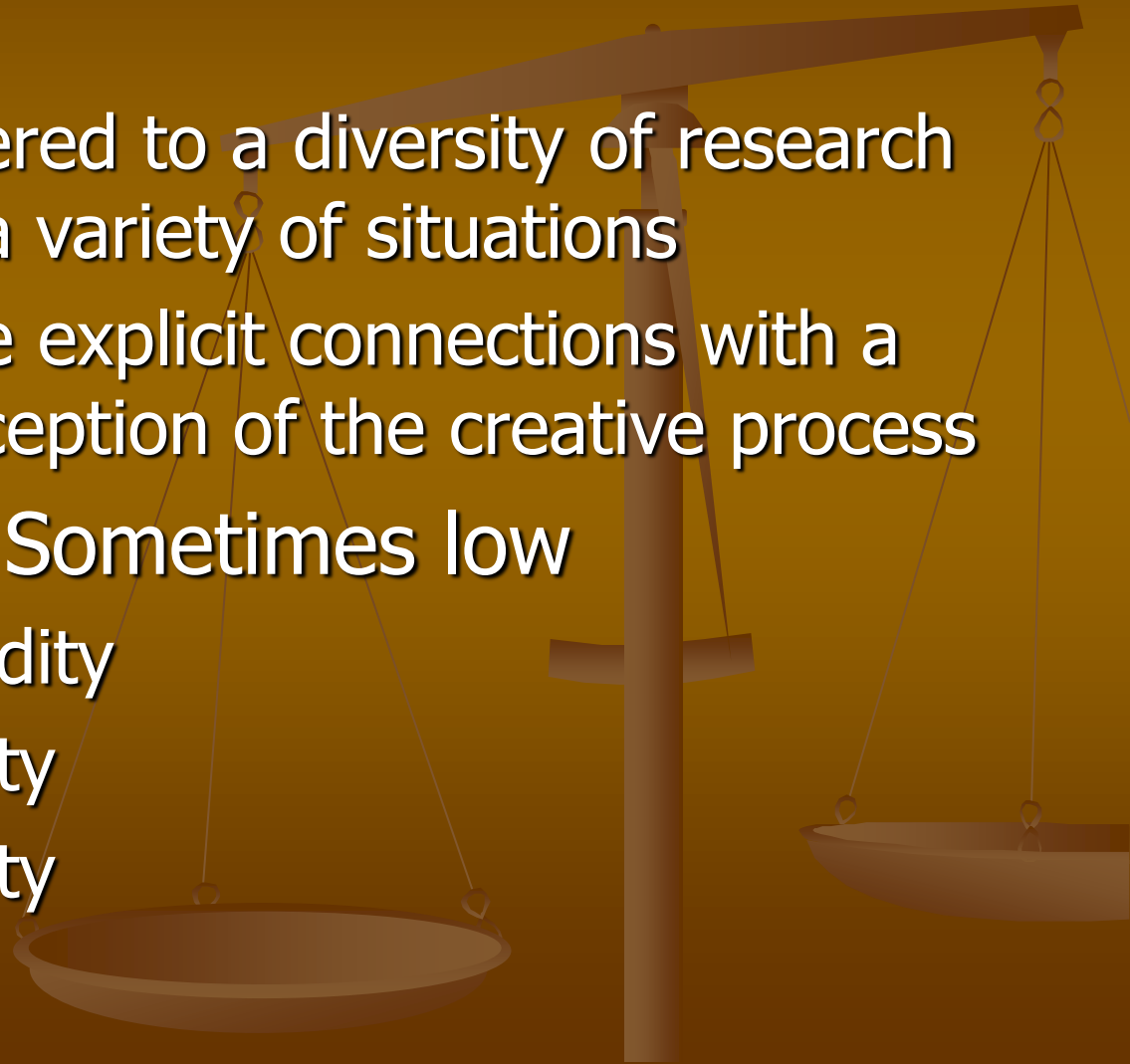
Little-c creativity measurement: Evaluation

■ Advantages

- Easily administered to a diversity of research participants in a variety of situations
- Frequently have explicit connections with a theoretical conception of the creative process

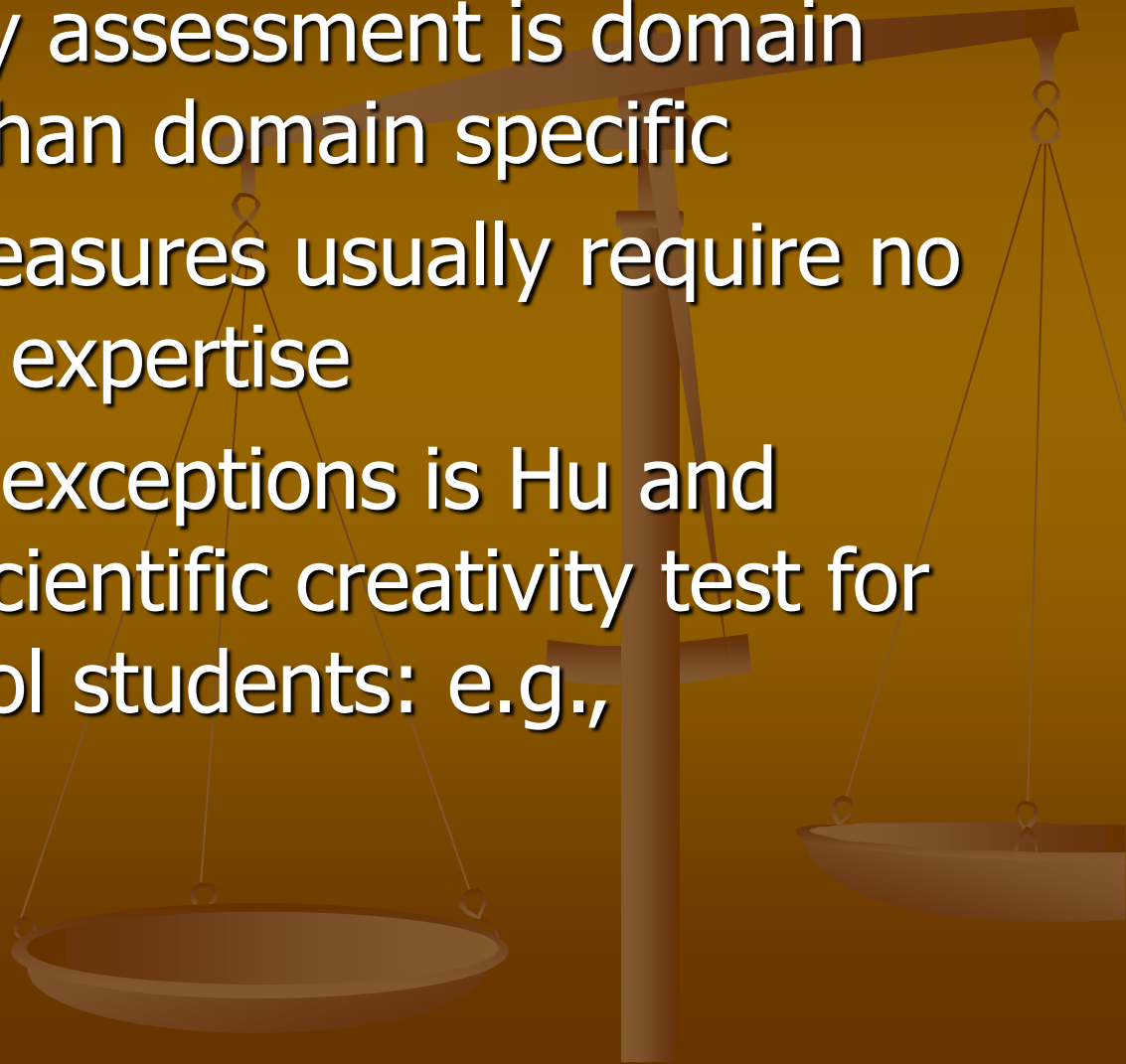
■ Disadvantages: Sometimes low

- Convergent validity
- Divergent validity
- Predictive validity



The Fundamental Issue

- Little-c creativity assessment is domain general rather than domain specific
- That is, such measures usually require no domain-specific expertise
- Among the few exceptions is Hu and Adey's (2002) scientific creativity test for secondary school students: e.g.,

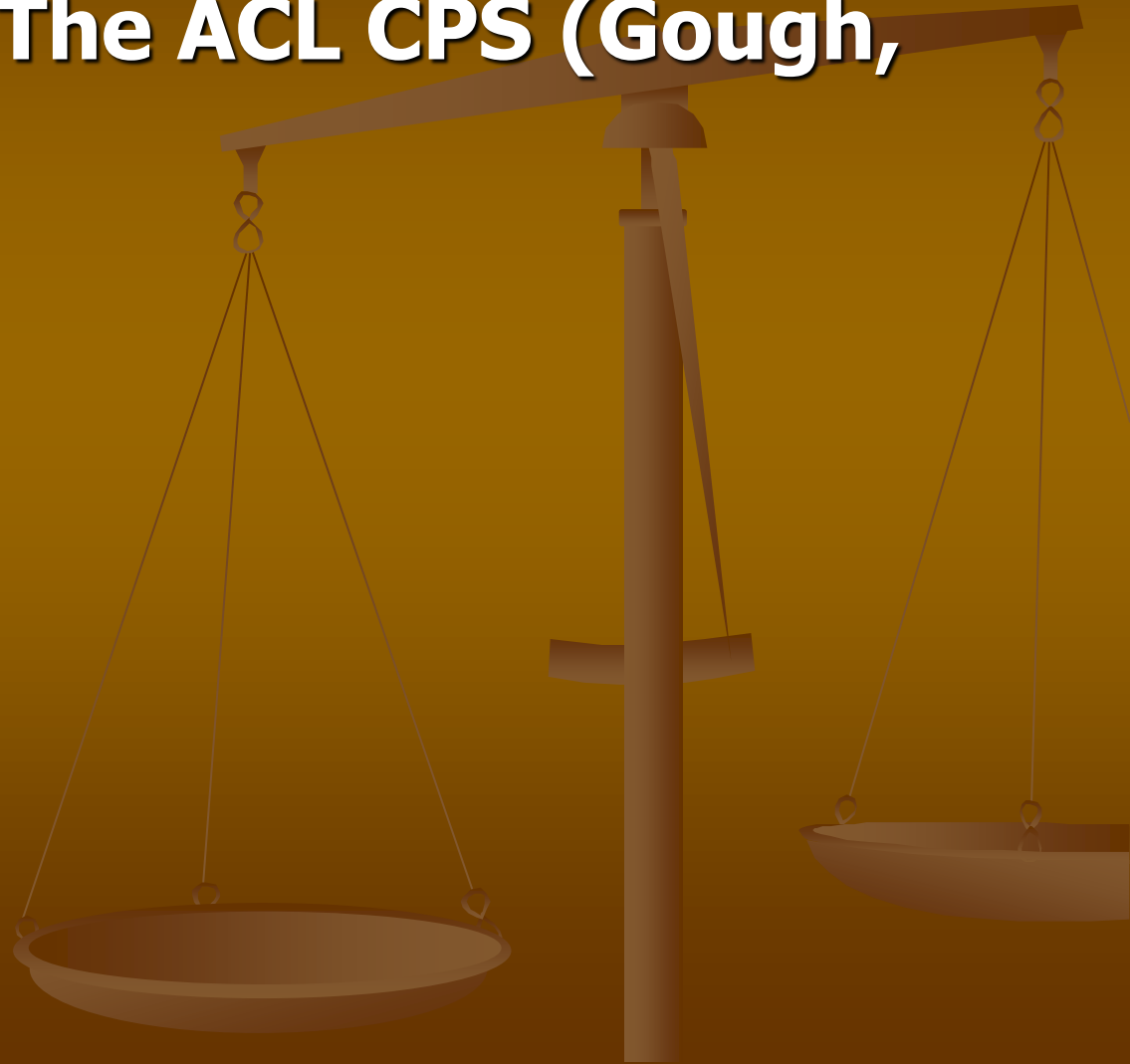


Item 4

Suppose there was no gravity, describe what the world would be like?
For example, human beings would be floating.

Medium-C CREATIVITY – TRANSITIONAL LEVEL

- **Self-concept: The ACL CPS (Gough, 1979)**



- | | | | | |
|--|---|---|--|--|
| <input type="checkbox"/> absent-minded
1 | <input type="checkbox"/> cheerful
31 | <input type="checkbox"/> dependent
61 | <input type="checkbox"/> foresighted
91 | <input type="checkbox"/> impulsive
121 |
| <input type="checkbox"/> active
2 | <input type="checkbox"/> civilized
32 | <input type="checkbox"/> despondent
62 | <input type="checkbox"/> forgetful
92 | <input type="checkbox"/> independent
122 |
| <input type="checkbox"/> adaptable
3 | <input type="checkbox"/> clear-thinking
33 | <input type="checkbox"/> determined
63 | <input type="checkbox"/> forgiving
93 | <input type="checkbox"/> indifferent
123 |
| <input type="checkbox"/> adventurous
4 | <input type="checkbox"/> clever
34 | <input type="checkbox"/> dignified
64 | <input type="checkbox"/> formal
94 | <input type="checkbox"/> individualistic
124 |
| <input type="checkbox"/> affected
5 | <input type="checkbox"/> coarse
35 | <input type="checkbox"/> discreet
65 | <input type="checkbox"/> frank
95 | <input type="checkbox"/> industrious
125 |
| <input type="checkbox"/> affectionate
6 | <input type="checkbox"/> cold
36 | <input type="checkbox"/> disorderly
66 | <input type="checkbox"/> friendly
96 | <input type="checkbox"/> infantile
126 |
| <input type="checkbox"/> aggressive
7 | <input type="checkbox"/> commonplace
37 | <input type="checkbox"/> dissatisfied
67 | <input type="checkbox"/> frivolous
97 | <input type="checkbox"/> informal
127 |
| <input type="checkbox"/> alert
8 | <input type="checkbox"/> complaining
38 | <input type="checkbox"/> distractible
68 | <input type="checkbox"/> fussy
98 | <input type="checkbox"/> ingenious
128 |
| <input type="checkbox"/> aloof
9 | <input type="checkbox"/> complicated
39 | <input type="checkbox"/> distrustful
69 | <input type="checkbox"/> generous
99 | <input type="checkbox"/> inhibited
129 |
| <input type="checkbox"/> ambitious
10 | <input type="checkbox"/> conceited
40 | <input type="checkbox"/> dominant
70 | <input type="checkbox"/> gentle
100 | <input type="checkbox"/> initiative
130 |
| <input type="checkbox"/> anxious
11 | <input type="checkbox"/> confident
41 | <input type="checkbox"/> dreamy
71 | <input type="checkbox"/> gloomy
101 | <input type="checkbox"/> insightful
131 |
| <input type="checkbox"/> apathetic
12 | <input type="checkbox"/> confused
42 | <input type="checkbox"/> dull
72 | <input type="checkbox"/> good-looking
102 | <input type="checkbox"/> intelligent
132 |
| <input type="checkbox"/> appreciative
13 | <input type="checkbox"/> conscientious
43 | <input type="checkbox"/> easy going
73 | <input type="checkbox"/> good-natured
103 | <input type="checkbox"/> interests narrow
133 |
| <input type="checkbox"/> argumentative
14 | <input type="checkbox"/> conservative
44 | <input type="checkbox"/> effeminate
74 | <input type="checkbox"/> greedy
104 | <input type="checkbox"/> interests wide
134 |
| <input type="checkbox"/> arrogant
15 | <input type="checkbox"/> considerate
45 | <input type="checkbox"/> efficient
75 | <input type="checkbox"/> handsome
105 | <input type="checkbox"/> intolerant
135 |

☐ artistic
16
☐ assertive
17
☐ attractive
18
☐ autocratic
19
☐ awkward
20
☐ bitter
21
☐ blustery
22
☐ boastful
23
☐ bossy
24
☐ calm
25
☐ capable
26
☐ careless
27
☐ cautious
28
☐ changeable
29
☐ charming
30

☐ contented
46
☐ conventional
47
☐ cool
48
☐ cooperative
49
☐ courageous
50
☐ cowardly
51
☐ cruel
52
☐ curious
53
☐ cynical
54
☐ daring
55
☐ deceitful
56
☐ defensive
57
☐ deliberate
58
☐ demanding
59
☐ dependable
60

☐ egotistical
76
☐ emotional
77
☐ energetic
78
☐ enterprising
79
☐ enthusiastic
80
☐ evasive
81
☐ excitable
82
☐ fair-minded
83
☐ fault-finding
84
☐ fearful
85
☐ feminine
86
☐ fickle
87
☐ flirtatious
88
☐ foolish
89
☐ forceful
90

☐ hard-headed
106
☐ hard-hearted
107
☐ hasty
108
☐ headstrong
109
☐ healthy
110
☐ helpful
111
☐ high-strung
112
☐ honest
113
☐ hostile
114
☐ humorous
115
☐ hurried
116
☐ idealistic
117
☐ imaginative
118
☐ immature
119
☐ impatient
120

☐ inventive
136
☐ irresponsible
137
☐ irritable
138
☐ jolly
139
☐ kind
140
☐ lazy
141
☐ leisurely
142
☐ logical
143
☐ loud
144
☐ loyal
145
☐ mannerly
146
☐ masculine
147
☐ mature
148
☐ meek
149
☐ methodical
150

<input type="checkbox"/> mild 151	<input type="checkbox"/> practical 181	<input type="checkbox"/> sarcastic 211	<input type="checkbox"/> sophisticated 241	<input type="checkbox"/> tough 271
<input type="checkbox"/> mischievous 152	<input type="checkbox"/> praising 182	<input type="checkbox"/> self-centered 212	<input type="checkbox"/> spendthrift 242	<input type="checkbox"/> trusting 272
<input type="checkbox"/> moderate 153	<input type="checkbox"/> precise 183	<input checked="" type="checkbox"/> self-confident 213	<input type="checkbox"/> spineless 243	<input type="checkbox"/> unaffected 273
<input type="checkbox"/> modest 154	<input type="checkbox"/> prejudiced 184	<input type="checkbox"/> self-controlled 214	<input type="checkbox"/> spontaneous 244	<input type="checkbox"/> unambitious 274
<input type="checkbox"/> moody 155	<input type="checkbox"/> preoccupied 185	<input type="checkbox"/> self-denying 215	<input type="checkbox"/> spunky 245	<input type="checkbox"/> unassuming 275
<input type="checkbox"/> nagging 156	<input type="checkbox"/> progressive 186	<input type="checkbox"/> self-pitying 216	<input type="checkbox"/> stable 246	<input checked="" type="checkbox"/> unconventional 276
<input type="checkbox"/> natural 157	<input type="checkbox"/> prudish 187	<input type="checkbox"/> self-punishing 217	<input type="checkbox"/> steady 247	<input type="checkbox"/> undependable 277
<input type="checkbox"/> nervous 158	<input type="checkbox"/> quarrelsome 188	<input type="checkbox"/> self-seeking 218	<input type="checkbox"/> stern 248	<input type="checkbox"/> understanding 278
<input type="checkbox"/> noisy 159	<input type="checkbox"/> queer 189	<input type="checkbox"/> selfish 219	<input type="checkbox"/> stingy 249	<input type="checkbox"/> unemotional 279
<input type="checkbox"/> obliging 160	<input type="checkbox"/> quick 190	<input type="checkbox"/> sensitive 220	<input type="checkbox"/> stolid 250	<input type="checkbox"/> unexcitable 280
<input type="checkbox"/> obnoxious 161	<input type="checkbox"/> quiet 191	<input type="checkbox"/> sentimental 221	<input type="checkbox"/> strong 251	<input type="checkbox"/> unfriendly 281
<input type="checkbox"/> opinionated 162	<input type="checkbox"/> quitting 192	<input type="checkbox"/> serious 222	<input type="checkbox"/> stubborn 252	<input type="checkbox"/> uninhibited 282
<input type="checkbox"/> opportunistic 163	<input type="checkbox"/> rational 193	<input type="checkbox"/> severe 223	<input type="checkbox"/> submissive 253	<input type="checkbox"/> unintelligent 283
<input type="checkbox"/> optimistic 164	<input type="checkbox"/> rattlebrained 194	<input checked="" type="checkbox"/> sexy 224	<input type="checkbox"/> suggestible 254	<input type="checkbox"/> unkind 284
<input type="checkbox"/> organized 165	<input type="checkbox"/> realistic 195	<input type="checkbox"/> shallow 225	<input type="checkbox"/> sulky 255	<input type="checkbox"/> unrealistic 285

<input checked="" type="checkbox"/> original 166	<input type="checkbox"/> reasonable 196	<input type="checkbox"/> sharp-witted 226	<input type="checkbox"/> superstitious 256	<input type="checkbox"/> unscrupulous 286
<input type="checkbox"/> outgoing 167	<input type="checkbox"/> rebellious 197	<input type="checkbox"/> shiftless 227	<input type="checkbox"/> suspicious 257	<input type="checkbox"/> unselfish 287
<input type="checkbox"/> outspoken 168	<input type="checkbox"/> reckless 198	<input type="checkbox"/> show-off 228	<input type="checkbox"/> sympathetic 258	<input type="checkbox"/> unstable 288
<input type="checkbox"/> painstaking 169	<input checked="" type="checkbox"/> reflective 199	<input type="checkbox"/> shrewd 229	<input type="checkbox"/> tactful 259	<input type="checkbox"/> vindictive 289
<input type="checkbox"/> patient 170	<input type="checkbox"/> relaxed 200	<input type="checkbox"/> shy 230	<input type="checkbox"/> tactless 260	<input type="checkbox"/> versatile 290
<input type="checkbox"/> peaceable 171	<input type="checkbox"/> reliable 201	<input type="checkbox"/> silent 231	<input type="checkbox"/> talkative 261	<input type="checkbox"/> warm 291
<input type="checkbox"/> peculiar 172	<input type="checkbox"/> resentful 202	<input type="checkbox"/> simple 232	<input type="checkbox"/> temperamental 262	<input type="checkbox"/> wary 292
<input type="checkbox"/> persevering 173	<input type="checkbox"/> reserved 203	<input type="checkbox"/> sincere 233	<input type="checkbox"/> tense 263	<input type="checkbox"/> weak 293
<input type="checkbox"/> persistent 174	<input checked="" type="checkbox"/> resourceful 204	<input type="checkbox"/> slipshod 234	<input type="checkbox"/> thankless 264	<input type="checkbox"/> whiny 294
<input type="checkbox"/> pessimistic 175	<input type="checkbox"/> responsible 205	<input type="checkbox"/> slow 235	<input type="checkbox"/> thorough 265	<input type="checkbox"/> wholesome 295
<input type="checkbox"/> planful 176	<input type="checkbox"/> restless 206	<input type="checkbox"/> sly 236	<input type="checkbox"/> thoughtful 266	<input type="checkbox"/> wise 296
<input type="checkbox"/> pleasant 177	<input type="checkbox"/> retiring 207	<input type="checkbox"/> smug 237	<input type="checkbox"/> thrifty 267	<input type="checkbox"/> withdrawn 297
<input type="checkbox"/> pleasure-seeking 178	<input type="checkbox"/> rigid 208	<input checked="" type="checkbox"/> snobbish 238	<input type="checkbox"/> timid 268	<input type="checkbox"/> witty 298
<input type="checkbox"/> poised 179	<input type="checkbox"/> robust 209	<input type="checkbox"/> sociable 239	<input type="checkbox"/> tolerant 269	<input type="checkbox"/> worrying 299
<input type="checkbox"/> polished 180	<input type="checkbox"/> rude 210	<input type="checkbox"/> soft-hearted 240	<input type="checkbox"/> touchy 270	<input type="checkbox"/> zany 300

TABLE VI.2 *Adjectives Checked as Self-Descriptive by 80% or More of One Sample but by Less Than 80% of Another*

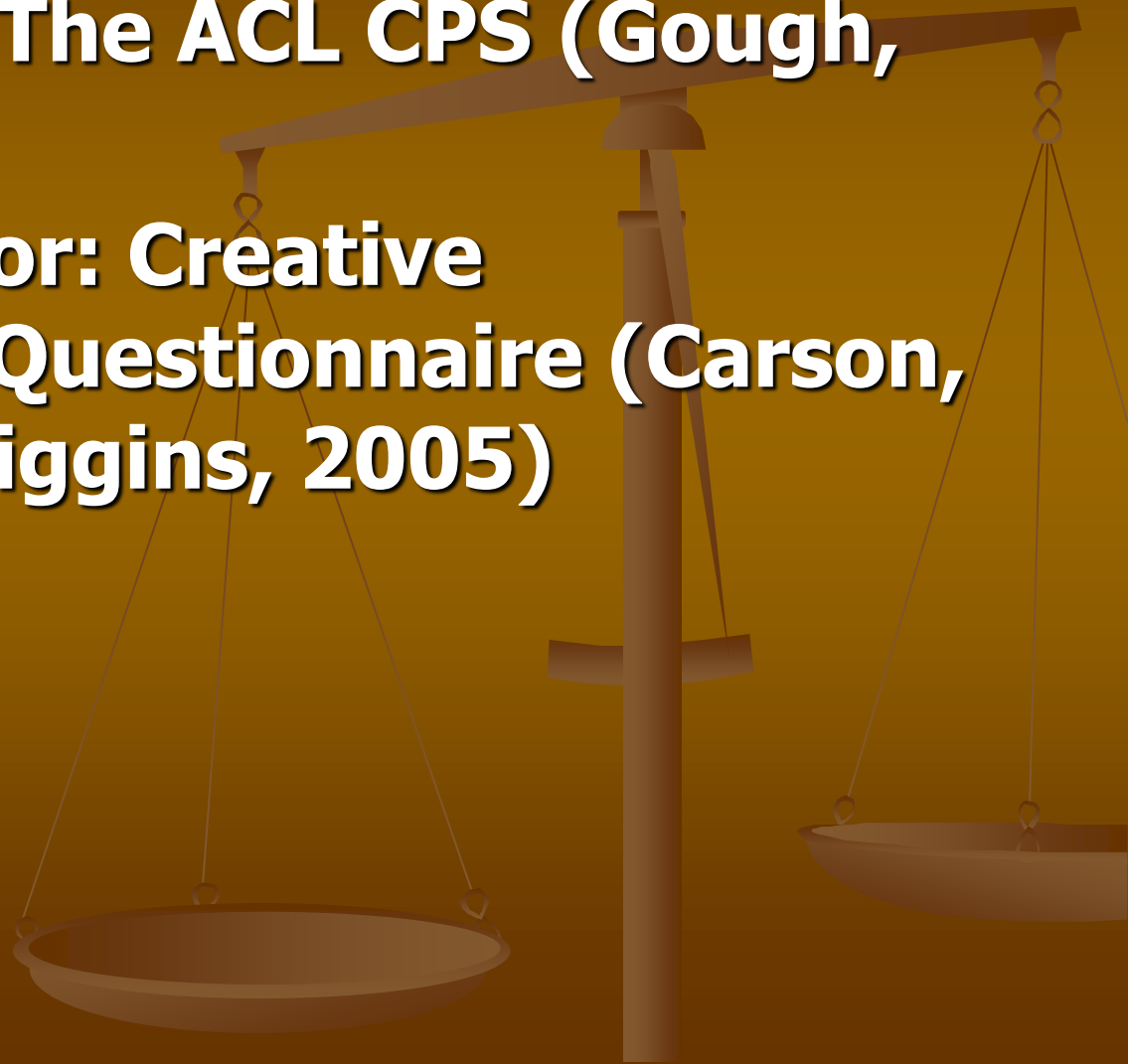
Checked by $\geq 80\%$ of I, but $< 80\%$ of III	Checked by $\geq 80\%$ of I, but $< 80\%$ of II	Checked by $\geq 80\%$ of II, but $< 80\%$ of I	Checked by $\geq 80\%$ of III, but $< 80\%$ of I
*inventive	*inventive	†responsible	†responsible
*determined	*determined	†sincere	†sincere
*independent	*independent	†reliable	†reliable
*individualistic	*individualistic	†dependable	†dependable
*enthusiastic	*enthusiastic	†clear-thinking	†clear-thinking
*industrious	*industrious	†tolerant	†tolerant
artistic	adaptable	†understanding	†understanding
progressive	interests wide	forgiving	peaceable
appreciative		kind	good-natured
		sensitive	moderate
		rational	steady
		alert	practical
			logical

*Checked by $\geq 80\%$ of I, but $< 80\%$ of II and III

†Checked by $\geq 80\%$ of II and III, but $< 80\%$ of I

Medium-C CREATIVITY – TRANSITIONAL LEVEL

- **Self-concept: The ACL CPS (Gough, 1979)**
- **Actual behavior: Creative Achievement Questionnaire (Carson, Peterson, & Higgins, 2005)**



Creative Achievement Questionnaire
Shelley Carson
Harvard University

I. Place a check mark beside the areas in which you feel you have more talent, ability, or training than the average person.

- ☐ visual arts (painting, sculpture)
- ☐ music
- ☐ dance
- ☐ individual sports (tennis, golf)
- ☐ team sports
- ☐ architectural design
- ☐ entrepreneurial ventures
- ☐ creative writing
- ☐ humor
- ☐ inventions
- ☐ scientific inquiry
- ☐ theater and film
- ☐ culinary arts

II. *Place a check mark beside sentences that apply to you. Next to sentences with an asterisk (*), write the number of times this sentence applies to you.*

A. Visual Arts (painting, sculpture)

- __0. I have no training or recognized talent in this area. (Skip to Music).
- __1. I have taken lessons in this area.
- __2. People have commented on my talent in this area.
- __3. I have won a prize or prizes at a juried art show.
- __4. I have had a showing of my work in a gallery.
- __5. I have sold a piece of my work.
- __6. My work has been critiqued in local publications.
- * __7. My work has been critiqued in national publications.

H. Scientific Discovery

- __0. I do not have training or recognized ability in this field (Skip to Theater
- __1. I often think about ways that scientific problems could be solved.
- __2. I have won a prize at a science fair or other local competition.
- __3. I have received a scholarship based on my work in science or medicine.
- __4. I have been author or coauthor of a study published in a scientific journal.
- * __5. I have won a national prize in the field of science or medicine.
- * __6. I have received a grant to pursue my work in science or medicine.
- __7. My work has been cited by other scientists in national publications.

I. Theater and Film

- ☐ 0. I do not have training or recognized ability in this field.
- ☐ 1. I have performed in theater or film.
- ☐ 2. My acting abilities have been recognized in a local publication.
- ☐ 3. I have directed or produced a theater or film production.
- ☐ 4. I have won an award or prize for acting in theater or film.
- ☐ 5. I have been paid to act in theater or film.
- ☐ 6. I have been paid to direct a theater or film production.
- * ☐ 7. My theatrical work has been recognized in a national publication.

Scoring of the Creative Achievement Questionnaire

- 1 Each checkmarked item receives the number of points represented by the question number adjacent to the checkmark.
- 2 If an item is marked by an asterisk, multiply the number of times the item has been achieved by the number of the question to determine points for that item.
- 3 Sum the total number of points within each domain to determine the domain score.
- 4 Sum all ten domain scores to determine the total CAQ score.

Table 3. *Correlations of the CAQ With Other Creativity Measures*

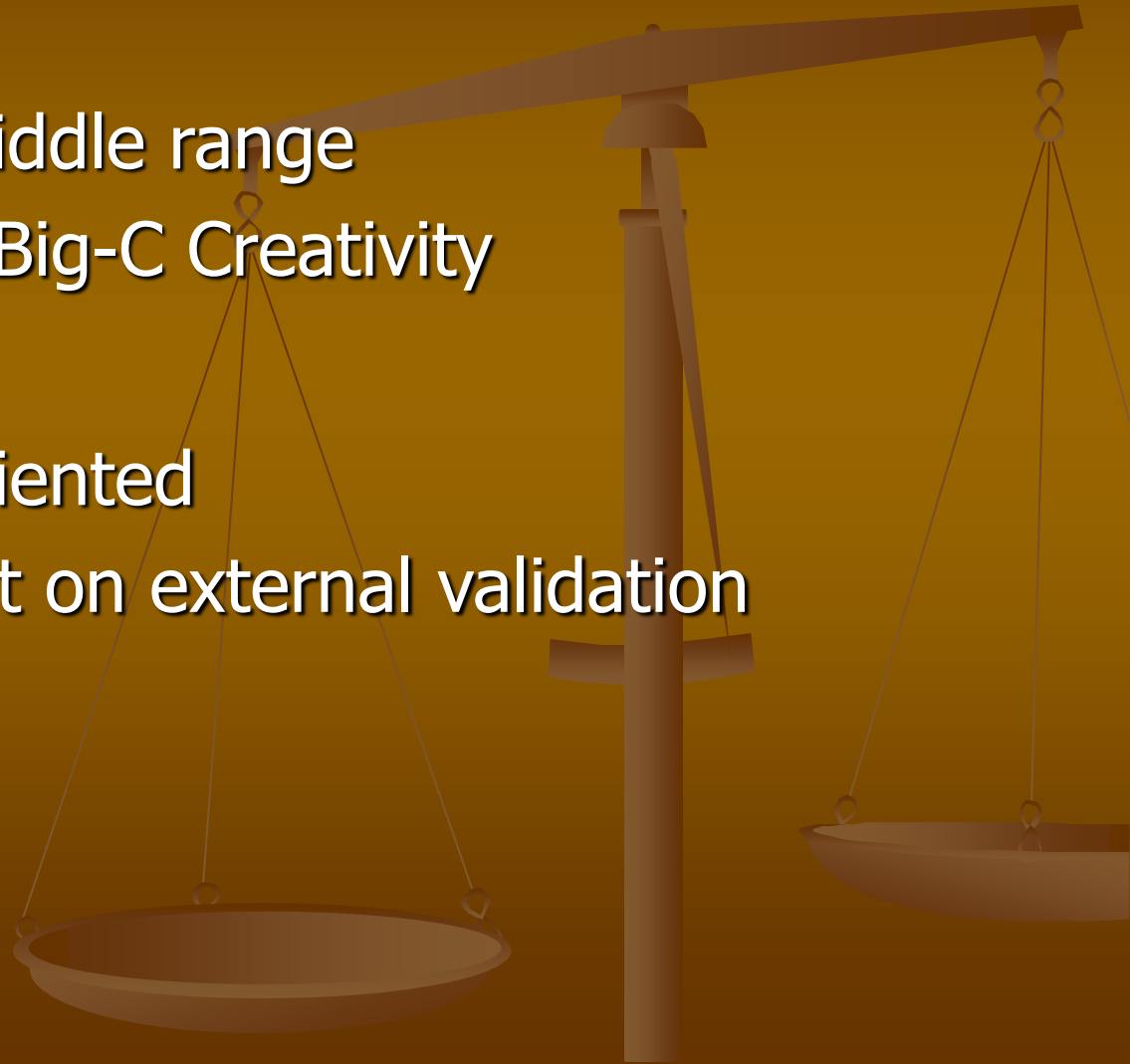
	CPS	Openness	Intellect	Diverg	Fluency	Orig	Flexibility
Openness	.42***						
Intellect	.51***	.37**					
Diverg	.29*	.34*	.39***				
Fluency	.10	.20	.31**	.86***			
Orig	.32**	.30**	.36**	.86***	.59***		
Flexibility	.34**	.37**	.35**	.87***	.62***	.63***	
CAQ	.33**	.33**	.51***	.47***	.38***	.46***	.37***

Note. CPS = Creative Personality Scale, Diverg = Total Divergent Thinking Score, Orig = Originality.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Medium-C CREATIVITY: Evaluation

- Advantage
 - Designed for middle range
 - Links little-c to Big-C Creativity
- Disadvantage
 - Less process oriented
 - More contingent on external validation



Big-C Creativity Measurement

- Expert surveys (e.g., Farnsworth, 1969)



Table 3.2 *All-time Eminence Rankings of Classical Composers*

1. J. S. Bach	26. Machaut	50.5 Fauré	77. Praetorius
2. Beethoven	27. Sc'hütz	52. Dowland	77. Borodin
3. Mozart	28. Liszt	53. C. P. E. Bach	77. Gounod
4. J. Haydn	29. Mussorsky	54. Rimsky-Korsakov	79. M. Haydn
5. Brahms	30. Corelli	55. Perotinus	80.5 Sousa
6. Handel	31. D. Scarlatti	56. Wolf	80.5 Sullivan
7. Debussy	32. Gabrielli	57. Bartók	82.5 Bellini
8. Schubert	33. Couperin	58. Grieg	82.5 Janáček
9. Wagner	34. Gluck	59. Weber	85. Donizetti
10. Chopin	35. Puccini	60. Gibbons	85. Webern
11. Monteverdi	36. Franck	61. Sweelinck	85. Willaert
12. Palestrina	37. Dvořák	62. Schoenberg	87. Offenbach
13. Verdi	38. Buxtehude	63. J. Strauss, Jr.	88.5 Ravel
14. Schumann	39. Bruckner	64. Saint-Saëns	88.5 Delius
15. des Pres	40. Sibelius	65.5 Telemann	91. Elgar
16. de Lassus	41. Rameau	65.5 Lulli	91. Hindemith
17.5 Purcell	42. Frescobaldi	67. Landino	91. Satie
17.5 Berlioz	43. Okeghem	68. MacDowell	93.5 Cherubini
19. R. Strauss	44. Stravinsky	69. J. C. Bach	93.5 Foster
20. Mendelssohn	45. A. Scarlatti	70. Leoninus	95. de Rore
21. Tchaikovsky	46. Dunstable	71. A. Gabrieli	96.5 Boccherini
22. Vivaldi	47. Bizet	72.5 Carissimi	96.5 Franco of Cologne
23. Mahler	48. Gesualdo	72.5 Pergolesi	98.5 Clementi
24. Byrd	49. Rossini	74. Marenzio	98.5 Tartini
25. Dufay	50.5 de Victoria	75. Smetana	(The next 4 are tied)

Note. Adapted from Farnsworth (1969, 228). Copyright 1966 by Music Educators National Conference. Adapted by permission.

Big-C Creativity Measurement

- Expert surveys
- Archival sources



Big-C Creativity Measurement: Archives

- **Examples**

- **Performance frequencies (e.g., Moles, 1958)**

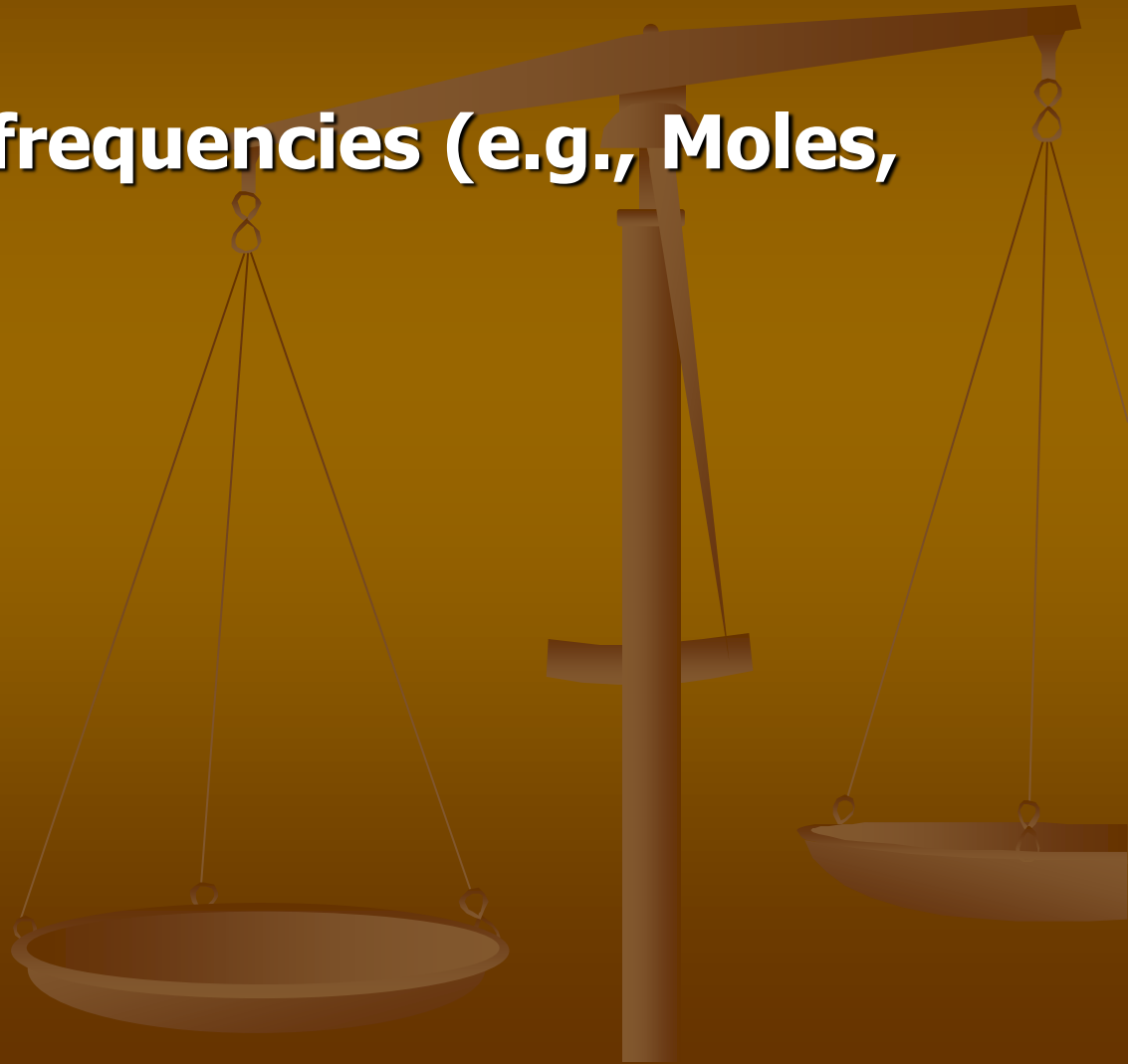


TABLE I: RELATIVE FREQUENCIES OF OCCURRENCE OF
COMPOSER'S WORKS IN MUSIC PERFORMANCES

No.	Composer	p_c	No.	Composer	p_c
		<i>per cent</i>			<i>per cent</i>
1	Mozart	6.1	40	Couperin	0.65
2	Beethoven	5.9	41	Mahler	0.6
3	Bach	5.9	42	Rameau	0.6
4	Wagner	4.2	43	St. Saens	0.6
5	Brahms	4.1	44	Massenet	0.6
6	Schubert	3.6	45	Donizetti	0.55
7	Handel	2.8	46	De Falla	0.45
8	Tchaikovsky	2.8	47	Scriabin	0.45
9	Verdi	2.5	48	Meyerbeer	0.45
10	Haydn	2.3	49	Gluck	0.45
11	Schumann	2.1	50	Paganini	0.45
12	Chopin	2.1	51	Milhaud	0.45
13	Liszt	1.75	52	Bartok	0.4
14	Mendelssohn	1.75	53	Borodin	0.4
15	Debussy	1.7	54	Bruckner	0.4
16	Wolf	1.65	55	Vivaldi	0.4
17	Sibelius	1.6	56	Elgar	0.4
18	R. Strauss	1.4	57	Mascagni	0.4
19	Moussorgsky	1.3	58	Offenbach	0.35
20	Dvořák	1.3	59	Palestrina	0.35
21	Stravinsky	1.3	60	Monteverdi	0.35
22	Fauré	1.2	61	Shostakovitch	0.35
23	J. Strauss	1.2	62	Schönberg	0.35
24	Smetana	1.1	63	Walton	0.35
25	Rachmaninoff	1.0	64	Honegger	0.35
26	Purcell	1.0	65	Albéniz	0.3
27	Puccini	1.0	66	Buxtehude	0.3
28	Grieg	0.95	67	Chabrier	0.3
29	Weber	0.95	68	Delius	0.3
30	Prokofiev	0.95	69	Gershwin	0.3
31	Berlioz	0.95	70	Lully	0.3
32	Rossini	0.95	71	Suppe	0.3
33	Ravel	0.95	72	A. Thomas	0.3
34	Rimski-Korsakov	0.85	73	Bloch	0.25
35	D. Scarlatti	0.85	74	Delibes	0.25
36	Franck	0.7	75	Glazounov	0.25
37	Gounod	0.7	76	Glinka	0.25
38	Vaughan Williams	0.7	77	Granados	0.25
39	Bizet	0.65	78	Gretchaninoff	0.25
			79	Khatchaturian	0.25

No.	Composer	p_c
		<i>per cent</i>
1	Mozart	6.1
2	Beethoven	5.9
3	Bach	5.9
4	Wagner	4.2
5	Brahms	4.1
6	Schubert	3.6
7	Handel	2.8
8	Tchaikovsky	2.8
9	Verdi	2.5
10	Haydn	2.3
11	Schumann	2.1
12	Chopin	2.1
13	Liszt	1.75
14	Mendelssohn	1.75
15	Debussy	1.7
16	Wolf	1.65

No.	Composer	p_c	No.	Composer	p_c
		<i>per cent</i>			<i>per cent</i>
80	Hindemith	0.25	91	J. C. Bach	0.2
81	Lalo	0.25	92	P. E. Bach	0.2
82	Leoncavallo	0.25	93	A. Berg	0.2
83	Josquin des Pres	0.25	94	Bruch	0.2
84	Poulenc	0.25	95	Britten	0.2
85	Orlandus Lassus	0.25	96	Corelli	0.2
86	Boccherini	0.25	97	Busoni	0.2
87	Bellini	0.25	98	Dukas	0.2
88	Telemann	0.2	99	Ponchielli	0.2
89	Pergolesi	0.2	100	Tartini	0.2
90	Enesco	0.2	150	Others (1 work each)	6.0

————— One-half of the musical works performed

..... Three-quarters of the musical works performed

Big-C Creativity Measurement: Archives

■ Examples

- Performance frequencies
- Citation indicators (e.g., Endler, Rushton, & Roediger, 1978)

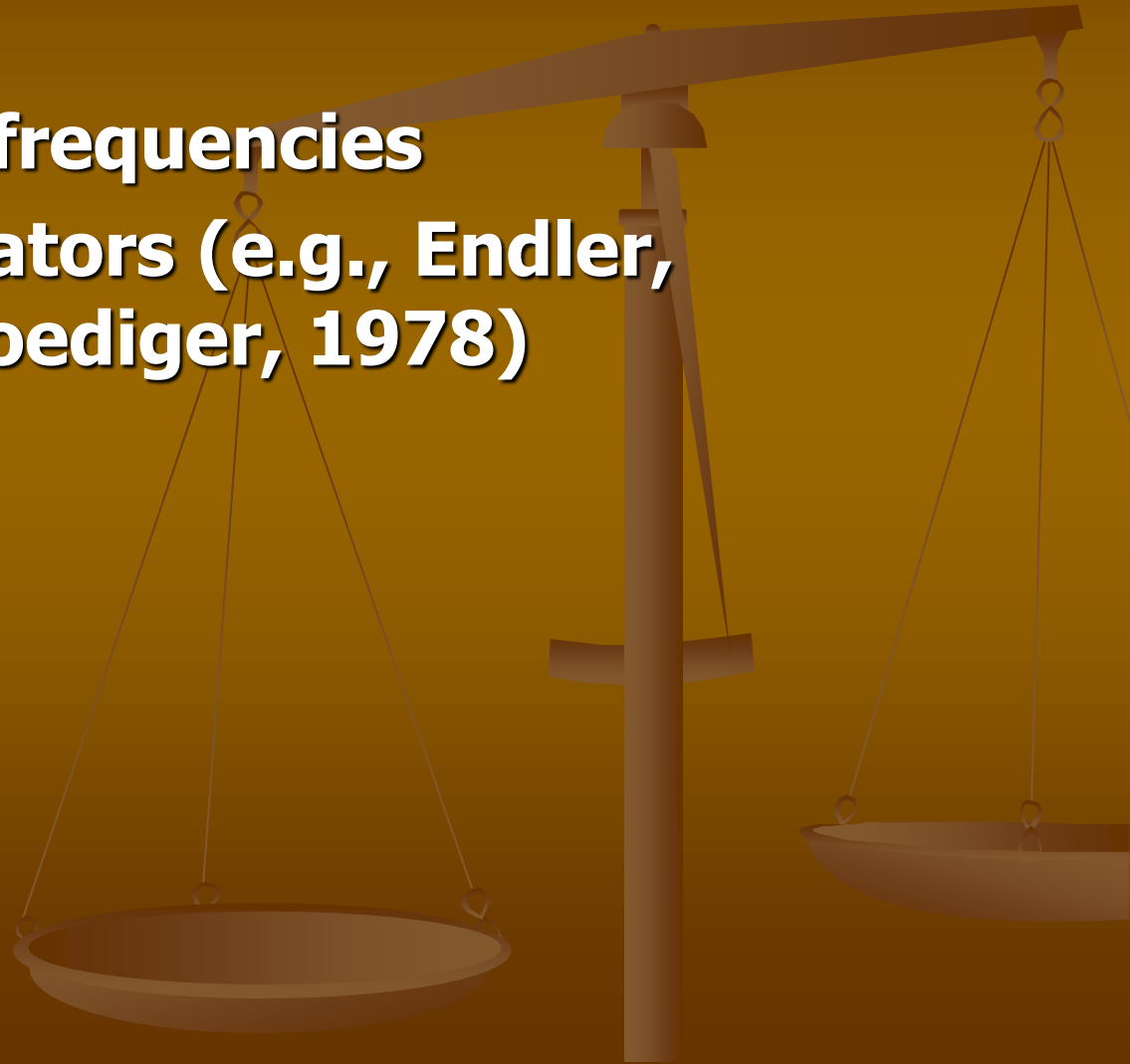


TABLE 2

*The 100th Most-Cited Psychologists in the 1975 Social Science Citation Index
and Their Institutional Affiliations*

Rank	Psychologist	Affiliation	Number citation
1	S. Freud	Deceased	1,426
2	J. Piaget	University of Geneva, Switzerland	1,071
3	B. J. Winer	Purdue University	749
4	A. Bandura	Stanford University	650
5	H. J. Eysenck	University of London, United Kingdom	537
6	D. T. Campbell	Northwestern University	515
7	E. Goffman	University of Pennsylvania	514
8	B. F. Skinner	Harvard University	501
9	E. H. Erikson	Harvard University	494
10	S. Siegel	Deceased (formerly at Pennsylvania State University)	466
11	R. B. Cattell	University of Illinois ^b	428
12	J. P. Guilford	University of Southern California	392
13	C. R. Rogers	Center for Studies of the Person, La Jolla, California	387
14	J. B. Rotter	University of Connecticut	386
15	A. H. Maslow	Deceased (formerly at Brandeis University)	367
16	G. A. Miller	Rockefeller University	365
17	L. J. Cronbach	Stanford University	363
18	J. S. Bruner	Oxford University, United Kingdom	362
19	C. E. Osgood	University of Illinois	356
20	L. Festinger	New School for Social Research	350
21	D. E. Berlyne	Deceased (formerly at the University of Toronto, Canada)	349
22	A. R. Jensen	University of California, Berkeley	338
23	J. Kagan	Harvard University	337
24	S. S. Stevens	Deceased (formerly at Harvard University)	328
25	A. U. Paivio	University of Western Ontario, Canada	315
26	H. A. Witkin	Educational Testing Service, Princeton, New Jersey	314
27	R. Brown	Harvard University	311
28	M. Rokeach	Washington State University	306
29	L. Kohlberg	Harvard University	300
30	M. Rutter	University of London, United Kingdom	296
31	A. Campbell	University of Michigan	292
32	R. R. Carkhuff	American International College	291
33	D. Byrne	Purdue University	290
34	D. C. McClelland	Harvard University	288
35	H. A. Simon	Carnegie-Mellon University	286
36	C. G. Jung	Deceased	274
37	R. Rosenthal	Harvard University	273
38	H. H. Kelley	University of California, Los Angeles	269
39	E. E. Jones	Duke University ^a	263
40	J. Wolpe	Temple University	262
41	R. N. Shepard	Stanford University	257
42	W. Mischel	Stanford University	252
43	E. Tulving	University of Toronto, Canada	251
44	J. Bowlby	Tavistock Clinic, London, United Kingdom	250
45	D. E. Broadbent	Oxford University, United Kingdom	242
46	A. L. Edwards	University of Washington	241
47	M. J. Rosenberg	University of Chicago	237
48	M. Deutsch	Columbia University	225
49	K. Lewin	Deceased (formerly at the Massachusetts Institute of Technology)	222
51	G. W. Allport	Deceased (formerly at Harvard University)	221
51	N. H. Anderson	University of California, San Diego	221
51	B. J. Underwood	Northwestern University	221
53	Erich Fromm	Retired (formerly at the National University of Mexico)	220
54	H. G. Gough	University of California, Berkeley	217
55	W. L. Hays	University of Georgia	214

TABLE 2

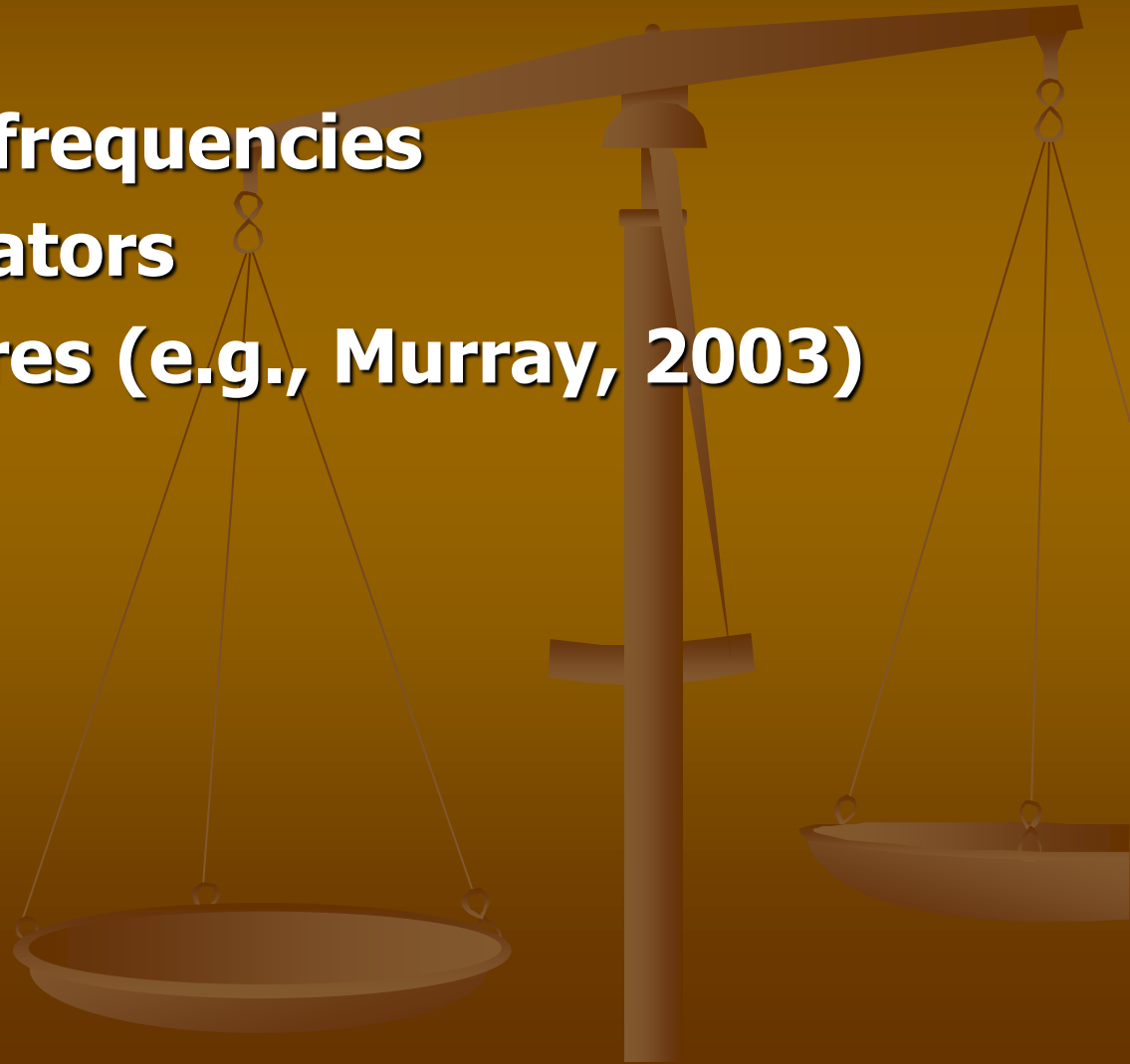
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and Their Institutional Affiliations*

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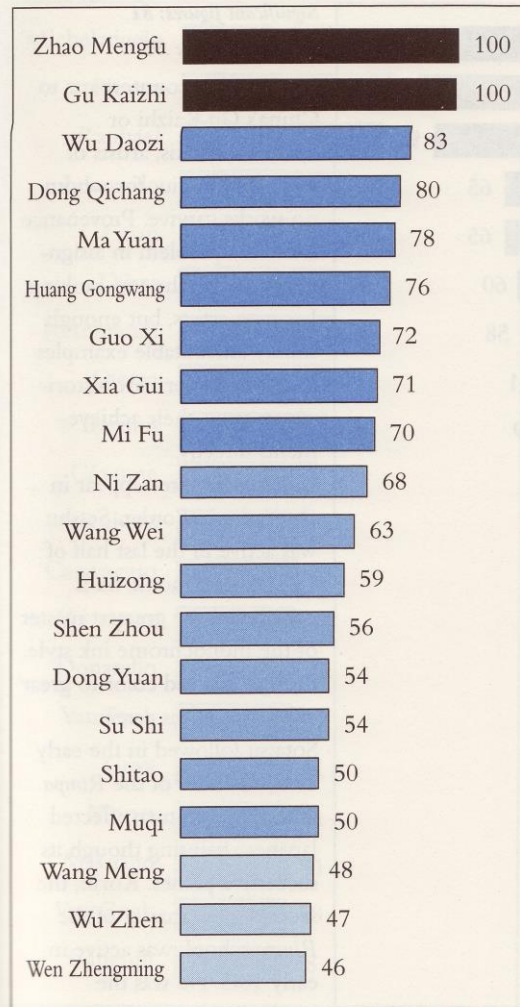
Big-C Creativity Measurement: Archives

■ Examples

- Performance frequencies
- Citation indicators
- Space measures (e.g., Murray, 2003)



CHINESE PAINTING



Significant figures: 111

Index reliability: .91

Only painting had a consistent tradition of named artists in China. The inventory thus ignores distinguished Chinese traditions in sculpture and ceramics.

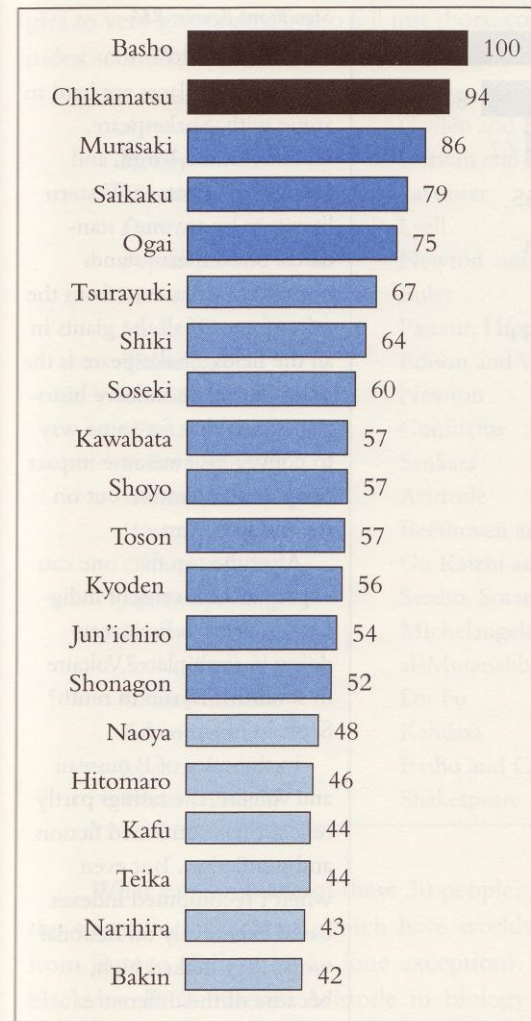
Gu Kaizhi's index score was 98.9, but he was ranked above Zhao Mengfu in a majority of the sources; hence the tie. But interpreting these scores is problematic. Gu Kaizhi (fl. 4C) and the third-ranked artist, Wu Daoxi (fl. 8C), have no surviving works of certain authenticity. The early critics after Gu Kaizhi's death differed in their evaluations of his work, with some of them unimpressed. He did not attain his semi-legendary reputation until the Tang Dynasty, four hundred years later—as if Michelangelo had not been recognized as more than merely very good until 20C.

This reliance on secondary

accounts leads to a large degree of uncertainty about who belongs where.

Significant figures are identified throughout the range from -800 to 1950, but index scores are computed only for artists through the end of 18C, as the Qing dynasty spiraled downhill. As in India, important creative cultural activity effectively shut down during an interval between the collapse of the traditional civilization and its reformulation in 20C, and many of the sources plainly treated modern artists with separate criteria.

JAPANESE LITERATURE



Significant figures: 85

Index reliability: .86

The Japanese literature inventory is characterized by a large number of writers who receive substantial attention rather than by a few dominant figures. The variety in the first four rankings is of interest: Basho (1644–1694), by consensus Japan's greatest poet and the master of *haiku*; Chikamatsu (1653–1725), by consensus Japan's greatest dramatist, writing mostly for the *bunraku* (puppet theatre); Murasaki Shikibu (c. 978–1014), author of *The Tale of Genji*, by consensus Japan's greatest work of literature (and the highest ranking woman in any of the inventories); and Saikaku (1642–1693), writer of brilliant erotic tales and famous for his speed-writing of *haikai*, humorous linked-verse poems that were the source of *haiku*. He is said to have written 23,500 *haikai* in one twenty-four hour period, a rate of

more than 16 per minute (a story that is hard to believe).

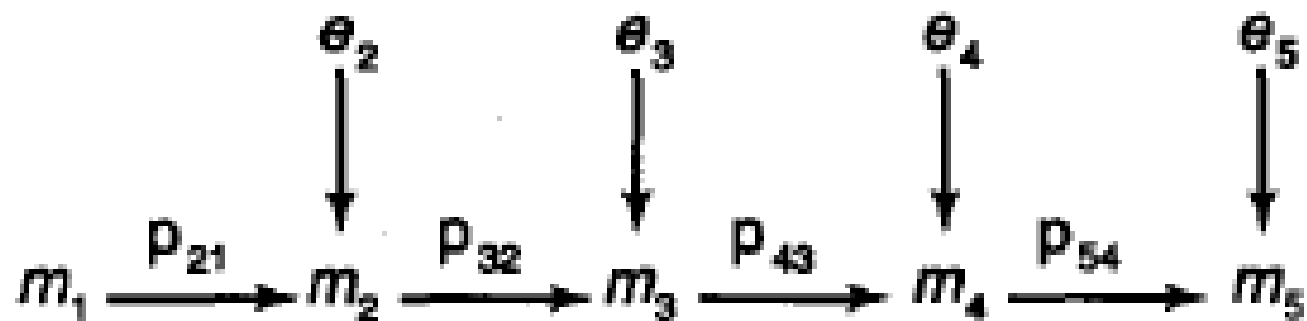
Unlike China and India, Japan did not experience a substantial gap between the end of the old order and the emergence of the new, a transition which in Japan took just a few decades at the end of 19C. Both the Japanese art and literature inventories continue from the earliest figures through to 1950.

Big-C Creativity Measurement: Evaluation

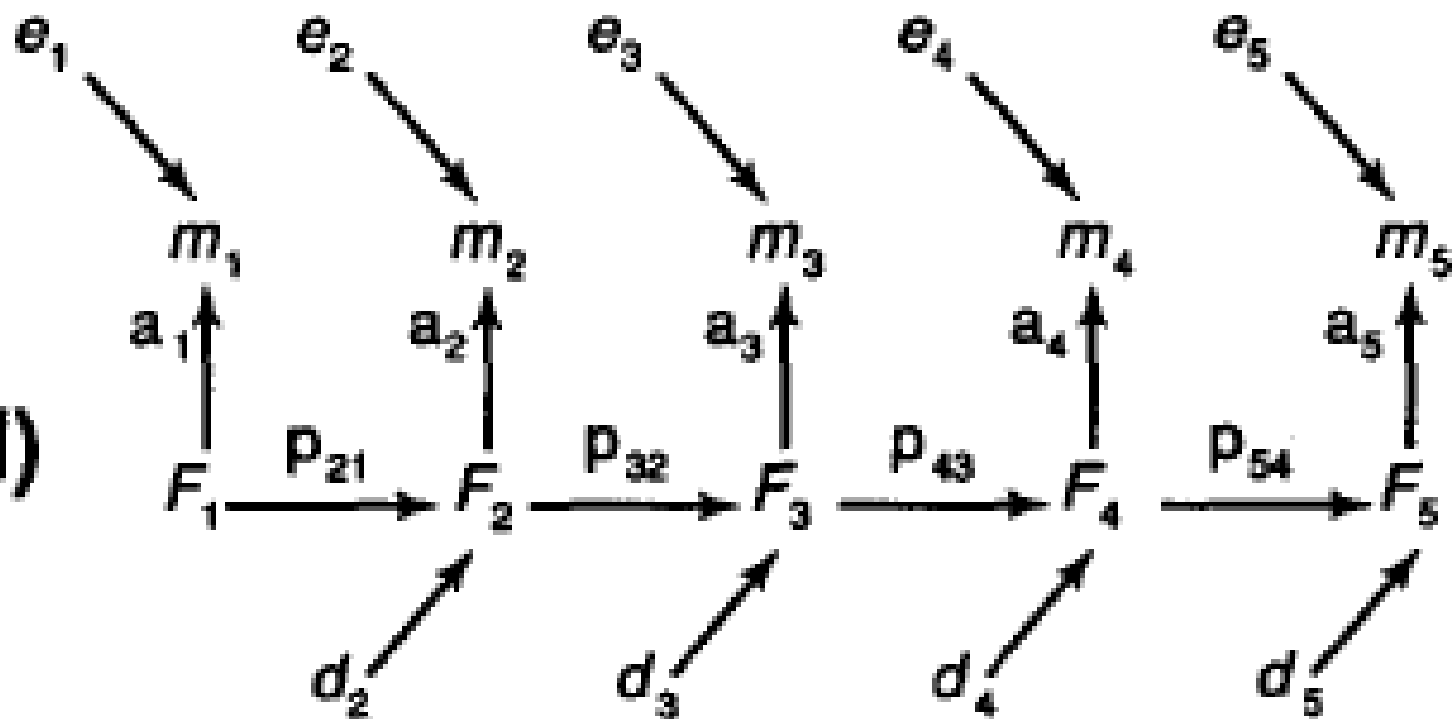
- Advantages
 - Reliability
 - Validity
 - Stability

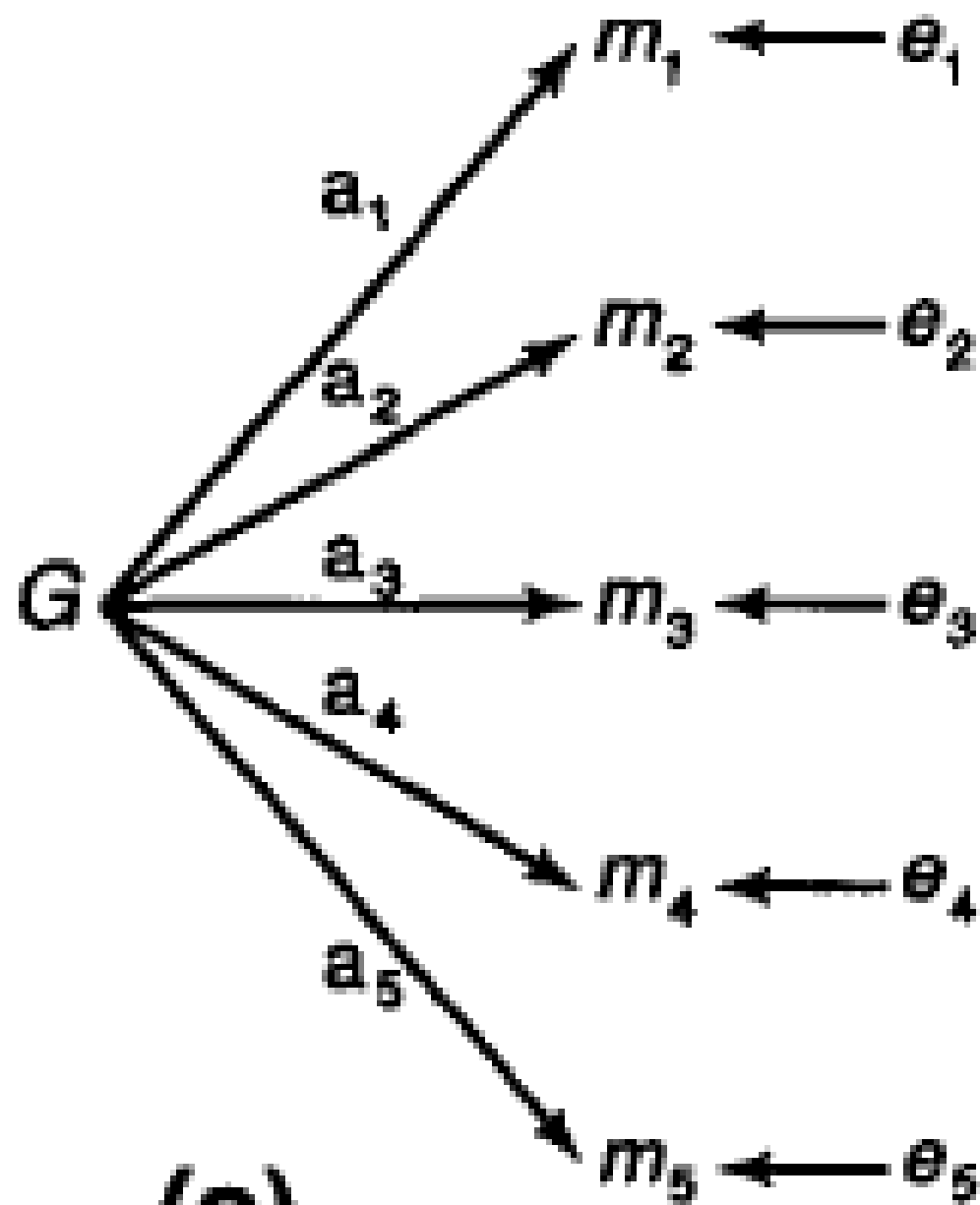


(c)



(d)





(a)

Big-C Creativity Measurement: Evaluation

■ Advantages

- Reliability

- Validity

- Stability

- Applicability

 - Diversity of achievement domains

 - Variety of analytical units: Products as well as creators



Table 1

*Correspondence Between Contemporary
and Current Impact Measures*

Measure	Zero-order correlations (<i>r</i>)		Regression coefficient (β)	
	Productions	Languages	Productions	Languages
Recordings	.48	.37	.59	.48
Videos	.46	.35	.52	.42
Performances	.56	.46	.57	.47
Dictionaries	.42	.31	.51	.40
Histories	.37	.24	.53	.38
Rankings	.31	.21	.43	.33
Global success	.46	.35	.56	.44

Note. All zero-order correlations and standardized partial regression coefficients are statistically significant at the $p < .001$ level or better. The regression coefficients have the effects of performance date and libretto language partialled out. $N = 496$.

Table 1. Correlations of Oscar and Razzie Awards with Critic Evaluations

Category	Movie guide		Metacritic	
	Oscars	Razzies	Oscars	Razzies
Picture	.49***	-.44***	.38***	-.41***
Director	.48***	-.42***	.40***	-.43***
Male lead	.38***	-.43***	.32***	-.50***
Female lead	.32***	-.40***	.30***	-.36***
Male supporting	.38***	-.31***	.32***	-.31***
Female supporting	.34***	-.29***	.32***	-.28***
Screenplay	.63***	-.42***	.56***	-.42***
Song	.12**	-.25***	.21***	-.09

Note: The correlations involving the metacritic ratings are based on $n = 183$.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Big-C Creativity Measurement: Evaluation

- Disadvantages
 - Upper tail
 - Posthumous assessment
 - Sociocultural content



Big Questions

- How can the three levels be connected?
- Can we devise a combined measurement strategy that can assess creativity across the full range?
- If so, what form will this assessment take?

