Determinants of Excellent Kindergarten Learning of Excellent Pupils

Symposium: Cognitive Abilities and Instructional Designs

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Excellence or Underachievement?

Gifted pupils:
• Cognitively excellent pupils?
• Underachievement: 30 to 40% (Onderwijsraad, 2007)
• Boredom, disruptive behaviour

Research questions:
1. What factors are related to underachievement and behavioral problems of gifted pupils?
2. How can these problems be prevented?
Differentiated Model of Giftedness and Talent (Gagné, 2010)

CHANCE (C)

NATURAL ABILITIES
GIFTS (G) = top 10%

DOMAINS
- INTELLECTUAL (GI)
  General intelligence ('g' factor)
  Fluid, crystallized reasoning
  Verbal, numerical, spatial (RADE) Memory: procedural, declarative
- CREATIVE (GC)
  Creativeness (problem-solving)
  Imagination, originality (arts)
  Carroll's 'retrieval fluency'
- SOCIAL (GS)
  Perceptiveness (manipulation)
  Interacting, social ease, tact
  Influence, persuasion, eloquence, leadership, courting, parenting
- PERCEPTUAL (GP)
  Vision, hearing, small, taste, touch, proprioception
- PHYSICAL
  Power, speed, strength, endurance
- MOTOR CONTROL (GR)
  Speed (reflexes), agility, coordination, balance

ENVIRONMENTAL (E)

- MILIEU (EM)
  Physical, cultural, social, familial
- INDIVIDUALS (EI)
  Parents, family, peers, teachers, mentors
- PROVISIONS (EP)
  Enrichment, curriculum, pedagogy (pacing)
  Administrative: grouping, acceleration

INTRAPERSONAL (I)

TRAITS
- PHYSICAL (IF)
  Appearance, handicap, health
- MENTAL (IP)
  Temperament, personality, resilience
  AWARENESS (IW)
  Self & others, strengths & weaknesses
- MOTIVATION (IM)
  Values, needs, interests, passions
- VOLTION (IV)
  Autonomy, effort, perseverance

DEVELOPMENTAL PROCESS (D)

ACTIVITIES (DA)
  Access
  Content
  Format

PROGRESS (DP)
  Stages
  Pace
  Turning points

INVESTMENT (DI)
  Time
  Money
  Energy

COMPETENCIES
TALENTS (T) = top 10%

FIELDS
- ACADEMIC (TC)
  Languages, maths, sciences, humanities, vocational
- TECHNICAL (TT)
  Transport, construction, crafts, manufacturing, agriculture
- SCIENCE & TECHNOLOGY (TI)
  Engineering, medical, social
- ARTS (TA)
  Creative, performing
  Applied: visual, written, spoken
- SOCIAL SERVICE (TP)
  Health, education, community
- ADMINISTRATION/SALES (TM)
  Management, marketing, protection, inspection
- BUSINESS OPERATIONS (TB)
  Records, financial, distribution
- GAMES (TG)
  Video & card, chess, puzzles
- SPORTS & ATHLETICS (TS)
Search terms:
Q1. (gifted or high-ability) and (underachievement or behavior problems)
Q2. (school or education) and (gifted or high-ability) and (achievement or behavior)

- Web of Science & PsychINFO: 712 articles
- 5 quality criteria
- Inter-rater agreement: 77%, weighted Kappa of .64
- Included: 114 articles
Results: Determinants

**Individual factors:**
- Achievement motivation
- Academic self-perceptions
- Social competence
- Pupil background

**Family factors:**
- Parental involvement

**School factors:**
- Identification cognitive abilities
- Differentiation in instruction, content and pace
- Teacher expertise
Results: Prevention

Interventions:
• Homogeneous classes
• Pull-out programs
• Acceleration
• Enrichment
• Ability grouping

But:
• Not aimed at prevention
• Adoptions in the curriculum
Discussion

Problems:
• Little empirical research, many definitions
• Grade/age lockstep (Gagné, 2011)

Early intervention important:
• Identification procedures
• Sufficient differentiation using ability grouping
• Expertise and policy on giftedness/excellence
Excellent Education

2 year intervention
• 41 kindergartens/elementary schools
• Screening 4-year olds by parents & teacher
• Differentiation: curriculum blocks
• Policy on giftedness/excellence

Hypothesis:
• Excellent Education will prevent underachievement and will result in better cognitive and social development of excellent pupils compared to traditional education
Thank you for your attention!

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