

ELN101: Intro to Bilingualism
Week 09: Bilingualism: An Asset or a Liability in the U.S.?

Tomonori Nagano <tnagano@lagcc.cuny.edu>

Education and Language Acquisition Dept.
LaGuardia Community College

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Announcements this week

- Assignment deadlines are always on Sundays
- Quiz 2 is due this week.
- Instructions for Paper 2 have been posted.
- Fall 2025 registration started.

Advantages of Bilingualism (Garcia, 2009) (1)

- Based on your personal experience and your interview with a bilingual person, do you believe bilingual ability in an urban setting is an advantage or a disadvantage? Write down three examples of each.



Advantages of Bilingualism (Garcia, 2009) (2)

Advantages of bilingualism

- Two major advantages in
  - Cognitive benefits
  - Social benefits
- A number of intervening factors
  - socio-economic status (SES)
  - (linguistic) dominance and power
  - ethnicity and race
  - nationality (nation-statehood)
  - gender
  - identity
  - age
  - linguistic threshold
  - linguistic hierarchy

Advantages of Bilingualism (Garcia, 2009) (3)

Cognitive benefits

- Metalinguistic awareness
  - The ability to treat language as an object of thought (e.g., words, sounds, and grammar)
  - *Which is more like* CAP*?* CAN *or* HAT*?*
  - *My brother is my mother.* (cf. *My brothers is my mother.*)
- Divergent thinking (creativity)
  - *Think of a paper clip and tell me all the things you could do with it.*
- Communicative sensitivity (reading between the lines)
- Ability to learn multiple languages

Advantages of Bilingualism (Garcia, 2009) (4)

Social benefits

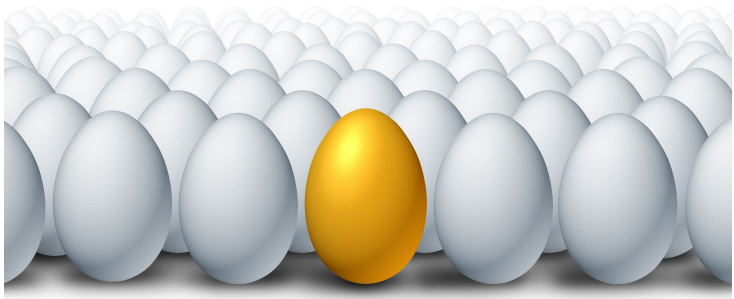
- Socioeconomic advantage (social mobility)
- Global and local interaction
  - Globalization
  - Less clear boundaries between local and global
- Acts of identities
- Cultural awareness (knowledge, feelings, behavior, and metacultural awareness)

Advantages of Bilingualism (Garcia, 2009) (5)

- However, there are a large number of intervening factors.
  - SES
    - Low-SES are less likely to benefit from bilingualism.
  - Linguistic dominance and power
    - Less-dominant to dominant bilinguals are less likely to benefit from bilingualism.
  - Ethnicity, race, and identity
  - Nationality (nation-statehood)
  - Gender
  - Linguistic threshold
  - Linguistic hierarchy

Advantages of Bilingualism (Garcia, 2009) (6)

- Do you agree or disagree with these cognitive/social advantages? If you do/don't, what is the evidence for your opinion?



(Dis)Advantages of Bilingualism (Bialystok, 2009) (1)

- Ellen Bialystok, a cognitive scientist at York University, discusses benefits of bilingualism. (https://youtu.be/3KFWc2hF2b4)



(Dis)Advantages of Bilingualism (Bialystok, 2009) (2)

Fundamental Question

- Is bilingualism good, bad or inconsequential to your brain and your cognition?
- What is cognition?
  - Learning
  - Memory
  - Language
  - Intelligence
  - Perception
  - Sensation
  - Logic
  - Reasoning
  - Classification
  - Attention
  - Planning
  - Problem Solving etc...
- How do we compare cognitive skills of different people (i.e., How do we know one is a better learner than the other? Intelligence Quotient Test?)

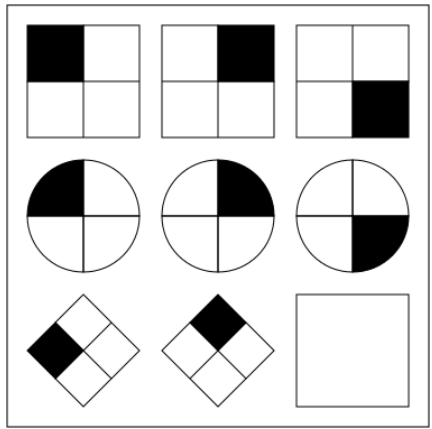
Intelligence Quotient (IQ) Test

- A series of standardized test designed to assess human intelligence.
- Scores are normally distributed with a mean of 100 and a standard deviation of 15
  - 68% of people are within IQ 85-115
  - 95% of people are within IQ 70-130
  - 99.73% of people are within IQ 55-145
- Some are verbal while others are nonverbal

- IQ tests were often employed for studies on cognitive consequences of bilingualism in the early 20th century

Intelligence Quotient (IQ) Test (2)

- Raven's Progressive Matrices (non-verbal)



Intelligence Quotient (IQ) Test (3)

- Wechsler Intelligence Scale (some are verbal)
  1. STORE is to EROTS as 4831 is to _____
  2. Which animal is least like the others?
     elephant, donkey, dog, horse, ostrich
  3. NATHAMNTA is an anagram of _____
  4. SEE, EYE, TEA, WHY represent _____

Early Studies on Benefits of Bilingualism (1)

- Saer (1923, 1924)
  - A 10-point difference in average IQ test scores between monolinguals and bilinguals
  - Saer (1923, 1924) concluded that monolingual children and adults are superior to bilingual peers

- Laurie (1890)

  If it were possible for a child to live in two languages at once equally well, so much the worse. His intellectual and spiritual growth would not thereby be doubled, but halved. Unity of mind and character would have great difficulty in asserting itself in such circumstances. (Laurie, 1890:15)

Early Studies on Benefits of Bilingualism (2)

- What do you think of Saer and Laurie's conclusions? If you disagree, what are the problems with their studies?



Early Studies on Benefits of Bilingualism (3)

- Saer (1923) revisited (Baker, 2017)

The research of D. J. Saer

D. J. Saer (1923), a headmaster at Aberystwyth in mid-Wales, researched on a large sample of 1,400 children aged 7 to 14 from rural and non-rural backgrounds. Such non-rural backgrounds comprise small towns and cities, which Saer (1923) termed urban areas. These are not urban areas in the modern sense. The 1916 Stanford–Binet Scale, plus tests taken from the 1911 Binet Scale and Cyril Burt's English version of the Binet Scale not in the 1916 Stanford–Binet Scale, were used to measure "intelligence". For Welsh language speakers, these tests were translated into Welsh. Results for four language groups were as follows:

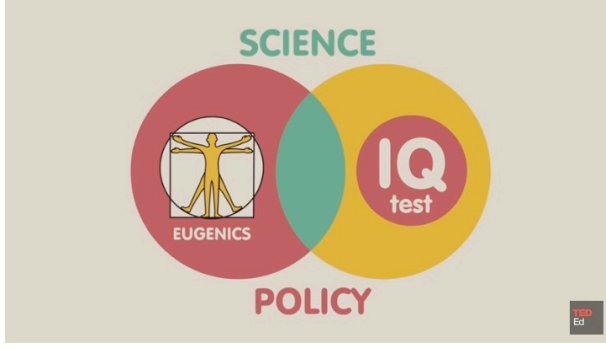
	Average IQ
Urban bilinguals	100
Urban monoglot English speakers	99
Rural bilinguals	86
Rural monoglot English speakers	96

Early Studies on Benefits of Bilingualism (4)

- Criticism of the early studies on bilingual disadvantages
  - Narrow view of cognition
    - Intelligence measured by the IQ tests
    - How about other cognitive skills such as memory, creativity, logic etc.?
  - No statistical generalizability
    - Can findings about children and adults in Wales, UK apply to other people?
  - Coarse classification of bilinguals
    - Balanced vs. dominant bilinguals
  - Extraneous factors
    - Does socioeconomic status matter?
    - Ethnicity, gender, family income, parents' educational background etc.

Early Studies on Benefits of Bilingualism (5)

- Watch "The dark history of IQ tests" (https://ed.ted.com/lessons/the-dark-history-of-iq-tests-stefan-c-dombrowski)



Recent Studies on Benefits of Bilingualism (1)

- Peal and Lambert (1962)
  - 364 10-year-old monolingual and bilingual (English-French) children in Montreal, Canada
  - All students are from the middle-class SES
  - All bilingual students are balanced bilinguals (fluent in both languages)
  - Various positive influence of bilingualism in cognition
    - Greater mental flexibility
    - Ability to think more abstractly and more independently of words
    - Superior ability of concept formation
    - Development of IQ
- Peal and Lambert's (1962) study marked a paradigm shift; subsequent studies also found various beneficial effects of bilingualism.

Recent Studies on Benefits of Bilingualism (2)

- Unlike intelligence (IQ), cognitive performance can be enhanced through experience/practice (Bialystok, 2009)
  - Video game players have enhanced visual selective attention (Feng, Spence & Pratt, 2007)
  - Architects have higher levels of visuo-spatial ability than non-architects (Salthouse & Mitchell, 1990)
  - Canadian postal workers have more highly developed pathways between letter and number representation systems than American postal workers (Polk & Farah, 1998)

Recent Studies on Benefits of Bilingualism (3)

- Unlike intelligence (IQ), cognitive performance can be enhanced through experience/practice
  - London taxi drivers have enlarged regions of the hippocampus, which is responsible for spatial navigation (Maguire et al., 2000)

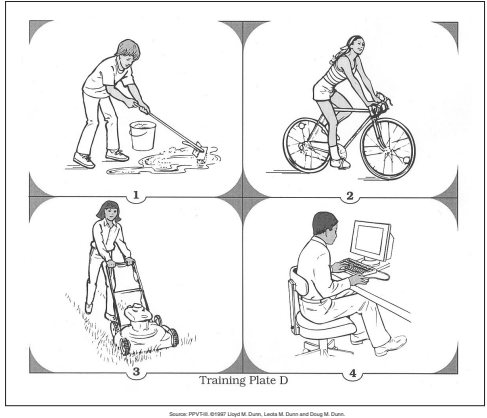


Recent Studies on Benefits of Bilingualism (4)

- Bilingual Disadvantages in Cognition
  - Bilinguals are slower in picture naming tasks (Roberts et al., 2002; Gollan et al., 2005; Kaushanskaya & Marian, 2007)
  - Bilinguals gain lower scores on verbal fluency tasks (Rosselli et al, 2000; Gollan et al., 2002; Portocarrero et al, 2007)
  - Bilinguals encounter more tip of the tongue (Gollan & Acenas, 2004)
  - Bilinguals perform worse in word identification in noise (Rogers et al, 2006)
  - Bilinguals have smaller vocabulary in each language (Oller & Eilers, 2002; Bialystok & Feng, 2009)
- Vocabulary size is a major problem
  - Vocabulary size is the core assessment for children's academic progress
  - Bialystok and Feng (2009)
    - Peabody Picture Vocabulary Test (PPVT)
    - 971 children between 5 and 9 years old
    - The average score for monolinguals is 105 whereas 95 for bilinguals
    - No difference was found between five- and nine-year-olds (the gap is persistent)

Recent Studies on Benefits of Bilingualism (5)

- Peabody Picture Vocabulary Test (PPVT-III)



Recent Studies on Benefits of Bilingualism (6)

- Why bilinguals perform worse on these tasks (speculation only)?
  - Fluent bilinguals activate both languages when they speak one of their languages (cf. Code Switching)
  - The competition between the two languages requires a mechanism for controlling attention to the target language by inhibiting the interfering option
- The studies prior to Peal and Lambert (1962) were rebuked and dismissed after the 1960's. However, Hakuta (1986: 43) says:

  [A] full account of the relationship between bilingualism and intelligence, of why negative effects suddenly turn in to positive effects, will have to examine the motivations of the researcher as well as more traditional considerations at the level of methodology.

Other Studies on Benefits of Bilingualism (1)

- Bilingual Advantages in Cognition
  - Knowledge of grammar in the native languages (Bialystok, 1988)
  - Bilinguals perform better on tasks involving selecting attention
  - Bilingual advantages exist among children, young adults, and middle-aged and older adults (Martin-Rhee & Bialystok, 2008; Bialystok, 2006; Bialystok et al., 2004)
  - Delayed onset of dementia (Bialystock, Carik & Freeman, 2007)
  - Metalinguistic awareness

Two major advantages of bilinguals

- Metalinguistic awareness
- Executive Function

Metalinguistic awareness

- An ability to identify language as a systematic system for communication.
  - How many vowels are there in your languages?
  - Why do we drive on a *parkway* and park in a *driveway*?
  - What do you mean by the subject and the object of a sentence?

- "*The Elders of Chelm and Genedel's Key*" (Yiddish folklore; from Pinker (2007))
  In a mythical town of fools, there has been a shortage of sour cream that imperils the celebration of a holiday on which blintzes are eaten. The elders came up with an idea: "Let us make a law that water is to be called sour cream and sour cream is to be called water. Since there is plenty of water in the wells of Chelm, each housewife will have a full barrel of sour cream. There will be a lack of 'water', but it is an entirely new problem that can be solved after the holiday."

Other Studies on Benefits of Bilingualism (3)

Executive Function (Miyake et al., 2000)

- Inhibition
- Shifting (task switching/cognitive flexibility)
- Working memory
- Updating working memory



Benefits of Bilingualism: Executive Function (1)

- Tasks used to test the Executive Function
  - Congruent and incongruent cues (Color and positional cues)
  - The Simon task (https://t-nagano.link/mnnjl)
  - The Flanker task (https://t-nagano.link/q0Omp)
  - The Stroop task (https://t-nagano.link/ZZ4an)

Differences between monolingual and bilingual

- Bilingual tend to perform better on inhibition tasks
- No difference between Monolinguals and Bilinguals in recall and short-term memory tasks (Bialystok & Feng, 2009)

Economic Advantage (1)

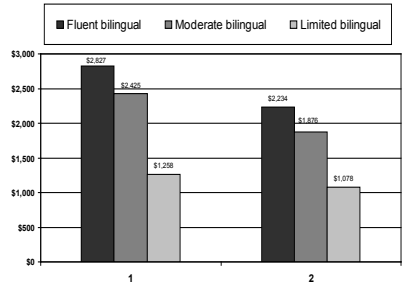
- What is the impact of bilingual abilities on income?



Economic Advantage (2)

- Many studies have found a consistent and significant positive correlation between English proficiency and wages
  - Higher proficiency $\rightarrow$ higher wage
  - It is especially true among (first-generation) immigrants and children of immigrants
- However, a few studies have also found the benefits of bilingual abilities
- Ruben Rumbaut's IIMMLA and CILC-III study (2014)
  - 6,135 sample of 1.5- to 3.0-generation immigrants in South California
    - Speakers of Spanish, Chinese, Korean, Vietnamese etc. at home
  - Different degrees of bilingual skills (i.e., maintenance of the home language)
  - Bilingual groups
    - Fluent bilingual: those who can use the home language "very well" in all skills
    - Moderate bilingual: those who can use the home language "well" in all skills
    - Limited bilingual: those who can use the home language "not very well"

- Regressions of Annual Earnings on Level of Bilingualism among Young Adults in Southern California (Rumbaut, 2014)



Model 1 controls for age, gender, ethnicity, parents' socioeconomic status, and living with parents (white native-parentage English monolinguals are the referent group).
Model 2 controls in addition for high school GPA and total years of education attained in adulthood.
Bilingualism levels are measured on a 4-item scale of ability to understand, speak, read and write the non-English language (fluent bilingual = "very well" on all 4; moderate = "well" on all 4; limited = less than well).
Earnings (regression coefficients) in annual dollars, net of other variables in the models.
Results for fluent and moderate bilinguals are significant at $p < .001$; for limited bilinguals at $p < .05$.

Economic Advantage (4)

- Even after removing the influence of age, gender, ethnicity, parents' SES, and living conditions, bilinguals can make higher wages than English monolinguals.
  - Income of fluent bilinguals is $2,827 higher than English monolinguals
  - Income of moderate bilinguals is $2,425 higher than English monolinguals
  - Income of limited bilinguals is $1,258 higher than English monolinguals
- Even after removing the influence of age, gender, ethnicity, parents' SES, living conditions, high school GPA, and total years of education, bilinguals can make higher wages than English monolinguals.
  - Income of fluent bilinguals is $2,234 higher than English monolinguals
  - Income of moderate bilinguals is $1,876 higher than English monolinguals
  - Income of limited bilinguals is $1,078 higher than English monolinguals

In Sum

- There is no clear-cut answer as to whether bilingual advantages and disadvantages exist. Researchers on both sides agree that bilinguals have mental structures different from those of monolinguals, but there is no conclusive evidence that either is superior to the other.
- After all, for most people, the reasons for becoming bilingual are not cognitive considerations.
  - Immigration (forced or voluntary)
  - Political change (annexation, independence etc)
  - Inter-racial marriage
  - Familial relationship
  - Maintaining connections with one's heritage culture
  - Business development
  - Interest in other cultures

Ink Shedding

- What are the advantages of bilingualism?
- What are the disadvantages of bilingualism?
- Also, write at least one question that you wanted to ask during the class.

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