

# Carolina Bottari, PhD, erg.

---

## Understanding the repercussions of cognitive impairment on daily life



**McGill**

# Broad Areas of Focus

---

- I - Establishing new directions for the assessment of persons with cognitive impairment following traumatic brain injuries (mild, moderate and severe);
- II - Supporting best practice nationally and internationally through presentations, conferences and knowledge exchange workshops

# Validation of Ecological Measures of independence

---

The ADL Profile and the *IADL Profile*:

- Analytic measures of independence in everyday activities that also document the repercussions of cognitive impairments (executive functions) on performance in the person's home and community environment
- Documented psychometric properties of the *IADL Profile*: content validity, intra and inter-rater reliability, factorial validity, criterion-related validity

Next steps: Prepare workshops on *IADL Profile* so that it is used reliably by clinicians and researchers.

# Definition of independence

- Independence in IADLs results from the **competence** of individuals to do things for themselves in interaction with the **environment** in which they live.
- ✓ Competence implies the ability to decide what one wants to do, to plan a course of action, to do the task, and to assess the outcomes.
- ✓ Implies that the measures must consider individuals in **interaction with their environment**.

(Rogers, 1982)

# Repercussions of a TBI on independence in everyday activities

- Traumatic brain injuries (TBI) have serious repercussions on survivors' independence in instrumental activities of daily living (IADLs).
- Up to 80% of individuals with a moderate or severe TBI, several years post injury, have been shown to require assistance for their IADLs and this particularly for:
  - meal preparation, shopping, housework, personal finances and traveling in the community.
- However, factors underlying this persisting need of assistance in their home and community environments remain poorly understood.

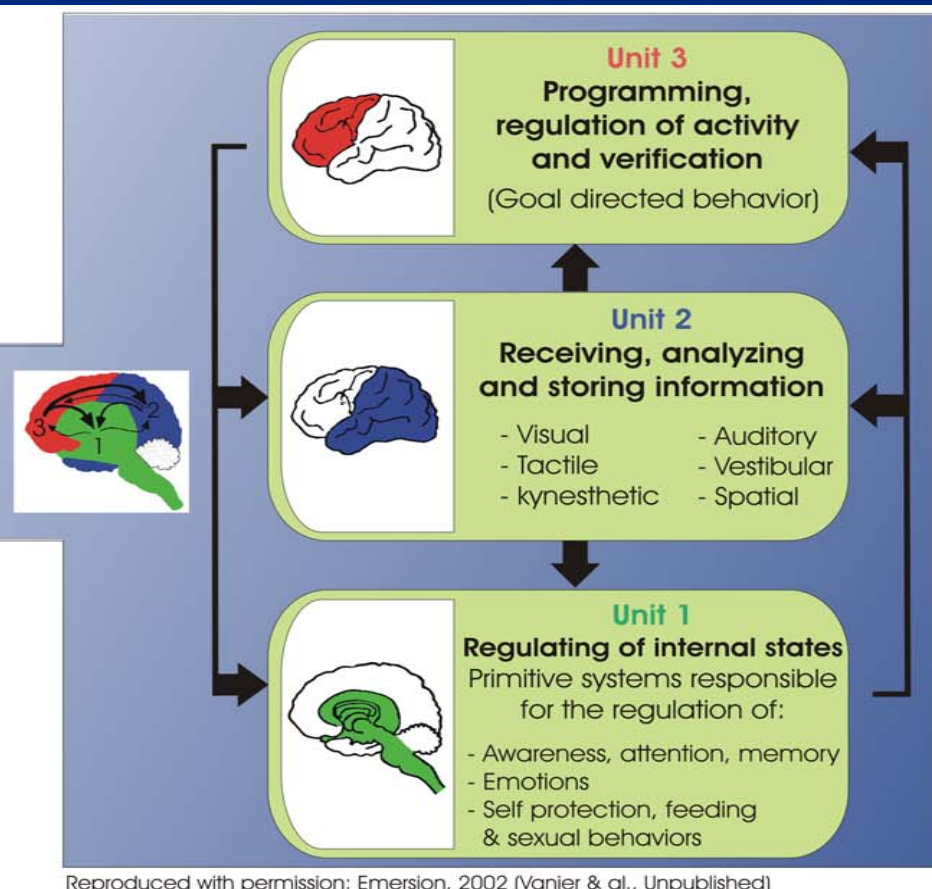
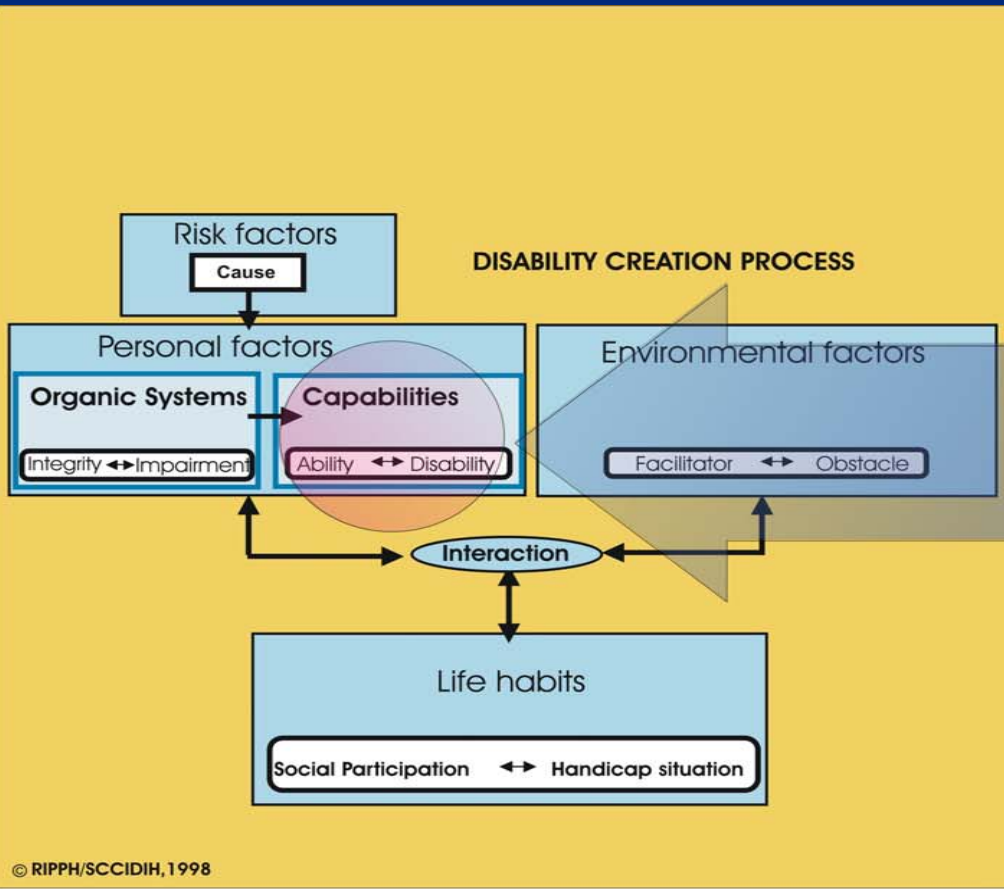
(Colantino et al., 2004; Dawson et al., 1995; Olver et al., 1996; Whiteneck et al., 2004; Dutil et al., 1995)

# The influence of the environment on independence

Few measures of IADLs document the independence of individuals in interaction with their real-world environment. This setting is complex, unpredictable and highly individualized.

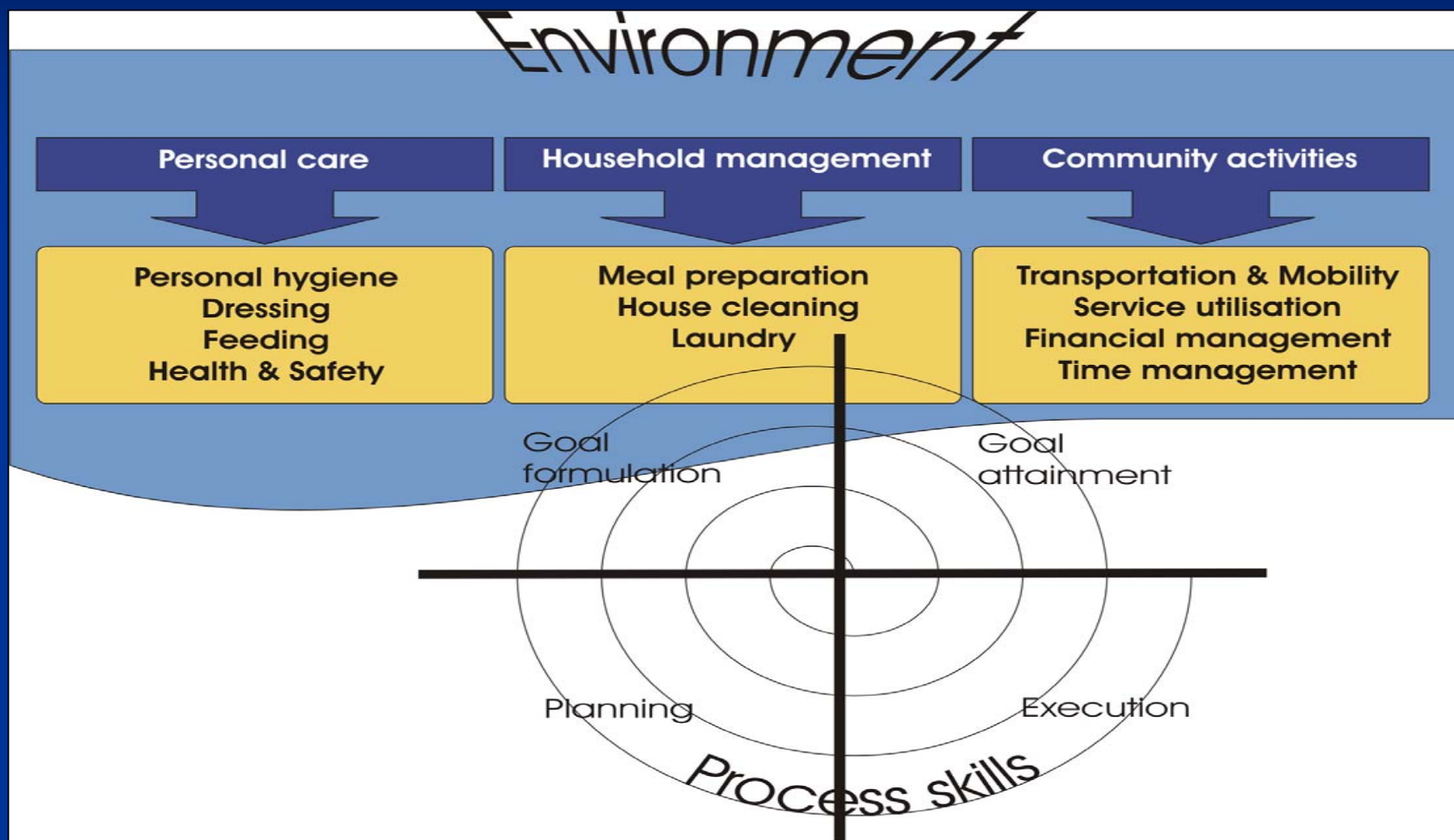
(Burgess et al., 2006; Gitlin et al., 2001; Gitlin, 2003; Remfer, et al., 2003)

# Theoretical foundations of ADL Profile and IADL Profile: Disability Creation Process and Luria's model of cerebral functioning



# Development of a measure of independence in everyday activities: ADL Profile

(Dutil, Bottari, Vanier, Gaudreault, 2005)



# IADL PROFILE (Bottari, Dassa, Rainville & Dutil, 2007)

Complex sequence of six inter-related tasks related to overarching goal of  
hosting a meal for unexpected guests  
(plus: obtaining information / making budget)

## Instructions:

*Minimally structured instructions are given to document the person's ability to formulate goals and plan the activities related to receiving guests for a meal.*



**Putting on outdoor clothing**



**Going to the grocery store**



**Shopping for groceries**



**Preparing a hot meal for guests**



**Having a meal with guests**

## Hypothesis:

Performance on the *IADL Profile* will be significantly associated with:

- Trauma severity
- Executive dysfunction
- Education, age, environmental factors

## Results:

- Post-traumatic amnesia and working memory emerged as the major determinants of *IADL Profile* scores. Together, indices of injury severity, measures of EF, education, age, and environmental factors, accounted for 12% to 28 % of the variance in *IADL Profile* scores.

## Next Steps: Contribution to treatment planning

---

We hypothesize that use of the *IADL Profile* will help clinicians better target treatment interventions in consideration of cognitive impairments in interaction with the demands of the person's home and community environment.

# Treatment ideas derived from *IADL Profile* evaluations:

## Strategies for subjects and significant others

### Goal formulation

Invite significant others to give individuals with a TBI more responsibility related to certain tasks thereby increasing the need for subjects to formulate goals

### Planning

Encourage individuals to THINK BEFORE carrying out a task

### Carry out task

Give individuals time and space to solve their own problems when their security is not compromised

### Verify goal attainment

Encourage individuals to verify whether they attained their initial goals and whether they followed their plans

## Next Steps: Validation of the *IADL Profile* with mild TBI

---

We are currently examining the association between performance on the mild TBI version of the *IADL Profile* with neuropsychological measures of executive functions, psychological measures of depression, anxiety, fatigue, posttraumatic stress and functional magnetic resonance imaging in mild TBI.

Current Funding: Canadian Institutes of Health Research, Quebec Rehabilitation Research Network, Ontario Neurotrauma Foundation

Thank-you for your attention!