



La mémoire de travail à 3 ans prédit le risque d'abandonner les études au secondaire



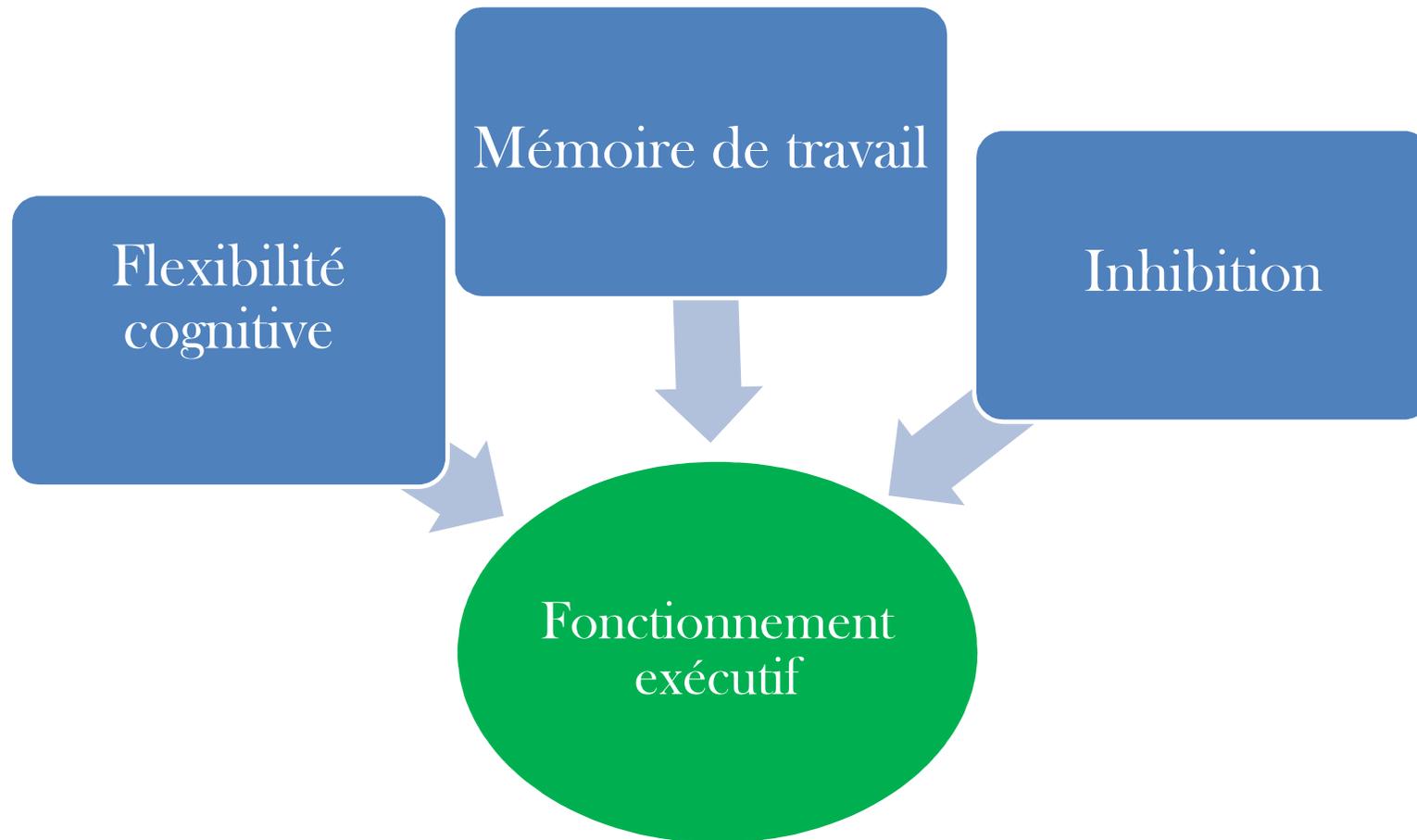
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Décrochage scolaire

- Un problème social qui coûte cher à l'individu et à la société
- Cibler les élèves qui risquent de décrocher
- Les fonctions exécutives et le risque de décrochage

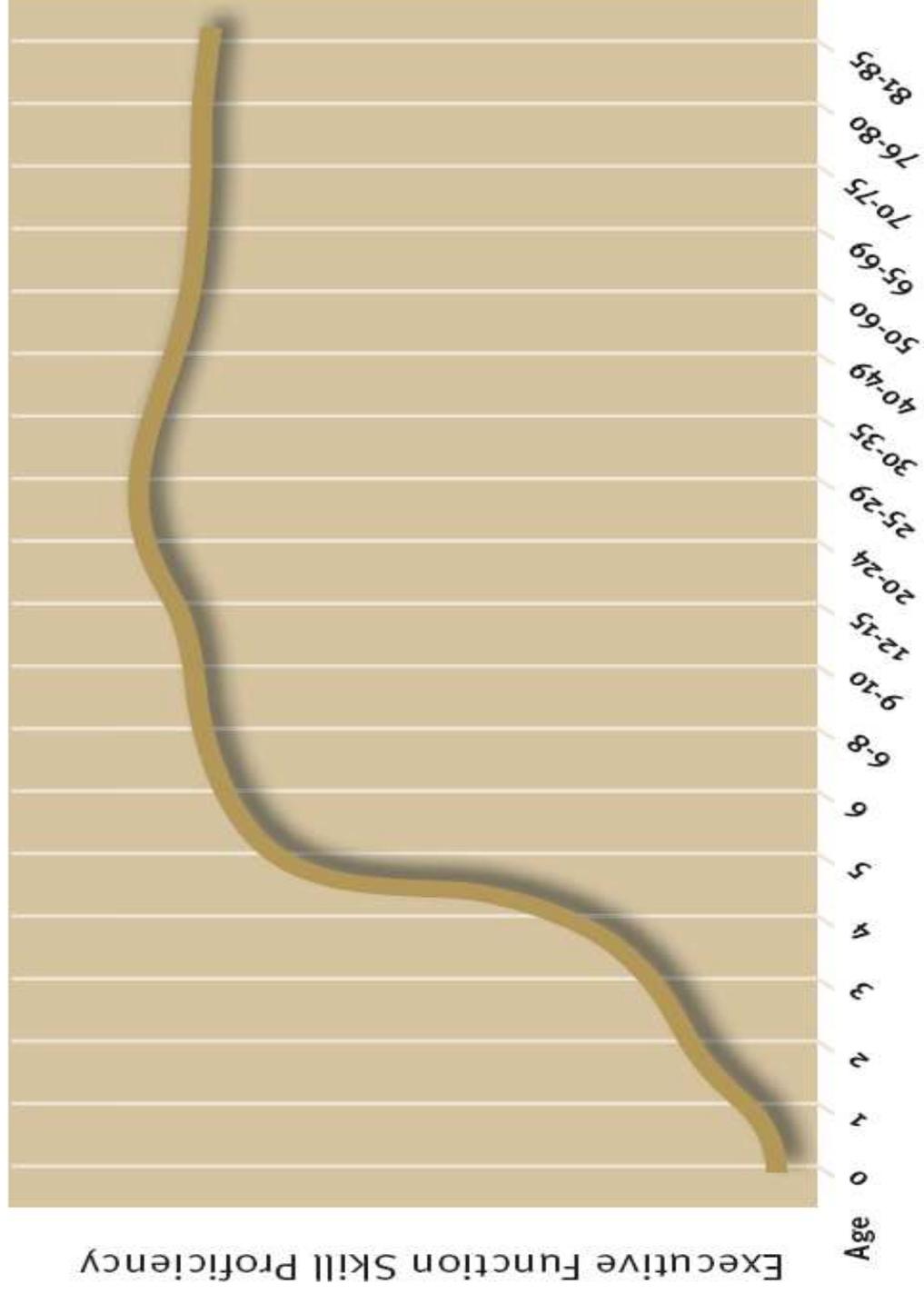




Fonctionnement exécutif

- ✓ Résoudre des problèmes complexes
- ✓ Prendre des décisions
- ✓ Persistance dans les tâches ennuyeuses mais importantes
- ✓ Faire des plans et les modifier selon le besoin
- ✓ Reconnaître et corriger nos erreurs
- ✓ Établir des objectifs et évaluer notre progrès envers leur atteinte

Executive Function Skills Build Throughout Childhood and Adolescence





Contents lists available at SciVerse ScienceDirect

Intelligence



Toddler working memory skills predict kindergarten school readiness

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A B S T R A C T

Converging findings in psychology, neuroscience, education, and economics suggests that child persistence in learning represents an important determinant of academic success during the school years. Nevertheless, the developmental origins of productive learning behaviors are not well understood. Some findings suggest that executive function skills may be developmental precursors to learning-related behaviors. The present study examines how toddler working memory skills predict subsequent achievement and classroom engagement in kindergarten. Participants are 1824 children from the Quebec Longitudinal Study of Child Development. Children were individually assessed on working memory at age 29 and 41 months, using the Imitation Sorting Task. When children were 74 months of age, kindergarten teachers rated classroom engagement and trained examiners assessed number knowledge and receptive vocabulary. Multiple regression analyses revealed a positive prospective association between early working memory scores and later classroom engagement, (*standardized* $\beta = .076$), number knowledge, (*standardized* $\beta = .133$), and receptive vocabulary (*standardized* $\beta = .059$). These results were above and beyond child sex, verbal and nonverbal intellectual skills, and socioeconomic status. The findings propose a robust, easily accessible, and cost effective assessment method of early childhood executive function for the development of early childhood interventions that improve school readiness.

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Intelligence



Early childhood working memory forecasts high school dropout risk

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ABSTRACT

Individual differences in cognitive control contribute to academic success, engagement, and persistence toward long-term goal achievement. In a prior study, we found that preschool working memory, a component of cognitive control, predicts kindergarten academic competence and classroom engagement. In the present study, we assess whether preschool working memory contributes to high school dropout risk at age 13. Participants are 1824 children from the Quebec Longitudinal Study of Child Development who were individually assessed at ages 2.5 and 3.5 on working memory using the Imitation Sorting Task. Dropout risk, representing an index, comprised of grade retention history and concurrent school performance and engagement, was measured in spring of grade 7. We used logistic regression to estimate dropout risk from early childhood working memory while controlling for verbal and non-verbal IQ, socioeconomic status, and sex. A one point increase in children's working memory skills predicted a 26% reduction in the odds of being in the high risk group for dropout. Higher socioeconomic status and intellectual skills also predicted lower high school dropout risk. Individual differences in preschool working memory may contribute to early detection of later high school dropout risk. These results suggest the importance of further developing early effective interventions aimed at strengthening cognitive control in children.

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Variables indépendantes (3 ans)

Mémoire de travail

- Tâche d'imitation de placement d'objet (Alp, adapté par Baillargeon)

Compétences intellectuelles

- Intelligence verbale (PPVT)
- Intelligence non-verbale (WPSSI-R)

Caractéristiques démographiques

- Sexe
- Statut socioéconomique

Risque de décrochage (13 ans)

- Risque de décrochage
 - Retard scolaire
 - Rendement académique
 - Engagement

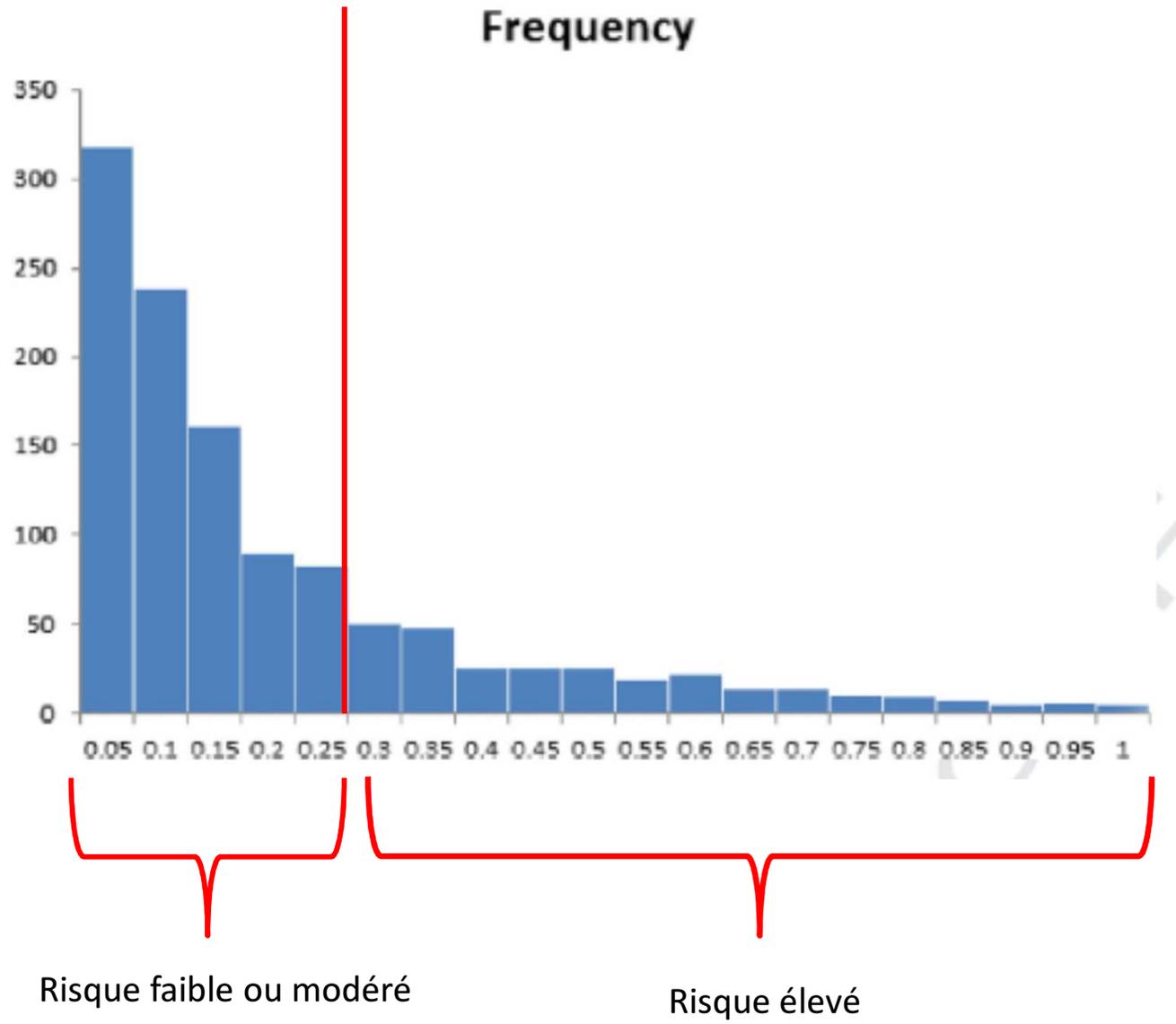


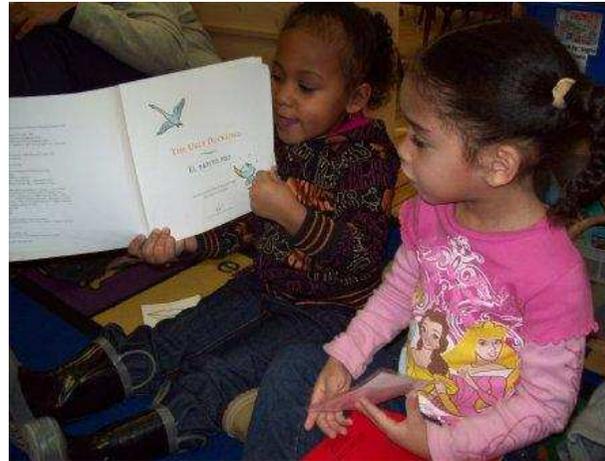
Table 3
The odds of being at-risk of dropping out from preschool characteristics.

	B	Odds ratio	p-Value
Working memory	-.31	.74	.012
Verbal intelligence	-.022	.98	.001
Non-verbal intelligence	-.06	.94	.020
Socioeconomic status	-.63	.53	<.000
Sex	-.26	.77	.105
Cox and Snell R square		.07	

Conclusions

- La mémoire de travail prédit des difficultés à court et à long terme
- Attrition
- Devis corrélationalnel
- La mémoire de travail est sensible à l'entraînement

Interventions possibles



Études à venir

- Des études subséquentes avec l'ELDEQ pourront confirmer si la mémoire de travail prédit l'abandon des études
- Comment le fonctionnement exécutif et la mémoire de travail modèrent-ils le risque de décrocher au secondaire?
- Existe-t-il des facteurs de protection pour les enfants ayant une faible mémoire de travail au cours de l'adolescence?
- Quels sont les facteurs qui modèrent le lien entre la mémoire de travail et le risque scolaire?