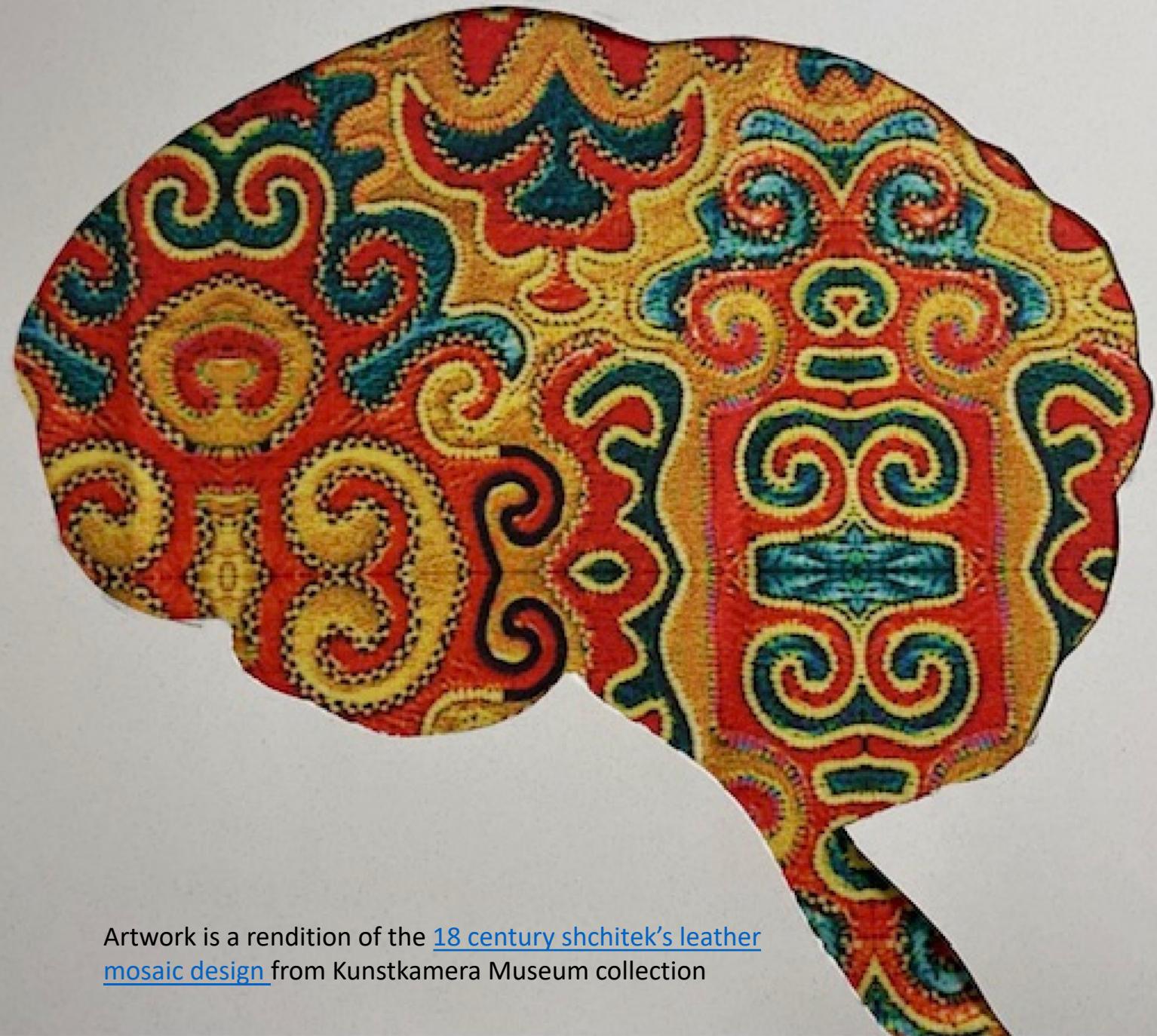


Strength of Multilingual Brain

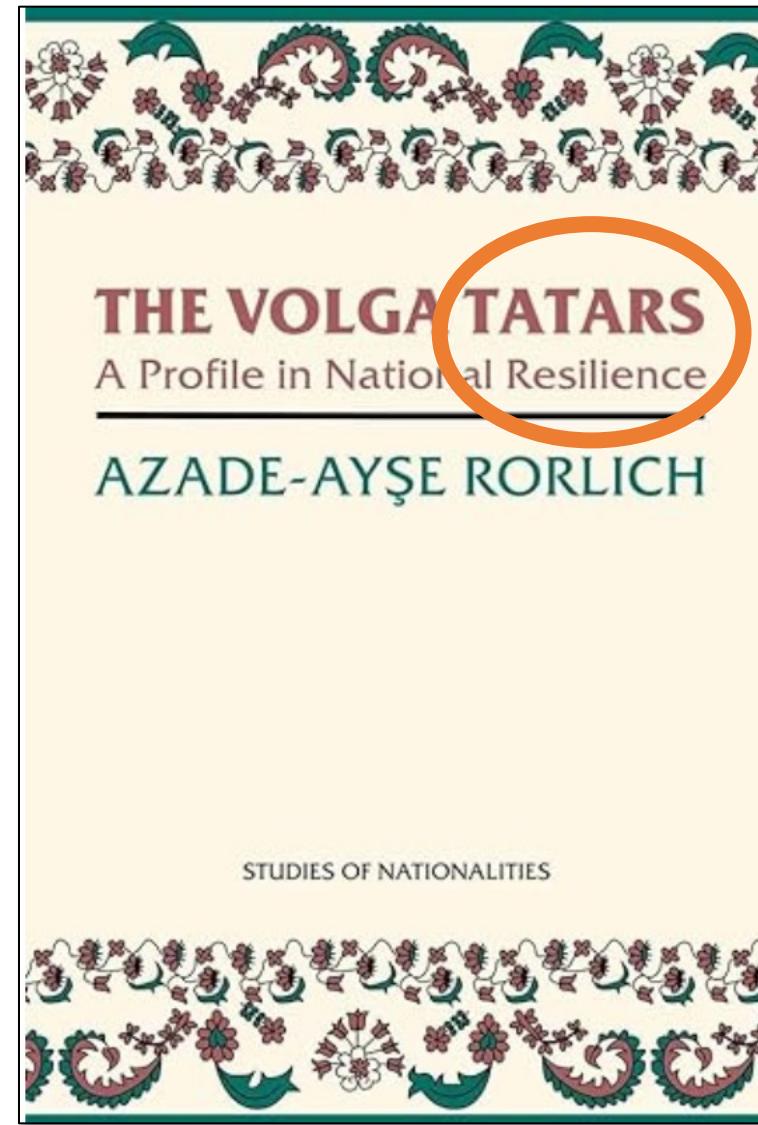
and

Power of Native Tatar Language

Chulpan Khismatova
Alima Salakhutdinova



Artwork is a rendition of the [18 century shchitek's leather mosaic design](#) from Kunstkamera Museum collection



resilient adjective

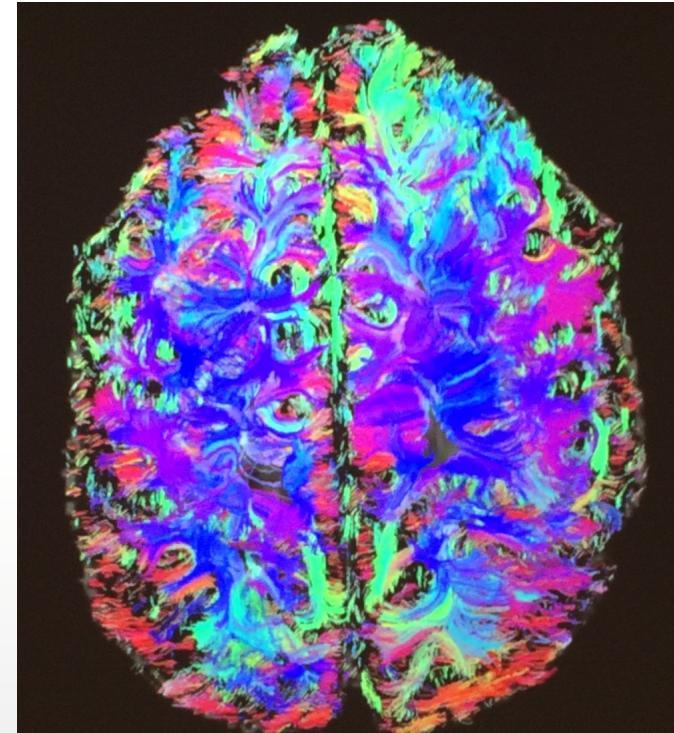
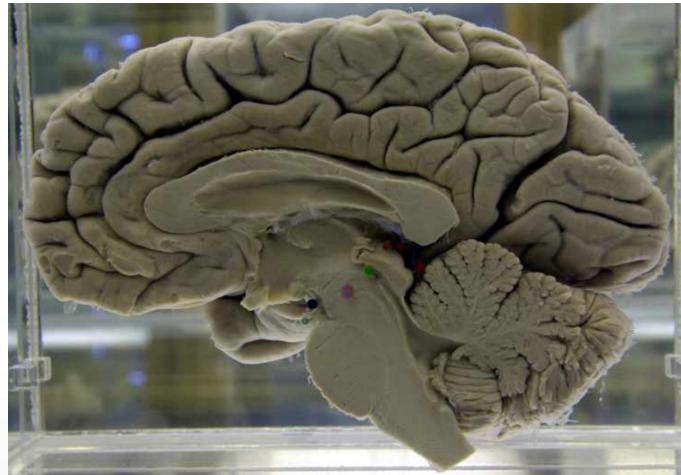
re·sil·ient ri-'zil-yənt 

[Synonyms of *resilient*](#) >

: characterized or marked by [resilience](#): such as

a : capable of withstanding shock without permanent [deformation](#) or [rupture](#)

b : tending to recover from or adjust easily to [misfortune](#) or change

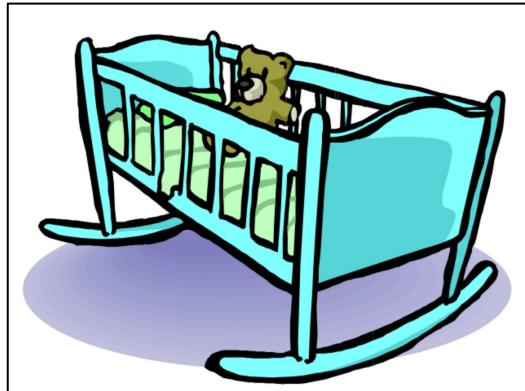




**What processes
(mental exercises)
make multilingual brain
stronger and more resilient?**

What processes make multilingual (ML) brain stronger?

Parallel activation of each language challenges the brain to select a word from a pool of ALL words (of all languages in the brain) that fits the context the most. It is an exercise. Only ML individual can offer this exercise to their brain.



beetle, бисер, бишек

What processes make multilingual (ML) brain stronger?

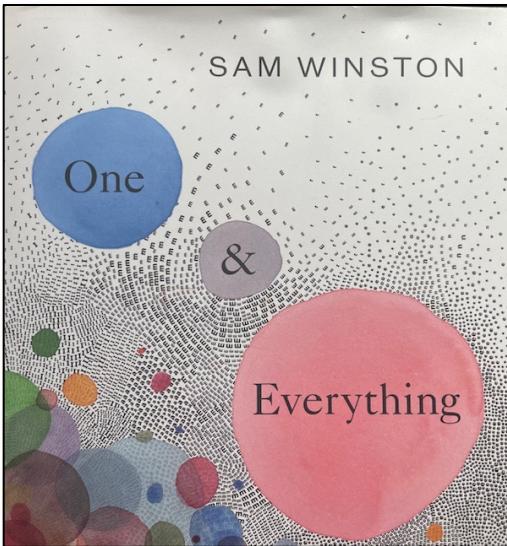
The following executive functions...

- Memory monitoring
- **Attention:** alerting, orienting, focusing; executive control
- Simultaneous activation of brain regions
- Cognitive reserve

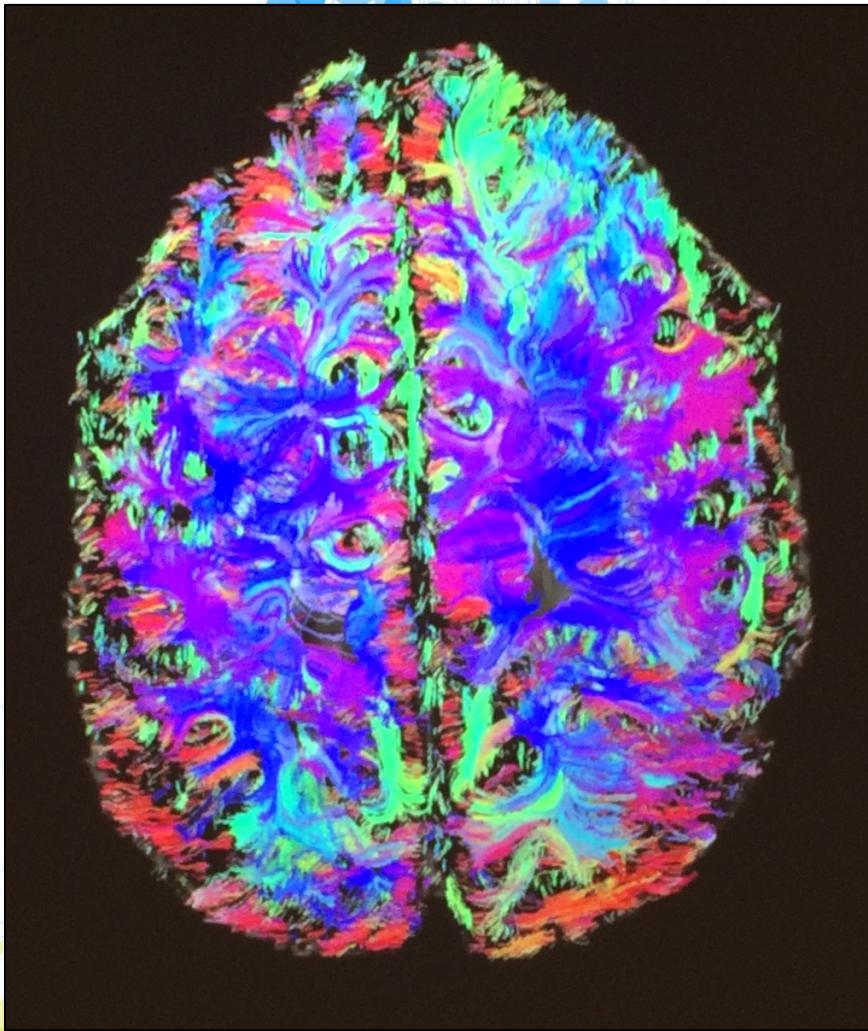
...are enhanced, tuned, optimized, strengthened in ML brain

What processes make multilingual (ML) brain stronger?

Absorbing written texts in various scripts (Latin, Cyrillic, Arabic, etc.) adds a layer of internalized complexity that is a treat for ML “fit” brain.



Fifty Scripts in <i>One & Everything</i>	ଓଡ଼ିଆ	ଓଡ଼ିଆ	ଓଡ଼ିଆ
Adlam *	ଅଦଲମ	କୁନ୍ଯୁନ	ଲିମ୍ବୁ
Armenian	Հայերեն	କ୍ୟୁପର୍ତ୍ରି	ଓଗମ
Bamum	ବାମୁମ	ଏଗିପ୍ଟିଆନ ହିରୋଗ୍ରେଫ୍ସ	ଲିନ୍କର୍ରା
Baybayin (Tagalog)	ବାଯବାଇନ	ହାଙ୍ଗୁଲ	ଓସାଜେ
Bengali	ବାଙ୍ଲା	ହାନ୍ତି	ଫାଇସ୍ଟୋସ ଡିସ୍କ
Buhid	ବୁହିଦ	ହେବୀର	ରେଜାଙ୍ଗ
Canadian Aboriginal Syllabics (Inuktitut)	କ୍ରାନିଆନ ଅଭୋଦ୍ରିଗ୍ରାଫିସ	ଜାଵାନେସେ	ଶିଂହାଲ
Carian	ଆଫିଲମ୍ଫୋଲ୍ବ	କାୟାହ ଲି	ଯି
Chakma	କାହାମ	କାରୋତ୍ତି	ମଖେଦ୍ରାଲି
Cham	କାମ	ଲାନ୍ନା (ତୈ ଥାମ)	ମୁନ୍ଦରୁଲି
Cherokee	କୋରେଗ୍ରାଫ୍	ଲୋଚୁଣ	ମୁନ୍ଦାନେସେ
CYW	କୋରେଗ୍ରାଫ୍	ଲେପୋ	ମୁନ୍ଦାନେସେ
Limbu	ଲିମ୍ବୁ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Linear B	ଲିନ୍କର୍ରା	ନାସ୍କ୍ଷ *	ନ୍ଯାଶାନ୍ତି *
Lontara	ଲନ୍ତରା	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Malayalam	ମାଲାଯାଲାମ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Mandaic *	ମନ୍ଦାଇକ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Meitei Mayek	ମେଟୈ ମେଯେକ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Rejang	ରେଜାଙ୍ଗ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Sinhala	ଶିଂହାଲ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Sundanese	ଶୁନ୍ଦାନେସେ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Syloti	ଶ୍ରୀଗଢ଼ି	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Syriac *	ଶରୀଏକ୍	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି *
Tagbanwa	ତାଗବନ୍ଵା	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି *
Tamil	ତାମିଳ୍	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Thai	ତାଇ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Tifinagh	ତିଫିନାଖ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Vai	ଵାଇ	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Wa	ଵା	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି
Yi	ଯି	ନାସ୍କ୍ଷ	ନ୍ଯାଶାନ୍ତି



- Parallel activation
- Enhanced executive functions
- Language switching and competition
- Understanding multi-scripts

make multilingual brain more resilient



**What do you do to protect
your assets
(engage all your languages)?**

**What do you do to keep them all
active,
alive,
cared for,
not forgotten?**



Do different languages cause their user to behave differently?

Language that an individual puts deliberate efforts in learning (after age of 5-7) referred to as **“foreign”**.

Language that is absorbed in early childhood (before age of 5-7) referred to as **“native”**.

Language is a dynamic phenomenon: it evolves and is impacted by numerous factors, so in different stages of life native/foreign can transform in dominant/nondominant or visa versa.

Every multilingual individual has unique relationships between the languages in the brain based on a mosaic of unique factors.

Mental activity is operated by two systems:

System 1: effortless, fast, intuitive, automated

System 2: effortful, controlled, deliberate

Native language is impacted by System 1. It is **emotional**.

Foreign language is impacted by System 2. It is **analytical**.

THINKING, FAST AND SLOW

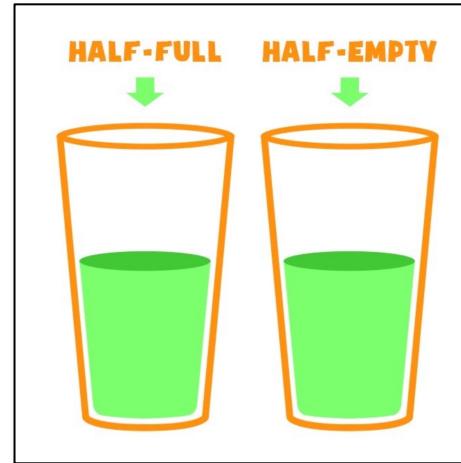


DANIEL
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

Decision Biases in Native-Foreign Languages

Framing Effect



Moral Judgment
Risk-taking
(loss averse vs risk tolerant)



Endowment Effect



When **decision is made in native language**, people are

risk-averse in domain of **gain**

e.g., *save 200 out of 600 people*

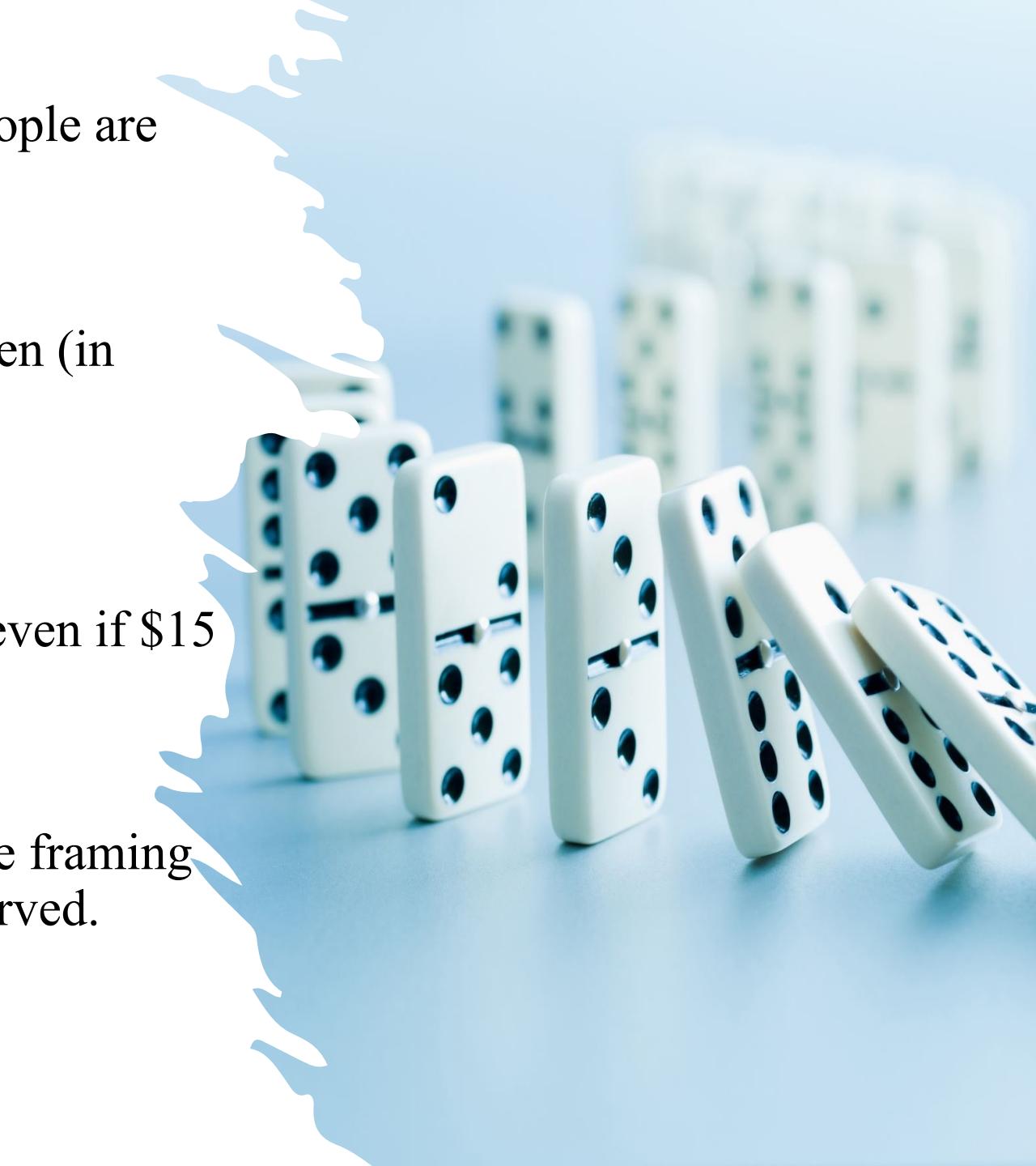
e.g., *keep \$15 even if chance of getting \$2 is given (in “betting” scenarios)*

but **risk-seeking** in domain of **losses**

e.g., *not to lose 400 out of 600 people*

e.g., *not to miss an opportunity to earn extra \$2 even if \$15 can be lost (in “betting” scenarios)*

When **decision is made in foreign language** the framing effect has less impact. Loss aversion is not observed.



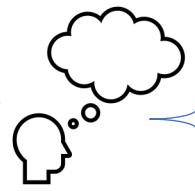
Subconscious linguistic decisions are impacted by the grammatical structures of the languages that fuel systemic biases.

**The student is at the table.
(to study)**



In English

The student is at the table.



She is studying.
He is studying.

На русском



Учени*ца* за столом. *Она* занимается.
Учени*к* за столом. *Он* занимается.



Татарча



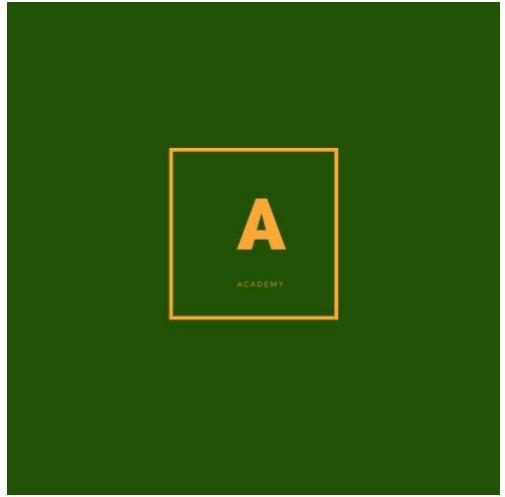
Үкүчү өстөл янында. Үл укий.





аэбвгдёжжийклмиоопстуүфхңчшшыъю

Mardesign



Online Tatar School Alima Academy

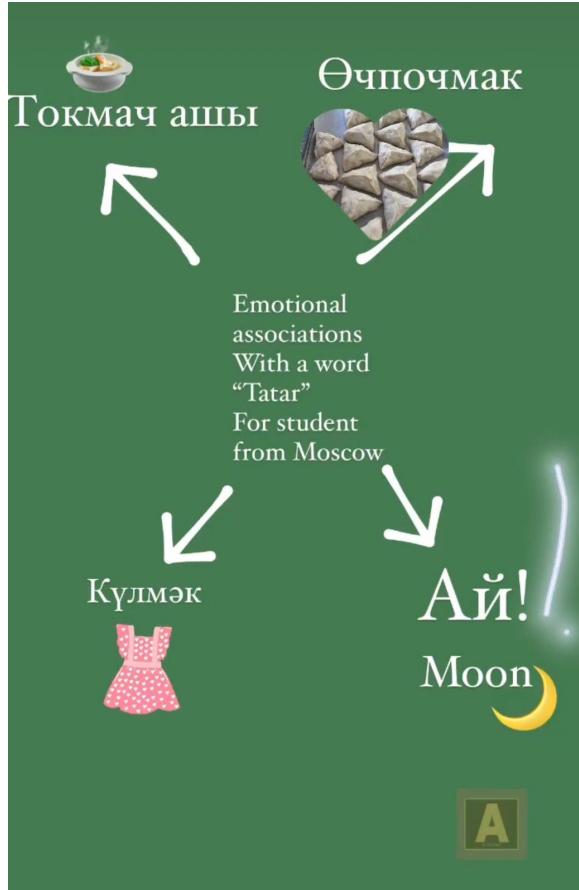
- Tatar language
- Tatar history
- Tatar literature / Curated Book clubs
- Logic/math/programming
- Storytelling
- Speaking clubs



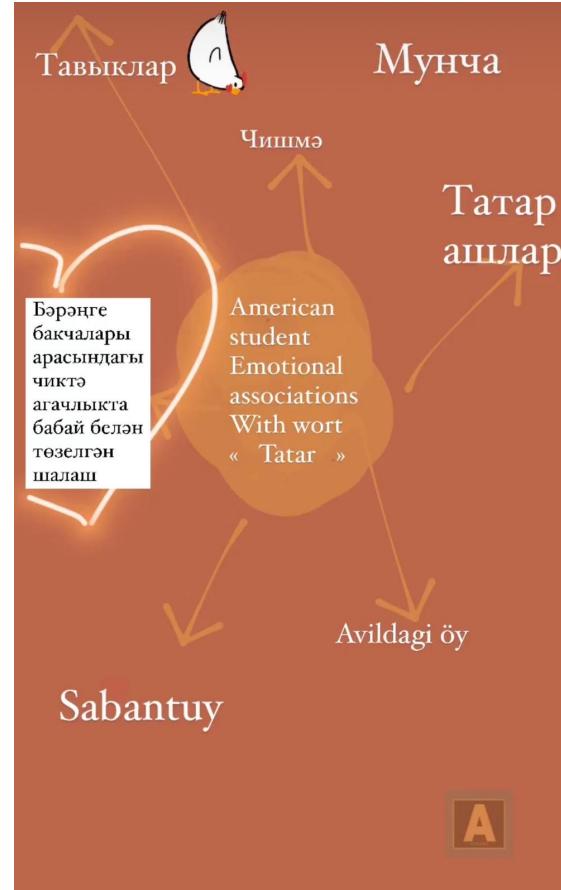
***5 years *100 students *13 countries *20 үкитучы * лектор**

Милли үзәң элементтері

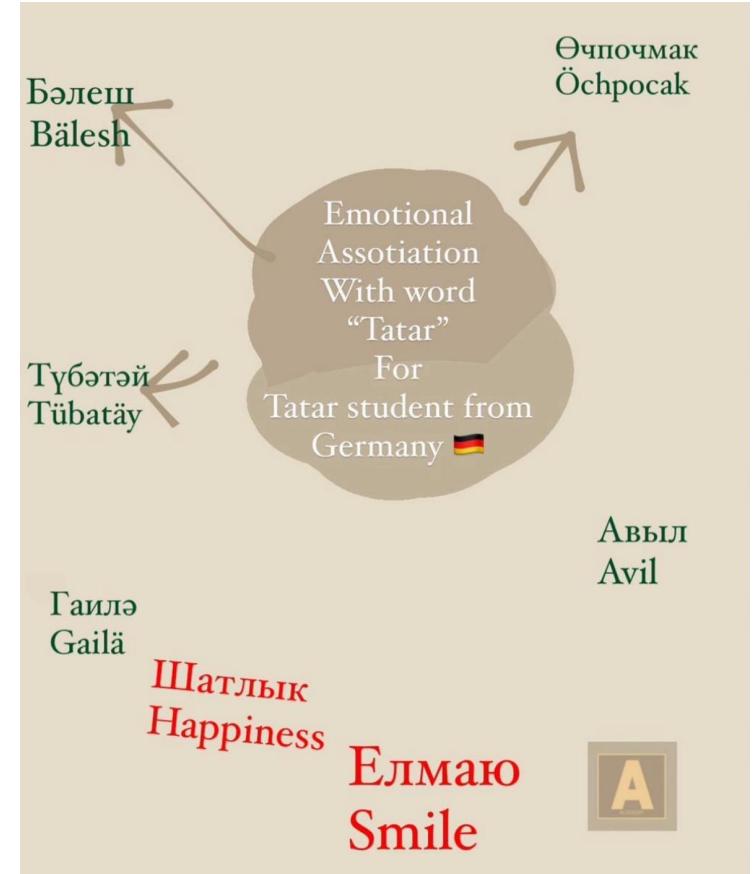




Sea, fish,
tree with pink
flowers!



*history classes
*cultural topics, events
*Personalities



National awareness- self awareness
Motivation to study language
Confidence!



<https://www.culturalsurvival.org>

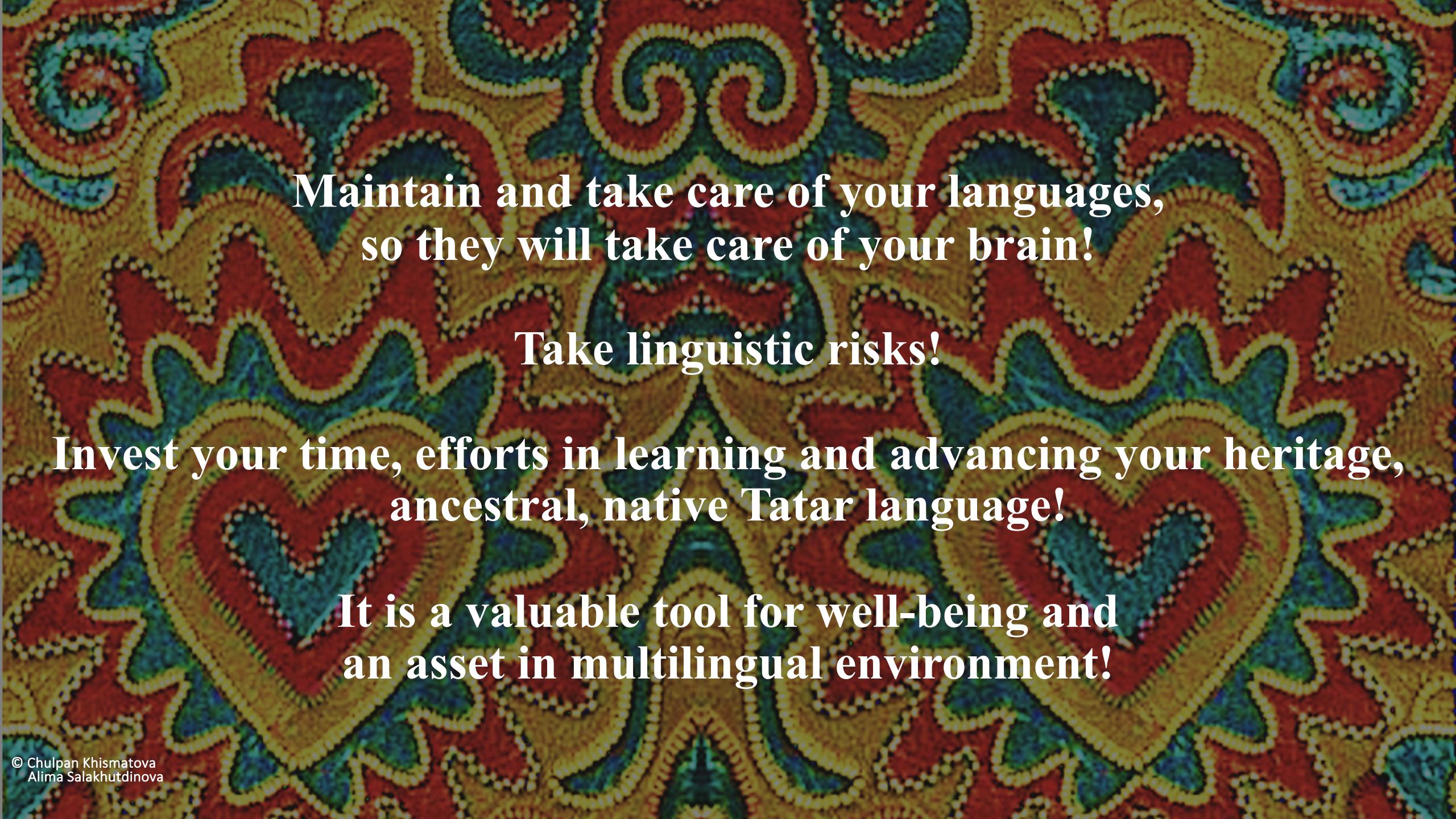


Sustaining and improving a native language is vital for the well-being of an individual and a community.

Ancestral / heritage / native / mother tongue

- serves as a healing agent fueled by cultural values and generational wisdom.
- empowers the spirit and humility.
- connects to people.





**Maintain and take care of your languages,
so they will take care of your brain!**

Take linguistic risks!

**Invest your time, efforts in learning and advancing your heritage,
ancestral, native Tatar language!**

**It is a valuable tool for well-being and
an asset in multilingual environment!**

- Online Tatar language courses, lessons, activities, book clubs, materials
- Linguistic and literary discoveries for adults and children
- Global Seal of Biliteracy in Tatar Language



<https://sites.duke.edu/tatarsu/tatar-learning-resources/>



Support Tatar teachers and educators!

**Invest efforts and resources in learning Tatar language and literature
with a teacher!**