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# The Role of Time in Understanding Adolescent (Immigrant) Adaptation

Peter F. Titzmann

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# Data in Social Science

- Variables
- Person
- Time

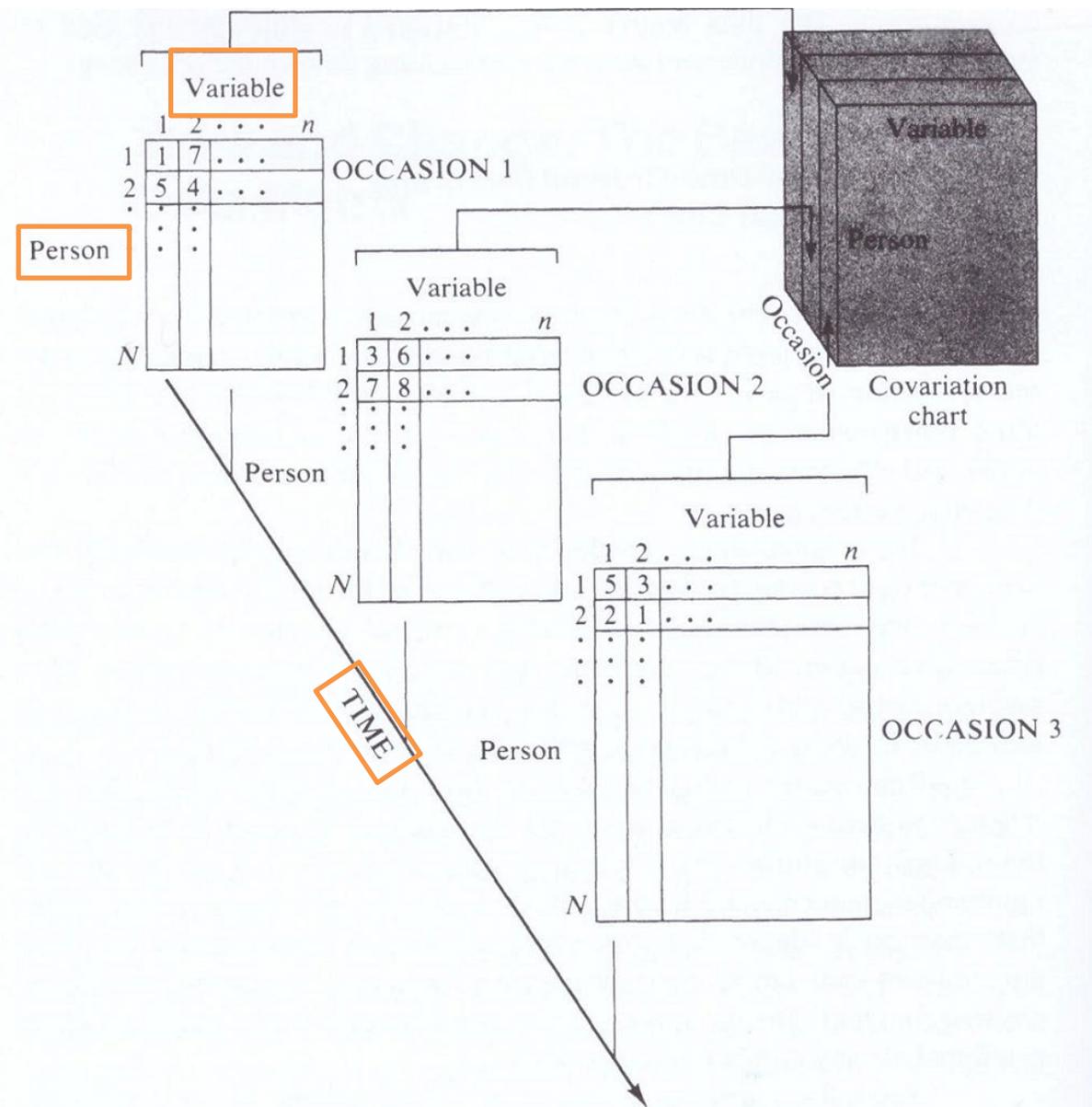


Figure 12-1. Representation of time-ordered data, consisting of scores for  $N$  persons on  $n$  variables at three times of measurement. This figure also illustrates how the three-dimensional matrix is composed of a series of two-dimensional matrices.

# Data in Social Science

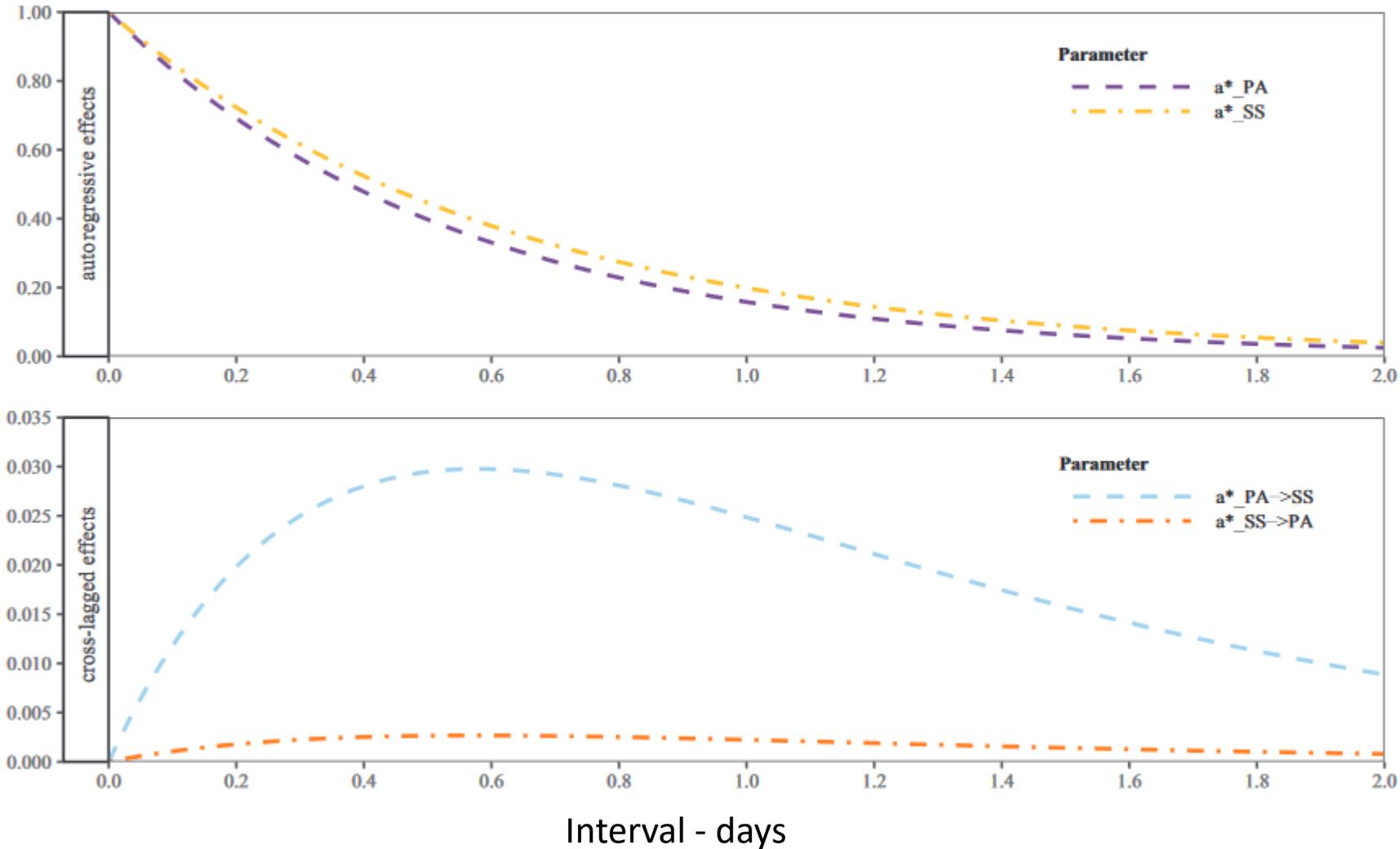
	Variable	Person	Time
Definition	What do we measure?	Whom do we measure?	When and how often do we measure?
Verification	<ul style="list-style-type: none"><li>• Factor structure</li><li>• Reliability</li><li>• Validity checks</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• Representativeness</li><li>• Sampling designs</li><li>• Sensitivity analyses</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• ???</li></ul>

# Theories on Time

- Bronfenbrenner  
Chrono-System (Bronfenbrenner, 1986)
- Elder  
Life-stage principle: Timing of decisions as important aspect of life-span perspective (Giele and Elder 1998)
- Granic and Patterson  
Phase Transitions (Granic & Patterson, 2006)
- Nurmi  
Development in an age-graded context (Nurmi, 1993)
- Heckhausen  
Coping and Developmental Deadlines (Wrosch & Heckhausen, 2005)
- ...

# Empirical Example for Time

Time makes a difference:



PA = Physical Activity  
SS = Symptom Severity



**Time in Immigration Research:  
Coaction and interaction of development and  
acculturation in immigrant youth**

# Time in Immigration Research

**The basic idea is that immigrant adolescents are both:**

**Immigrants:** with immigrant-specific experiences and acculturation-related tasks

- Language acquisition, coping with discrimination, new social roles (language brokering)

**Adolescents:** confronted with the bio-psycho-social changes of puberty and developmental tasks

- Neurological changes, puberty, autonomy

**→ Any outcome may be associated with acculturation and/or developmental Processes**

# Coaction and interaction of development and acculturation in immigrant youth

## A) Same experience may differ depending on developmental stage

- 📖 Titzmann, P. F. & Michel, A. (2017). Friendly takeover: Predictors and effects of language brokering among diaspora immigrants in Germany. In R. S. Weiskirch (Ed.). *Language brokering in immigrant families: Theories and contexts* (pp. 75-97). New York, NY: Routledge/ Psychology Press/ Taylor and Francis Publishers.
- 📖 Titzmann, P. F., Gniewosz, B., & Michel, A. (2015). Two sides of a story: Mothers' and adolescents' agreement on child disclosure in immigrant and native families. *Journal of Youth and Adolescence*, 44(1), 155-169.
- 📖 Schulz, S., Titzmann, P. F., & Michel, A. (2013). Jugendliche Übersetzer: Language Brokering in Migrantenfamilien in Deutschland [Adolescent interpreter: Language brokering in migrant families in Germany]. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, 45(3), 161 – 174.

# A) Effects depending on Life Stage

Associations of language brokering (LB) with psychological adaptation of adolescent immigrants are dependent on the theoretical perspective:

## **Social learning perspective: positive outcomes**

- LB fosters language and academic skills, and self-efficacy
- LB entails cognitive demanding experiences and interactions with adults which promote personal and social skill development

## **Stress and Coping Perspective: negative outcomes**

- LB can create stress and might overburden adolescents' social and problem-solving skills
- Adolescents experience exhaustion and may develop internalizing problems

# A) Effects depending on Life Stage

**Social learning perspective: positive outcomes**



**Stress and Coping Perspective: negative**

**Age as Moderator?**

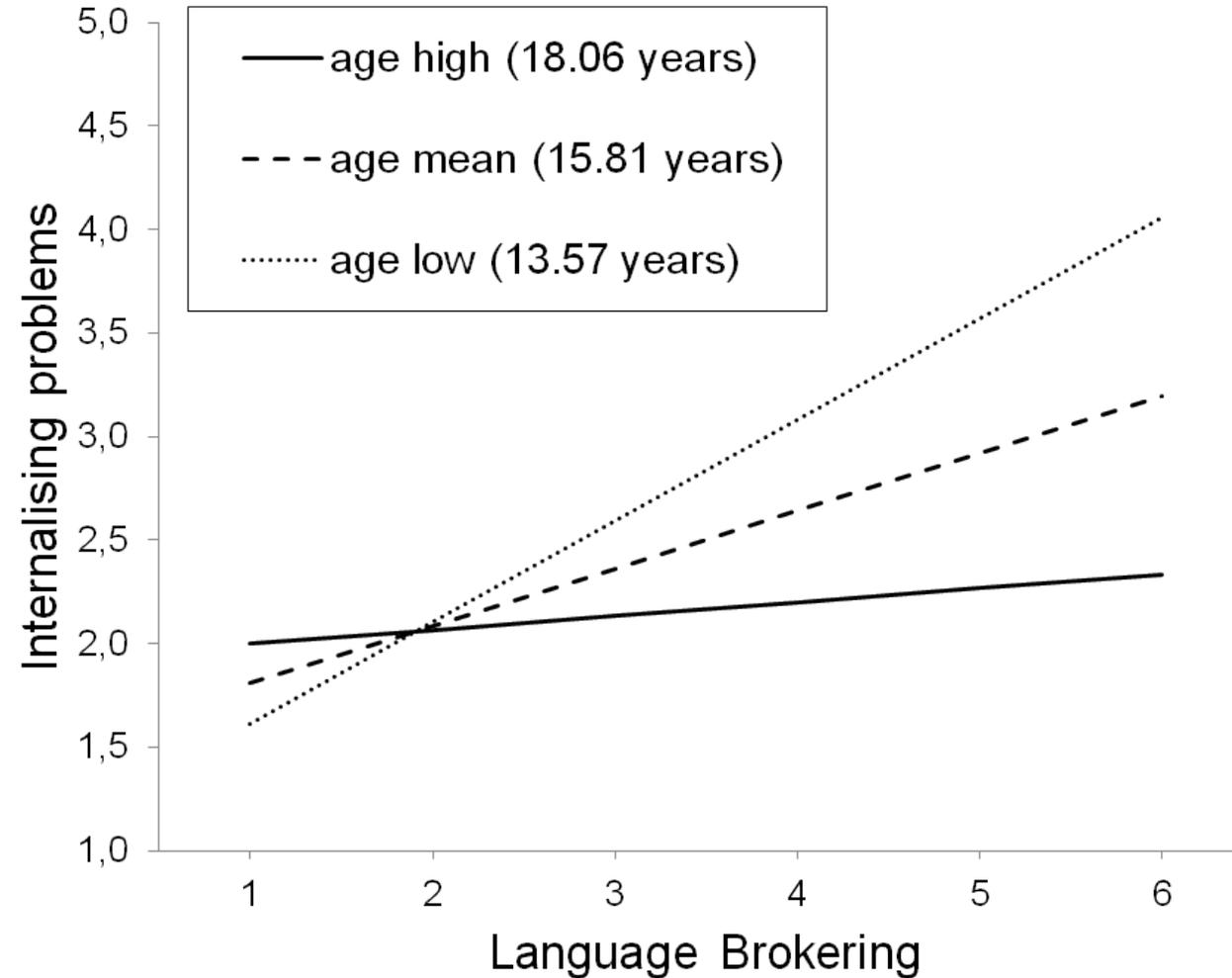
- Age is a proxy for developmental processes:
    - biological, social, and psychological changes
    - Problem-solving and social skills not yet fully developed in early adolescence
- **Probably LB is associated with more negative effects in early adolescent samples**

# A) Effects depending on Life Stage

Variable	Model (standardized $\beta$ ) DV: Internalizing Problems		
	1	2	3
age (centered)	.17	.09	-.03
Gender female	.04	-.00	.00
Family income	-.05	.02	.02
Conduct problems in childhood	.28**	.22*	.19*
LB (centered)		.28**	.36**
LB x Age			-.22*

# A) Effects depending on Life Stage

Interaction effect Age x Language Brokering



# A) Effects depending on Life Stage

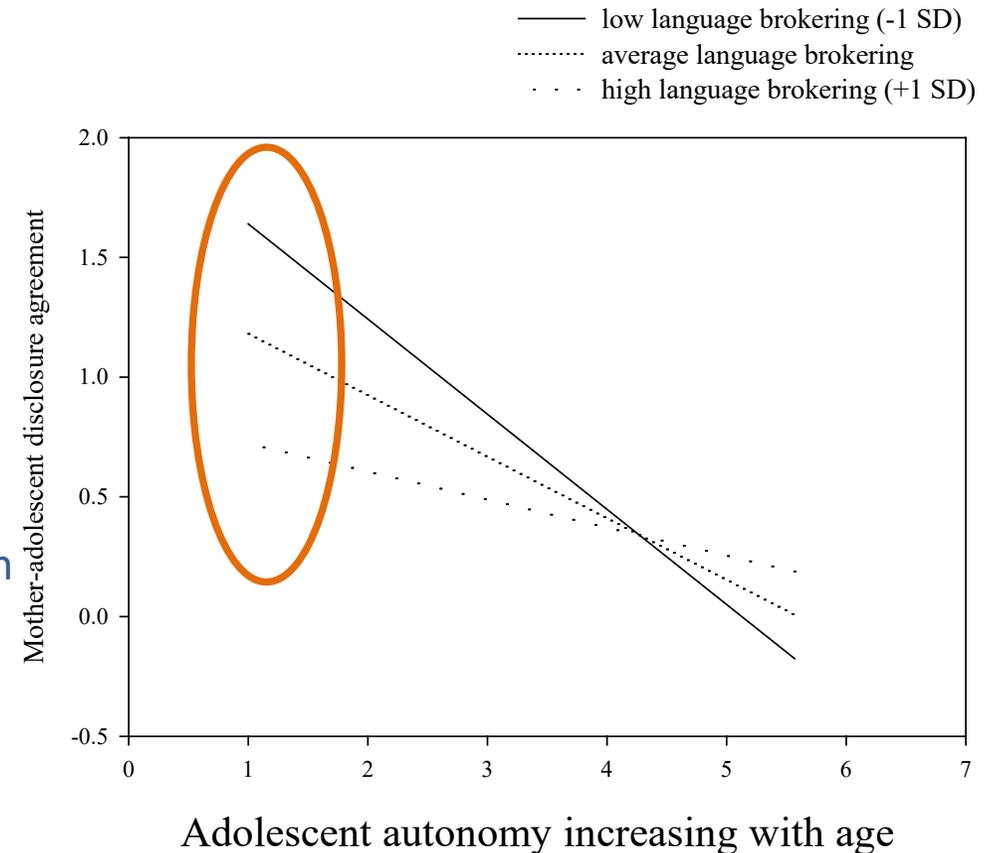
LB seems to be associated with more negative effects in terms of higher levels of internalizing problems particularly in early adolescent samples

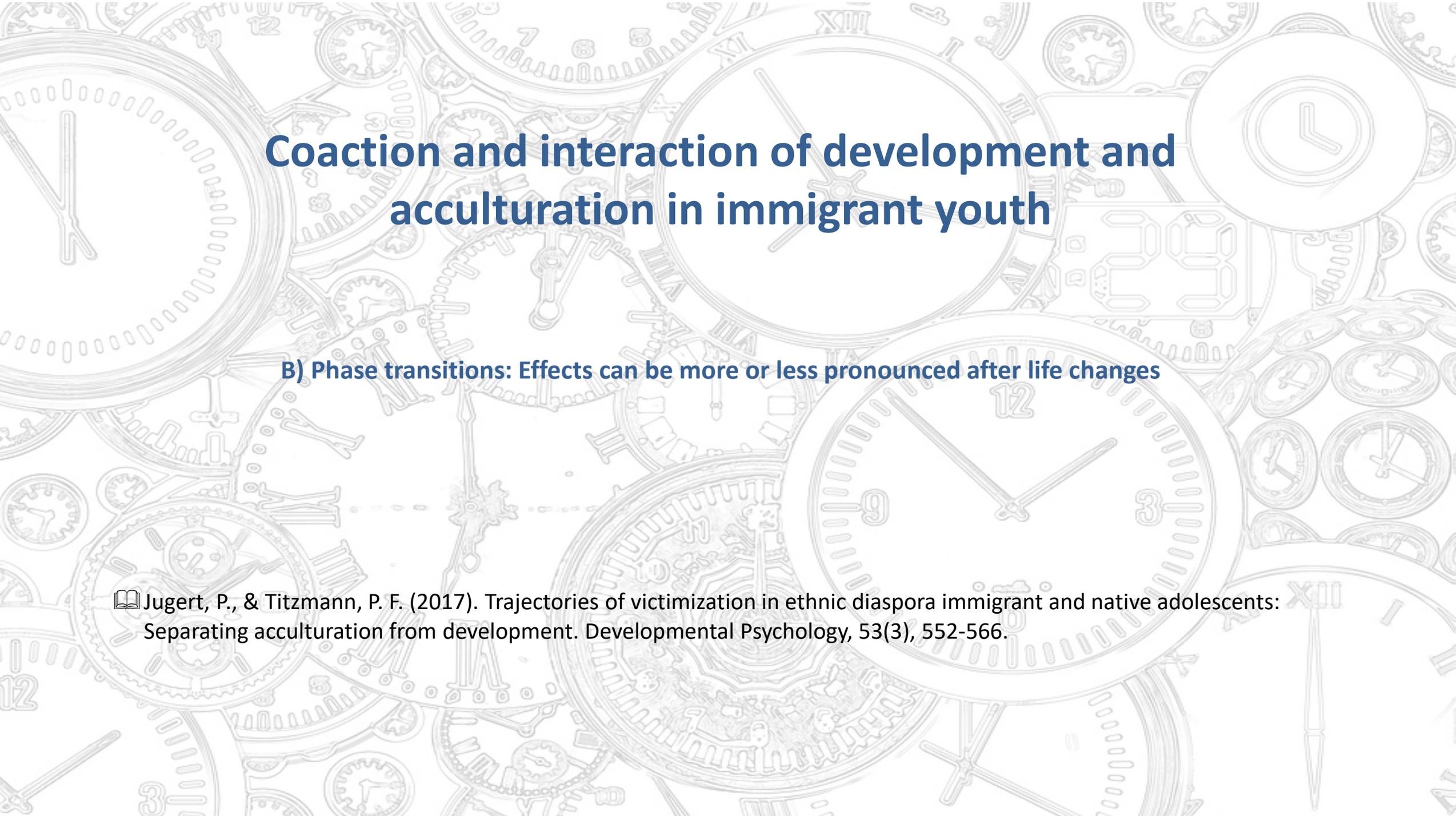
→ It depends on the developmental stage whether or not

→ Not Age, but developmental stage:

Similar finding when we tested family interactions: only among adolescents with low levels of autonomy (young age) language brokering had an effect

→ For research in general: Effects may differ substantially if research study different age groups





# Coaction and interaction of development and acculturation in immigrant youth

**B) Phase transitions: Effects can be more or less pronounced after life changes**

📖 Jugert, P., & Titzmann, P. F. (2017). Trajectories of victimization in ethnic diaspora immigrant and native adolescents: Separating acculturation from development. *Developmental Psychology*, 53(3), 552-566.

# B) Phase Transition

Several stage theories assume **a phase transition**:

*= a period in which established behavioral patterns are destabilized and a reorganization of the developmental system becomes necessary*

During phase transitions:

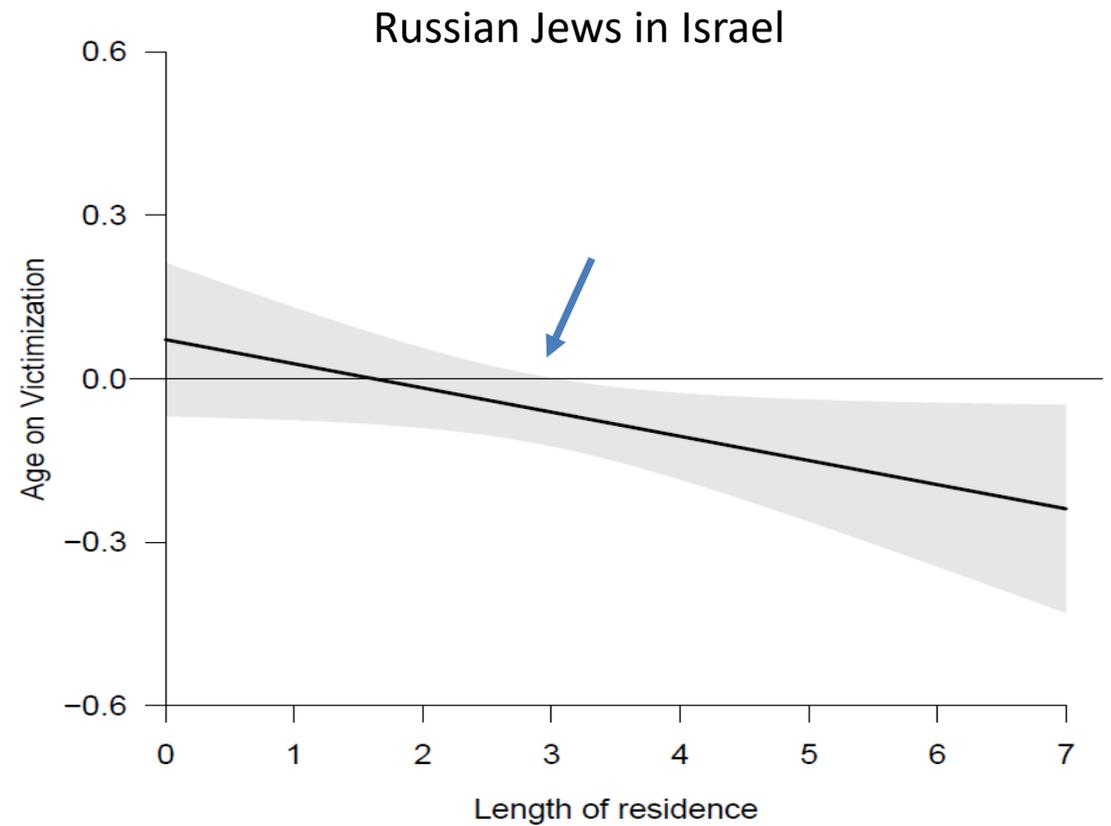
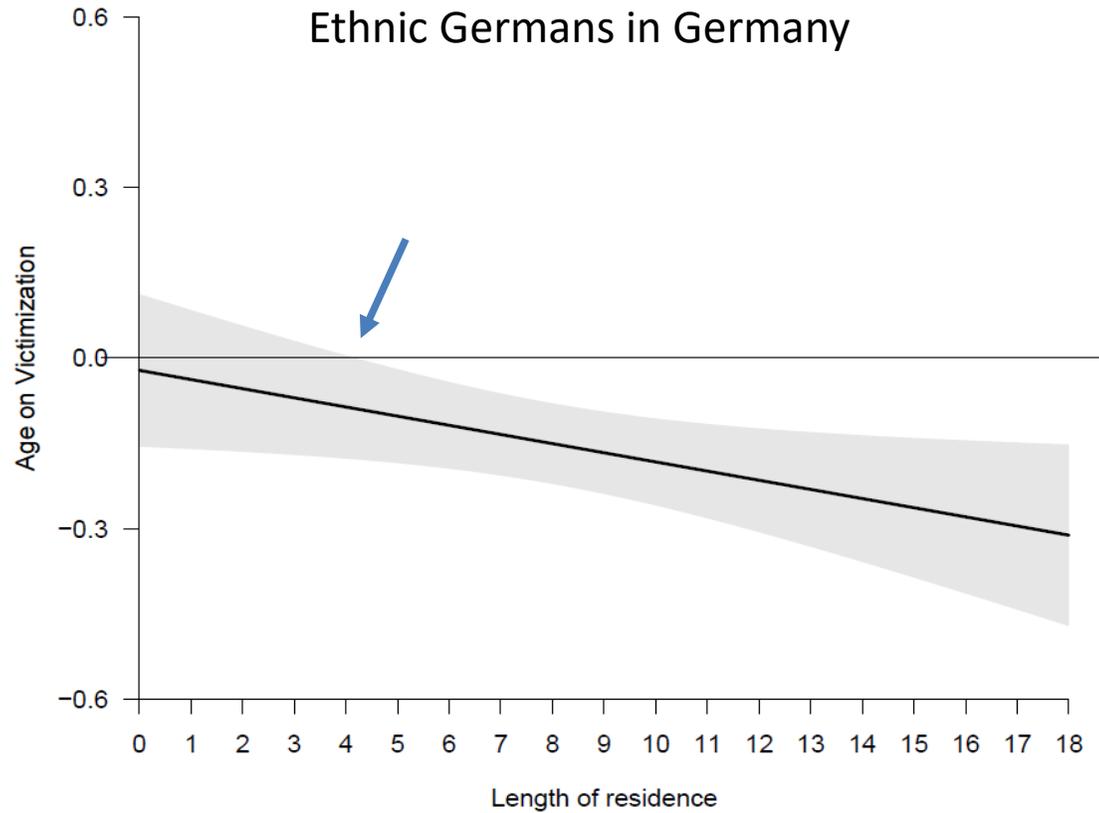
- protective factors often less powerful in buffering developmental risks
- Risk factors often more strongly associated with maladaptation

Age found as protective factor against victimization

- Physical strength increased
- Better planning skills
- Easier to mobilize support (communication, friends, ...)

→ but probably not the same shortly after immigration (fewer social contacts, less support available)

# B) Phase Transition



→ age, as protective factor against victimization, was found to show its protective quality only after three to four years post-migration

# Coaction and interaction of development and acculturation in immigrant youth

## C) Measuring different kinds of change

- 📖 Titzmann, P. F., & Lee, R. M. (2022). New temporal concepts of acculturation in immigrant youth. *Child Development Perspectives*, 165 - 172. <https://doi.org/10.1111/cdep.12458>
- 📖 Aumann, L., Titzmann, P. F., & Lee, R. M. (2022). Striking a new path to study the adaptation processes of immigrant adolescents: Changes in language use and family interactions. *Developmental Psychology*, 58(6), 1163–1175. <https://doi.org/10.1037/dev0001351>
- 📖 Titzmann, P. F., Aumann, L., & Lee, R. M. (2023). Acculturation Timing among Newcomer and more Experienced Immigrant Youth: The Role of Language Use in Ethnic Friendship Homophily. *Journal of Youth and Adolescence*, Advance Online Publication. <https://doi.org/10.1007/s10964-023-01830-6>

# Starting Point

Acculturation refers to the phenomena

*“when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups”*

*(Redfield et al., 1936, p. 149)*

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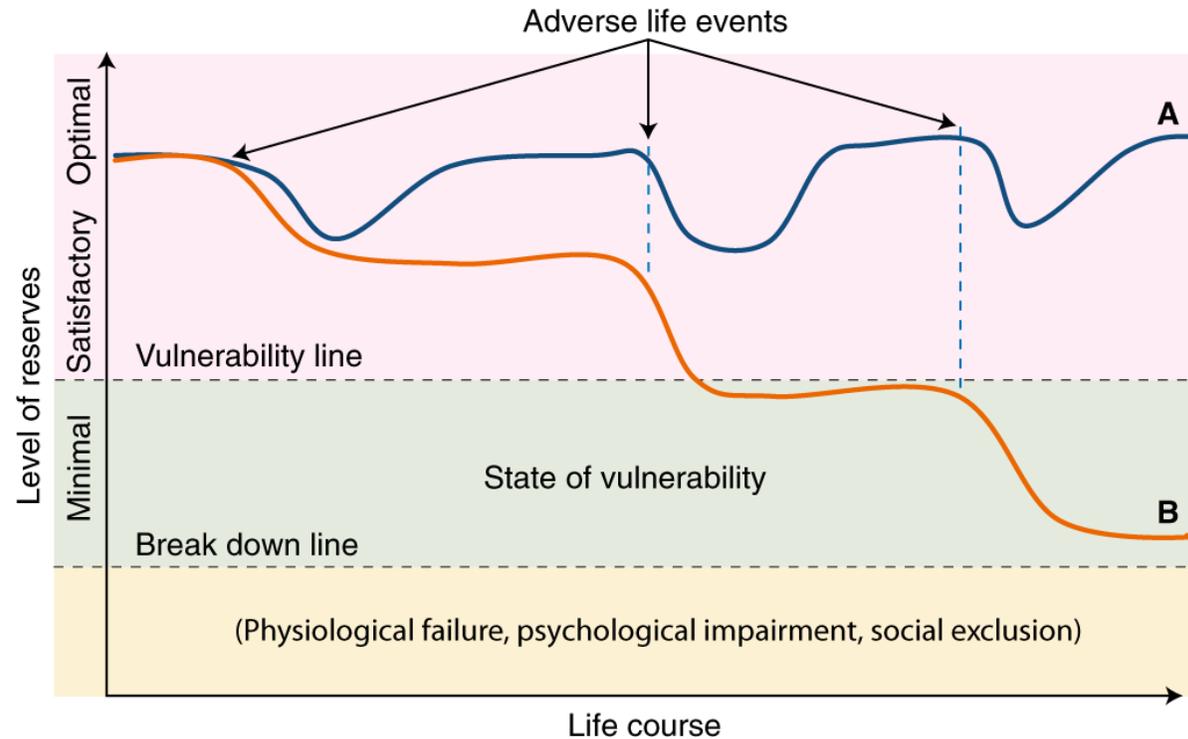
*(Redfield et al., 1936, p. 149)*

# Starting Point

Acculturation outcomes of two immigrant youth with similar sociocultural adaptation levels may differ substantially



One may be on an accelerated learning trajectory with resources to successfully negotiating multiple acculturation domains in a short time frame.



Another may be on a similar trajectory in one domain but slower in another domain and may have limited access to resources.

# Starting Point

Acculturation is a temporal process of change

- in one's orientation to different cultural contexts and milieus as well as other third (in-between cultural) spaces and cultures
- can start at different points in time
- proceed at different rates
- have different durations
- manifest differently across domains (e.g., cultural practices, values, or identifications)

# Starting Point

Ignoring these multiple dynamics limits the understanding of immigrant adaptation – a research area that, by definition, deals with change processes

# Starting Point

*Make it more  
dynamic!*

DOI: 10.1111/cdep.12458

ARTICLE

Child Development  
Perspectives

## New temporal concepts of acculturation in immigrant youth

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<sup>1</sup>Department of Psychology, Leibniz University of Hannover, Hanover, Germany

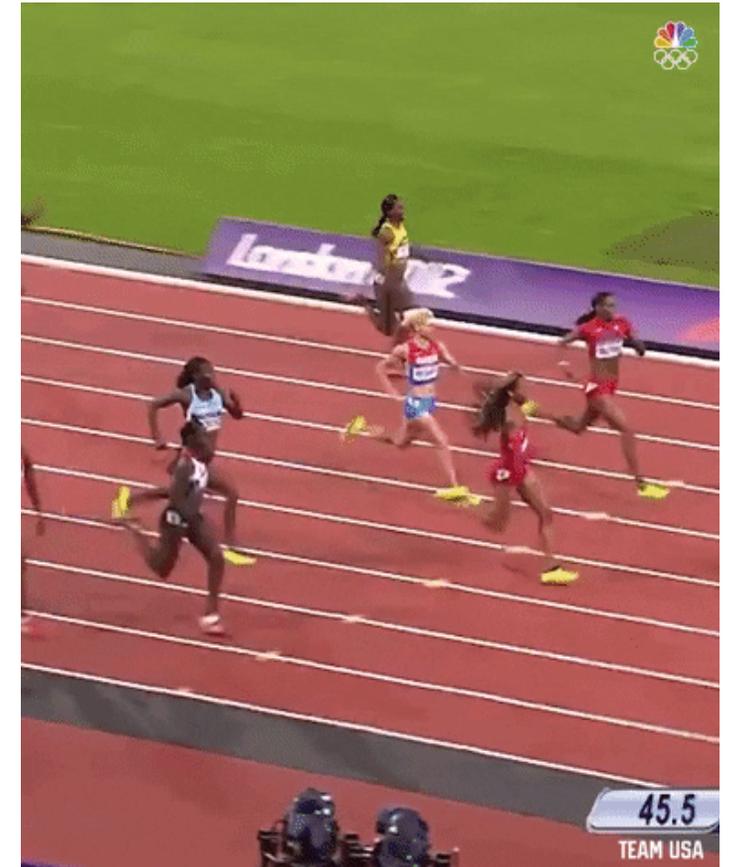
<sup>2</sup>Department of Psychology and Asian American Studies Program, University of Minnesota, Minneapolis, Minnesota, USA

### Correspondence

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### Abstract

Acculturation unfolds over time, but research on acculturation often does not account for developmental processes. Recent studies introduced several novel temporal concepts of acculturation processes to understand more fully how immigrant youth adapt to new cultural contexts. In this review, we describe these new temporal concepts of acculturation: Acculturative timing refers to youth's age at time of migration (chronological timing), the actual start of acculturative changes (which may occur before or after physical migration, also called transition timing), and the deviation in acculturative change from peers and relevant others from the same cohort and context (relative timing). Acculturation tempo is the duration of acculturation processes from start to a defined end. Acculturation pace is the



 Titzmann, P. F., & Lee, R. M. (2022). New temporal concepts of acculturation in immigrant youth. *Child Development Perspectives*, 165 - 172. <https://doi.org/10.1111/cdep.12458>

# A More Dynamic View on Acculturation

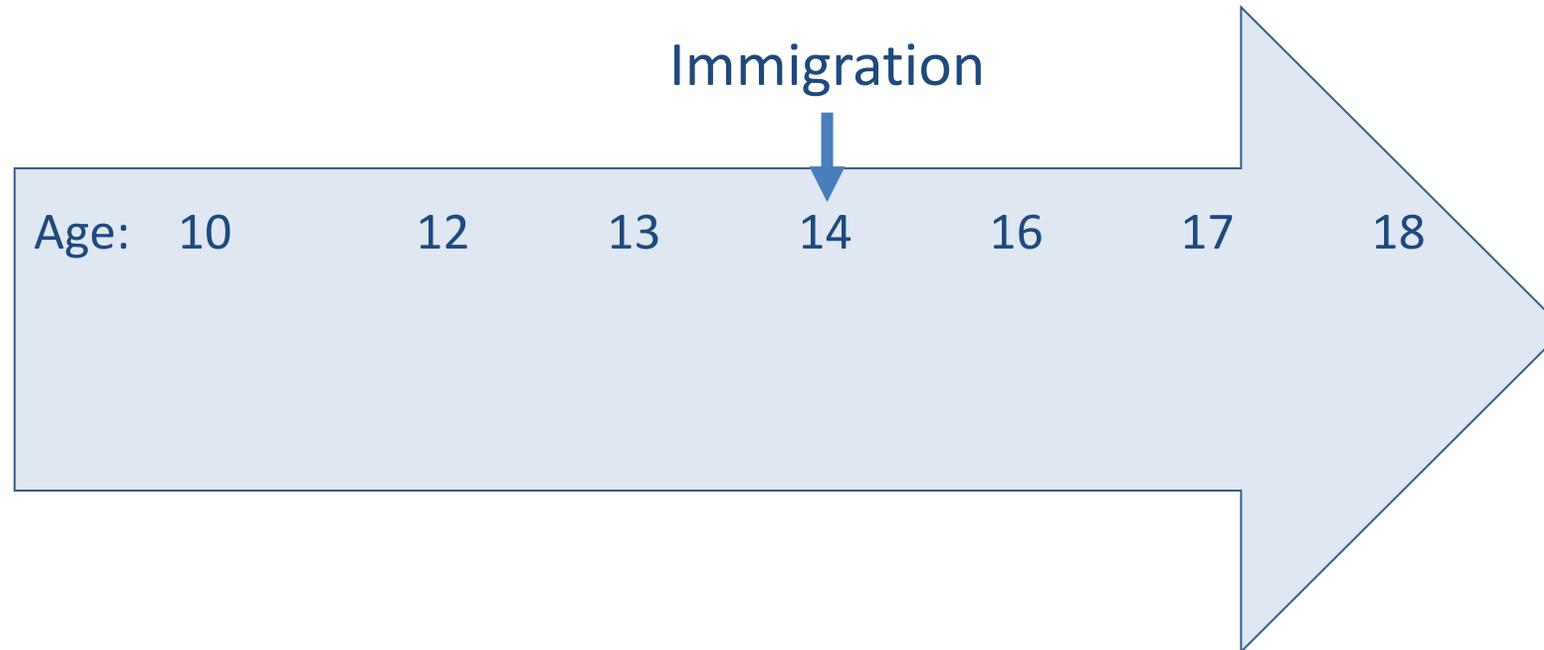
Acculturation research may profit from the dynamics in models of pubertal development

- When puberty begins (timing)
- How long does it last (tempo)
- How fast does it occur (pace)
- How coordinated are pubertal changes across different domains (synchrony)

# The Timing of Acculturation

## Starting Point

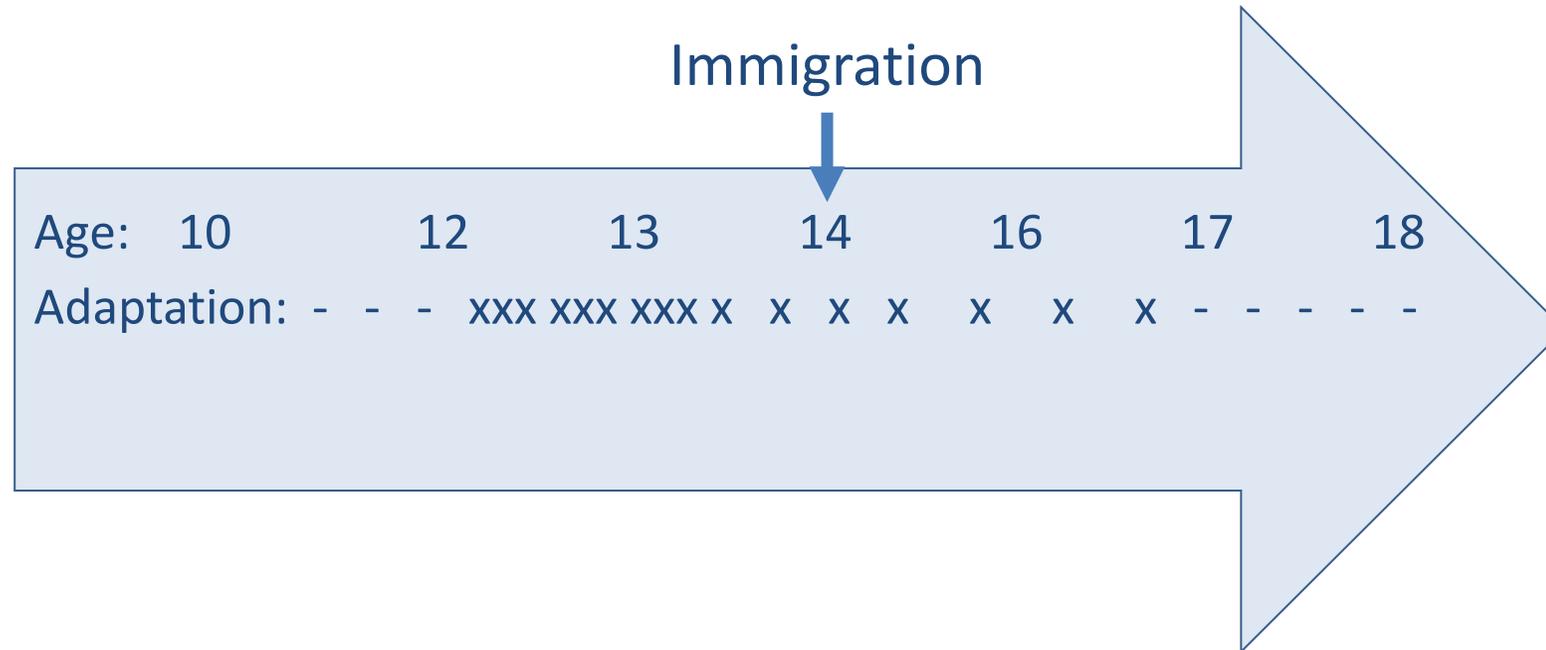
Chronological Timing: Age at time of immigration



# The Timing of Acculturation

## Starting Point

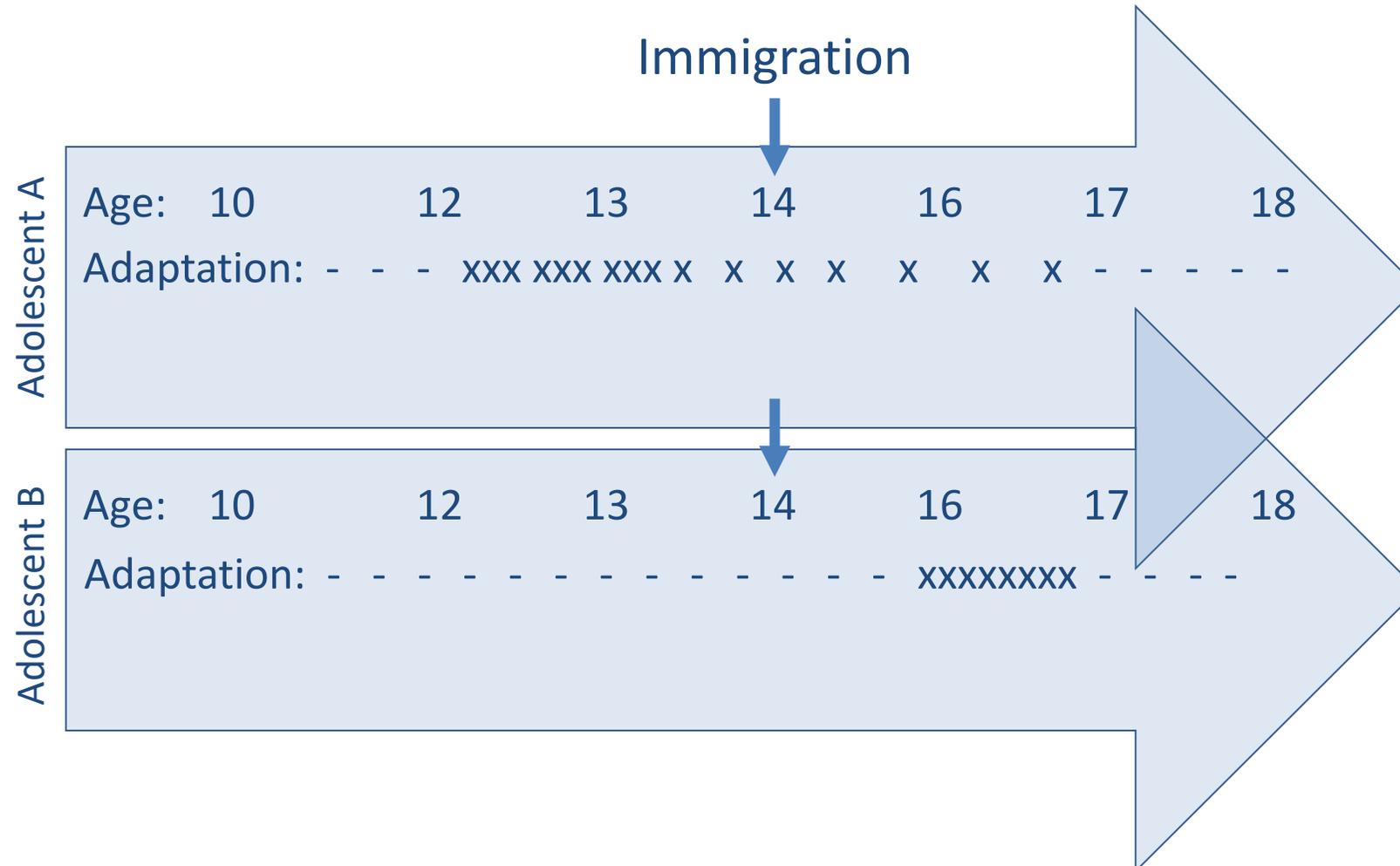
Transition Timing: Change may begin before or after immigration



# The Timing of Acculturation

## Starting Point

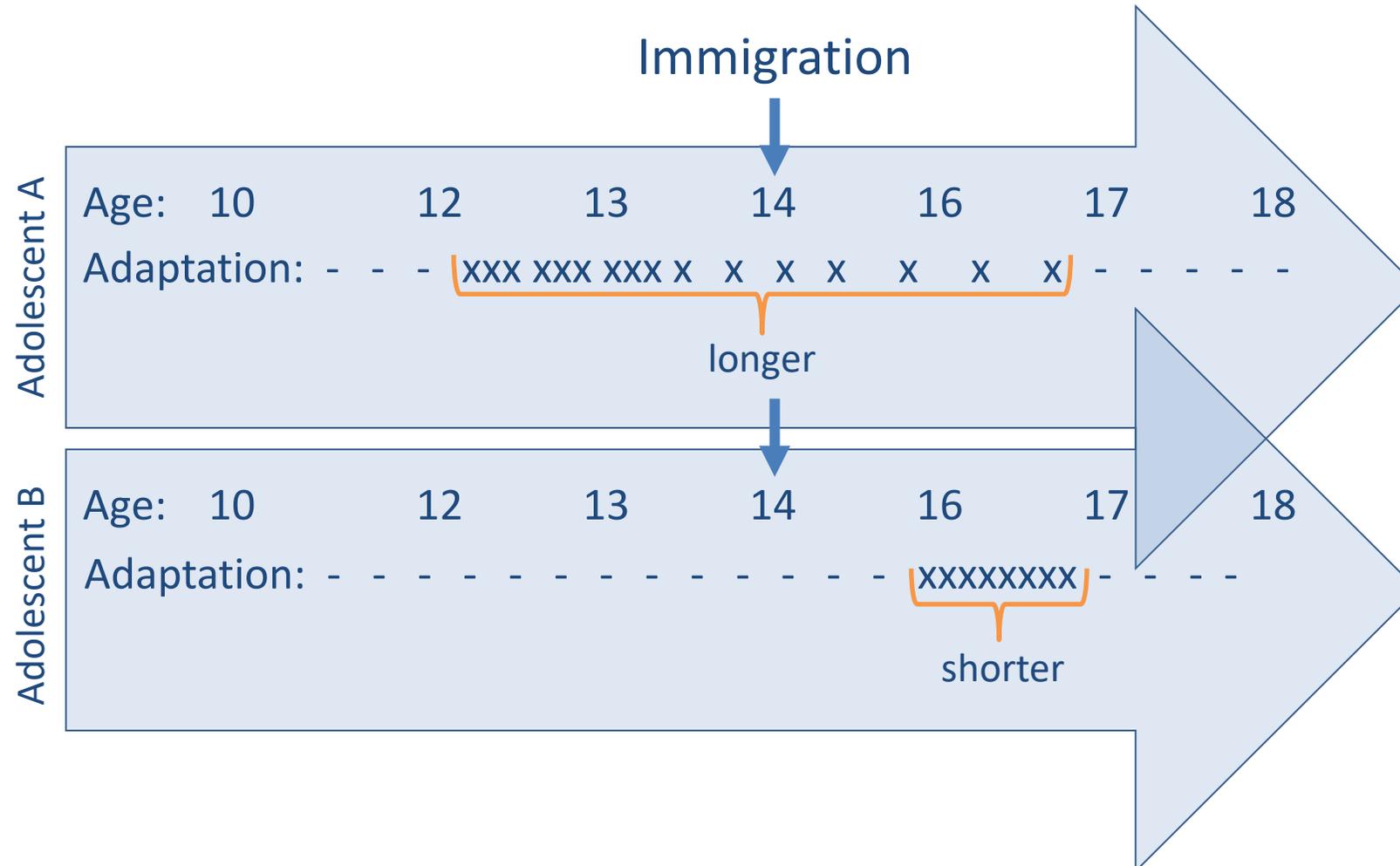
Relative Timing: Timing relative to peers (of same immigrant cohort and context)



# The Timing of Acculturation

How long it takes

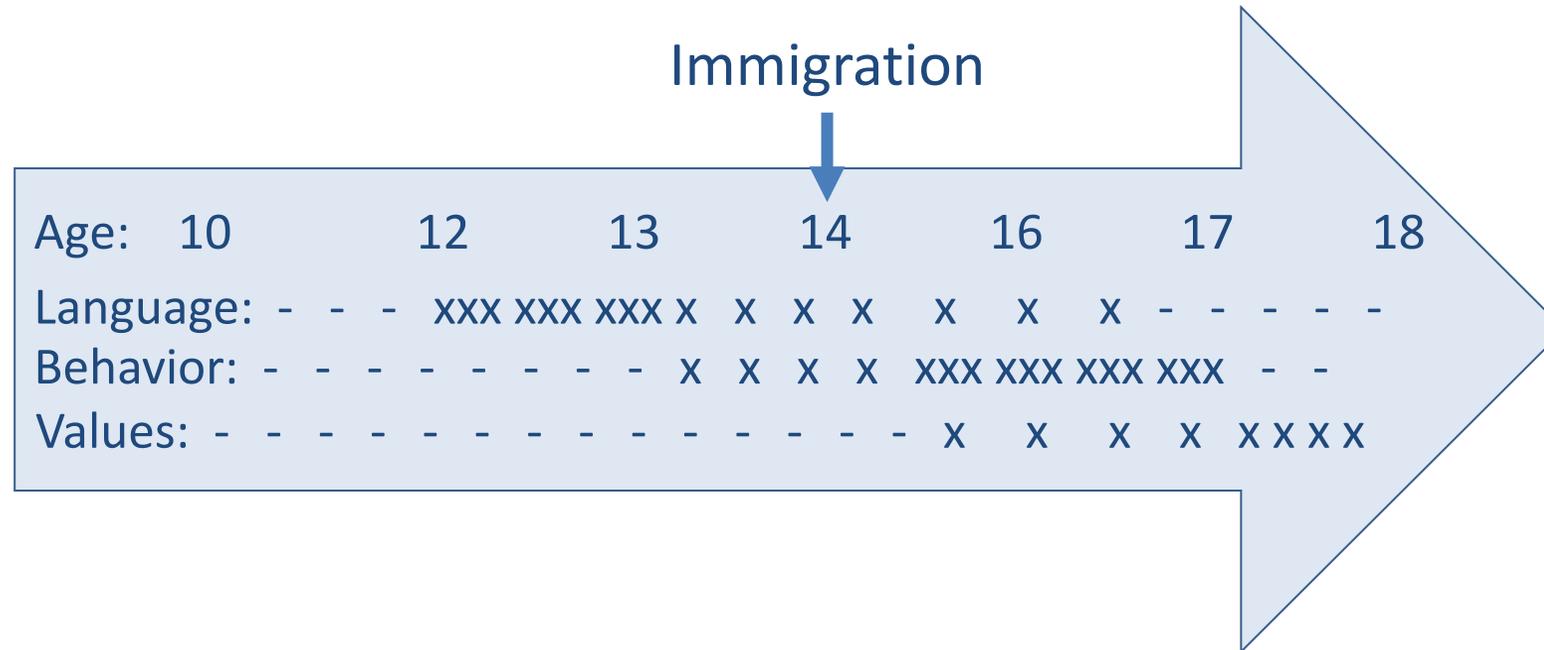
Acculturation tempo: Duration of reaching competency in a given domain



# The Timing of Acculturation

## Domains of life

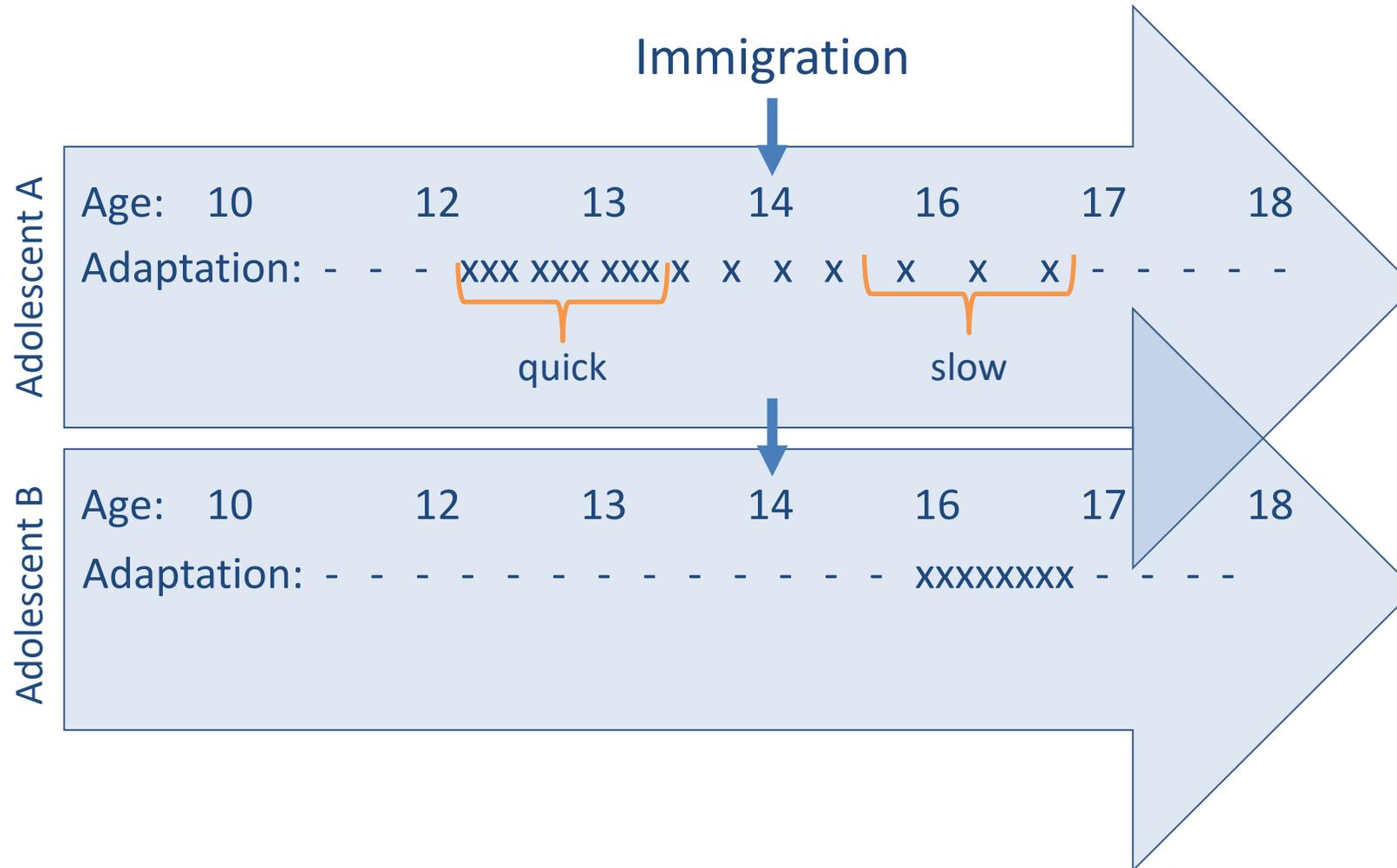
Acculturation Synchrony: Adaptation across different spheres of life



# The Timing of Acculturation

## The momentum of acculturation

Acculturation pace: The speed at which acculturation occurs



**TABLE 1** Concepts of acculturative change

<b>Timing component</b>	<b>Definition</b>	<b>Measurement</b>	<b>Examples of research areas with potentially high impact</b>
<i>Acculturation timing</i>			
Chronological timing	Time since or developmental stage at the day of immigration to a new country	Age at time of migration, length of residence	Assessment of broad acculturation or socialization changes in a new country without interest in specific adaptation mechanisms
Transition timing	The start of acculturative changes; may precede or succeed the actual physical migration	Pre- and postmigration assessments of the start of acquisition of cultural knowledge and skills; retrospective measures	Research on immigrant groups that are more likely to prepare (e.g., expatriates) or less likely to adapt due to little contact (e.g., youth in refugee camps or ethnic enclaves)
Relative timing	The deviation in acculturative change from peers from the same cohort and context	Deviation from predicted values based on peer reports or from standardized acculturation scores, self-reported deviation	Assessment of group-based processes, such as deviations from coethnic peers' cultural identification
<i>Acculturation tempo</i>			
	The duration of progressing through relevant acculturative tasks or stages	Measurement of time from start to achieving a particular competence (e.g., language certificates) or milestone (e.g., job); change rates in a specific process become very small in longitudinal studies; self-reported end-of-adaptation processes	Time to reach competences and achievements (e.g., fall below a predefined stress level, move out of a refugee shelter, pass a language test)
<i>Acculturation pace</i>			
	The speed at which acculturation occurs, which may vary inter- and intrapersonally	Rate of change between assessments in longitudinal research: difference scores, slopes in latent growth modeling, true-change scores	Research in adaptation domains with varying adaptation paces (e.g., pace differs between parents' and adolescents' acculturation)
<i>Acculturation synchrony</i>			
	The adaptation across different spheres of life	Measuring acculturation in multiple dimensions	Studying the interplay of heritage-cultural and receiving-cultural aspects across practices, values, and identifications

# Is There Evidence?



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Developmental Psychology

<https://doi.org/10.1037/dev0001351>

## Striking a New Path to Study the Adaptation Processes of Immigrant Adolescents: Changes in Language Use and Family Interactions

Lara Aumann<sup>1</sup>, Peter F. Titzmann<sup>1</sup>, and Richard M. Lee<sup>2</sup>

<sup>1</sup> Department of Psychology, Leibniz University Hannover

<sup>2</sup> Department of Psychology, University of Minnesota

Investigating the adoption and use of the host language is one common method for studying acculturation among immigrants. What is less known is how this type of acculturation changes over time and how individual patterns of change can affect other adaptation processes in the host country, for example within families. This study investigated immigrant adolescents' host language use by applying two recently introduced concepts of acculturative change, pace (the speed in which one acculturates) and relative timing (one's acculturation level relative to coethnic peer acculturation levels), and its relation with family interactions (child disclosure, acculturation-related family hassles). Data comprised a three-wave longitudinal sample of 378 ethnic German immigrant parent-adolescent dyads from former Soviet Union in Germany (adolescent  $M_{age} = 15.7$ , 62% girls). Latent True-Change models were used to model pace of acculturative changes between waves. Structural equation analyses revealed that acculturative pace in language use predicted family interactions over time: Pace between Wave 1 and 2 predicted higher levels of child disclosure, pace between Wave 2 and 3 increased acculturation-related family hassles. Associations were

Acculturation was conceived as a process of change in the 1930s!

It is time to measure change

Study 1: Acculturation Pace in Language Use and Family Interactions

New Perspectives on the Acculturation Gap

 Aumann, L., Titzmann, P. F., & Lee, R. M. (2022). Striking a new path to study the adaptation processes of immigrant adolescents: Changes in language use and family interactions. *Developmental Psychology*, 58(6), 1163–1175.

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Relative timing	The deviation in acculturative change from peers from the same cohort and context	Deviation from predicted values based on peer reports or from standardized acculturation scores, self-reported deviation	Assessment of group-based processes, such as deviations from coethnic peers' cultural identification
<i>Acculturation tempo</i>	The duration of progressing through relevant acculturative tasks or stages	Measurement of time from start to achieving a particular competence (e.g., language certificates) or milestone (e.g., job); change rates in a specific process become very small in longitudinal studies; self-reported end-of-adaptation processes	Time to reach competences and achievements (e.g., fall below a predefined stress level, move out of a refugee shelter, pass a language test)
<i>Acculturation pace</i>	The speed at which acculturation occurs, which may vary inter- and intrapersonally	Rate of change between assessments in longitudinal research: difference scores, slopes in latent growth modeling, true-change scores	Research in adaptation domains with varying adaptation paces (e.g., pace differs between parents' and adolescents' acculturation)
<i>Acculturation synchrony</i>	The adaptation across different spheres of life	Measuring acculturation in multiple dimensions	Studying the interplay of heritage-cultural and receiving-cultural aspects across practices, values, and identifications

# Evidence1: Acculturation Pace and Family Interactions

Acculturation Pace is assumed to particularly affect family dynamics:

Host language adoption has been found to be associated with family interactions, due to intergenerational differences in host-culture adaptation

**BUT** unknown is whether...

- actual level of host language use (e.g., the state of language use)
- or
- the timing of language adoption (e.g., sudden or pronounced changes in language use) affect family interactions (Wang & Yip, 2020)

# Evidence1: Acculturation Pace and Family Interactions

## Reanalysis of 3 wave-longitudinal research project

### Sample

**378 ethnic German immigrant parent-adolescent dyads** from former Soviet Union in Germany: **adolescents:** mean age 15.7 years (range = 10–19 years), 62% girls, mean LOR in Germany 7.8 years (range = 2–17 years); **parents:** (85% mothers) mean age 44.7 years, 50% holding a degree from a college of higher education or university, 80% married

### Measures

**family hassles:** intrafamilial acculturation-related conflicts due to adolescents' adaptation to the host culture (Titzmann et al., 2011)

### **Acculturative Pace**

measured by **latent True-Change models** (McArdle & Hamagami, 2001; Steyer et al., 1997)

- change over time is modelled directly by latent, measurement error-free difference variables
- allows to study interindividual differences in intraindividual change

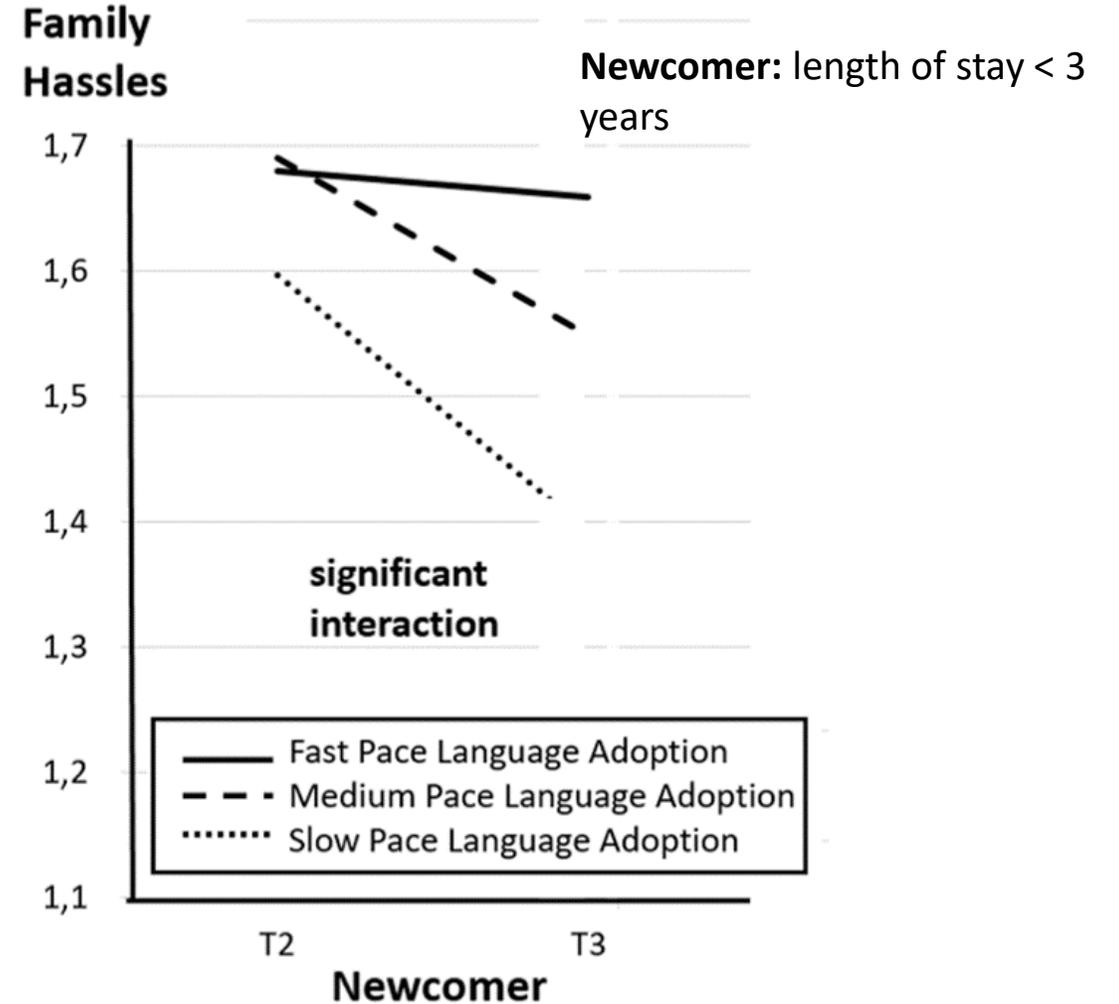
# Evidence1: Acculturation Pace and Family Interactions

Structural equation analyses with standardized regression coefficients:

Predictors	Model 1b: Pace 2 family hassles Estimate ( <i>SE</i> )
Age	0.04 (0.05)
Female gender	0.04 (0.05)
LOR	<b>0.18** (0.05)</b>
Parental language fluency	0.02 (0.06)
Parental education	0.08 (0.05)
Relative timing language	0.06 (0.06)
Pace 1 language	0.09 (0.06)
Pace 2 language	<b>0.15** (0.05)</b>
Pace 1 × LOR	0.05 (0.05)
Pace 2 × LOR	<b>-0.11** (0.05)</b>
$\chi^2$ ( <i>df</i> )	35.7 (10), $p < .001$
$R^2$	.10

# Evidence1: Acculturation Pace and Family Interactions

Interaction of length of residence & Pace 2 of host language use on Pace 2 of family hassles (Model 1b)



# Evidence1: Acculturation Pace and Family Interactions

Adolescents' acculturative pace predicts family interactions:

Family Hassles

Child Disclosure (not shown)

- The speed of changes (accelerated or decelerated change) needs to be taken into account to explain developmental processes!
- The actual level of any variable may not be the most decisive – particularly in dynamic processes

No effect of relative timing found!

# Is There Evidence?

Journal of Youth and Adolescence  
<https://doi.org/10.1007/s10964-023-01830-6>

EMPIRICAL RESEARCH



## Acculturation Timing among Newcomer and more Experienced Immigrant Youth: The Role of Language Use in Ethnic Friendship Homophily

Peter F. Titzmann <sup>1</sup> · Lara Aumann <sup>1</sup> · Richard M. Lee <sup>2</sup>

Received: 28 June 2023 / Accepted: 24 July 2023  
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### Abstract

The usage of the new language is a crucial aspect in immigrant youth adaptation. However, despite substantial inter- and intraindividual variability and dynamic changes, language usage has been studied primarily with a focus on static interindividual differences. This study utilized a recently introduced Temporal Model of Acculturative Change to test associations between language acquisition and friendship homophily. More specifically, three concepts were tested: pace (individual rate of change), relative timing (the deviation from peers with similar length of residence), and transition timing (preparedness for the relocation). Data comprised a three-wave-longitudinal sample of 820 ethnic German adolescents from Eastern European States who immigrated to Germany (Mage = 16.1, 57% girls). Results revealed, particularly among recent immigrant adolescents, that transition timing predicted earlier relative acculturation timing in language usage and that early relative timing in language usage predicted levels and change rates in friendship homophily (over and above acculturation pace and the actual level of language usage). Findings highlight the need to better understand the dynamics in acculturation processes of immigrant youth.

**Keywords** Acculturation timing · Immigrant adolescents · Host language acquisition · Friendship homophily · Acculturative development

Acculturation was conceived as a process of change in the 1930s!

It is time to measure change

Study 2: Relative Acculturation Timing in Language Use and Friendship Homophily

Titzmann, P. F., Aumann, L., & Lee, R. M. (2023). Acculturation Timing among Newcomer and more Experienced Immigrant Youth: The Role of Language Use in Ethnic Friendship Homophily. *Journal of Youth and Adolescence*, Advance Online Publication. <https://doi.org/10.1007/s10964-023-01830-6>

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Relative timing	The deviation in acculturative change from peers from the same cohort and context	Deviation from predicted values based on peer reports or from standardized acculturation scores, self-reported deviation	Assessment of group-based processes, such as deviations from coethnic peers' cultural identification
<i>Acculturation tempo</i>	The duration of progressing through relevant acculturative tasks or stages	Measurement of time from start to achieving a particular competence (e.g., language certificates) or milestone (e.g., job); change rates in a specific process become very small in longitudinal studies; self-reported end-of-adaptation processes	Time to reach competences and achievements (e.g., fall below a predefined stress level, move out of a refugee shelter, pass a language test)
<i>Acculturation pace</i>	The speed at which acculturation occurs, which may vary inter- and intrapersonally	Rate of change between assessments in longitudinal research: difference scores, slopes in latent growth modeling, true-change scores	Research in adaptation domains with varying adaptation paces (e.g., pace differs between parents' and adolescents' acculturation)
<i>Acculturation synchrony</i>	The adaptation across different spheres of life	Measuring acculturation in multiple dimensions	Studying the interplay of heritage-cultural and receiving-cultural aspects across practices, values, and identifications

# Evidence2: Relative Timing and Homophily

Relative Acculturation Timing is assumed to particularly affect peer relations:

Ethnic friendship homophily is the phenomenon that individuals prefer contact with ethnically similar individuals

The use of the new language (as indicator of sociocultural adaptation) has been found to predict ethnic friendship homophily

**BUT** unknown is whether...

- the actual level of host language use (e.g., the state of language use)
- or
- the divergence from co-ethnic peers with similar length of residence predict friendship homophily

# Evidence2: Relative Timing and Homophily

## Reanalysis of 3 wave-longitudinal research project

### Sample

**1173 ethnic German immigrant adolescents** from former Soviet Union in Germany:

mean age 16.04 years (range = 10–19 years), 57% girls, mean LOR in Germany 7.4 years (range = 1–18 years)

### Measures

**Friendship homophily:** share of intra-ethnic friends among all friends (%)

### **Relative Acculturation Timing**

**Dummy variables** (mean level & standard deviation of language use at T1 calculated for each length of residence year)

- “early”: youth show higher levels of language use than average peer level (+ 1SD)
- “late”: youth show lower levels of language use than average peer level (-1 SD)

### **Acculturative Pace**

measured by **latent True-Change models** (McArdle & Hamagami, 2001; Steyer et al., 1997)

- change over time is modelled directly by latent, measurement error-free difference variables
- allows to study interindividual differences in intraindividual change

# Evidence2: Relative Timing and Homophily

Journal of Youth and Adolescence

**Table 3** Prediction of Level (Intercept) and change (slope) in friendship homophily

	Newcomer						Experienced					
	Intercept			Slope (linear)			Intercept			Slope (linear)		
	Estimate	S.E.	<i>p</i>	Estimate	S.E.	<i>p</i>	Estimate	S.E.	<i>p</i>	Estimate	S.E.	<i>p</i>
Age	2.550	0.710	0.0001	−0.712	0.489	0.145	1.721	0.570	0.003	0.254	0.389	0.514
Length of residence	−3.593	0.865	0.0001	2.159	0.581	0.0001	1.195	0.781	0.126	0.494	0.541	0.362
Female Gender	0.302	2.458	0.902	0.746	1.938	0.700	1.493	2.681	0.578	0.948	1.865	0.610
Language use T1	−1.482	3.165	0.640	−9.410	2.236	0.0001	−12.467	3.022	0.0001	−1.674	2.412	0.448
Relative Timing late	11.196	6.117	0.067	−6.606	3.894	0.090	−6.883	5.655	0.224	−4.984	4.035	0.217
Relative Timing early	−18.523	6.020	0.002	11.748	3.865	0.002	0.015	5.228	0.998	−2.262	5.228	0.516
Pace T2-T1				−26.788	6.330	0.0001				−42.769	8.784	0.0001

# Evidence2: Relative Timing and Homophily

Relative Acculturation Timing predicts adolescents' ethnic friendship homophily:

- The deviation from co-ethnic peers has to be taken into account in explaining (particularly social) behavior
- Again, the actual level is only one piece of the puzzle

Pace also had an Effect on friendship homophily

**TABLE 1** Concepts of acculturative change

<b>Timing component</b>	<b>Definition</b>	<b>Measurement</b>	<b>Examples of research areas with potentially high impact</b>
<i>Acculturation timing</i>			
Chronological timing	Time since or developmental stage at the day of immigration to a new country	Age at time of migration, length of residence	Assessment of broad acculturation or socialization changes in a new country without interest in specific adaptation mechanisms
Transition timing	The start of acculturative changes; may precede or succeed the actual physical migration	Pre- and postmigration assessments of the start of acquisition of cultural knowledge and skills; retrospective measures	Research on immigrant groups that are more likely to prepare (e.g., expatriates) or less likely to adapt due to little contact (e.g., youth in refugee camps or ethnic enclaves)
Relative timing	The deviation in acculturative change from peers from the same cohort and context	Deviation from predicted values based on peer reports or from standardized acculturation scores, self-reported deviation	Assessment of group-based processes, such as deviations from coethnic peers' cultural identification
<i>Acculturation tempo</i>	The duration of progressing through relevant acculturative tasks or stages	Measurement of time from start to achieving a particular competence (e.g., language certificates) or milestone (e.g., job); change rates in a specific process become very small in longitudinal studies; self-reported end-of-adaptation processes	Time to reach competences and achievements (e.g., fall below a predefined stress level, move out of a refugee shelter, pass a language test)
<i>Acculturation pace</i>	The speed at which acculturation occurs, which may vary inter- and intrapersonally	Rate of change between assessments in longitudinal research: difference scores, slopes in latent growth modeling, true-change scores	Research in adaptation domains with varying adaptation paces (e.g., pace differs between parents' and adolescents' acculturation)
<i>Acculturation synchrony</i>	The adaptation across different spheres of life	Measuring acculturation in multiple dimensions	Studying the interplay of heritage-cultural and receiving-cultural aspects across practices, values, and identifications

# Evidence2: Relative Timing and Homophily

Table 1 Prediction of membership in the (early or late) relative timing group among newcomer adolescent immigrants

	Late relative Timing			
	B	Standard Deviation	Sig	Odds ratio
Constant	-10.467	1.980	0.000	
Age	0.539	0.097	0.000	1.714
Male gender	-0.805	0.405	0.047	0.447
<u>Transition Timing</u>				
Wish to immigrate to Germany	-0.525	0.272	0.048	0.591
<u>No</u> preparation by parents for challenges in new country	1.405	0.422	0.001	4.077
Decision by parents	-0.017	0.485	0.972	0.983
<u>Context factors</u>				
Percentage of Aussiedler in school at T1	0.055	0.016	0.001	1.057
Positive (0) vs. negative experiences (7)	0.386	0.153	0.012	1.471
Parental education	0.378	0.154	0.014	1.459
Reference group	early			

# Conclusion

Take home message:

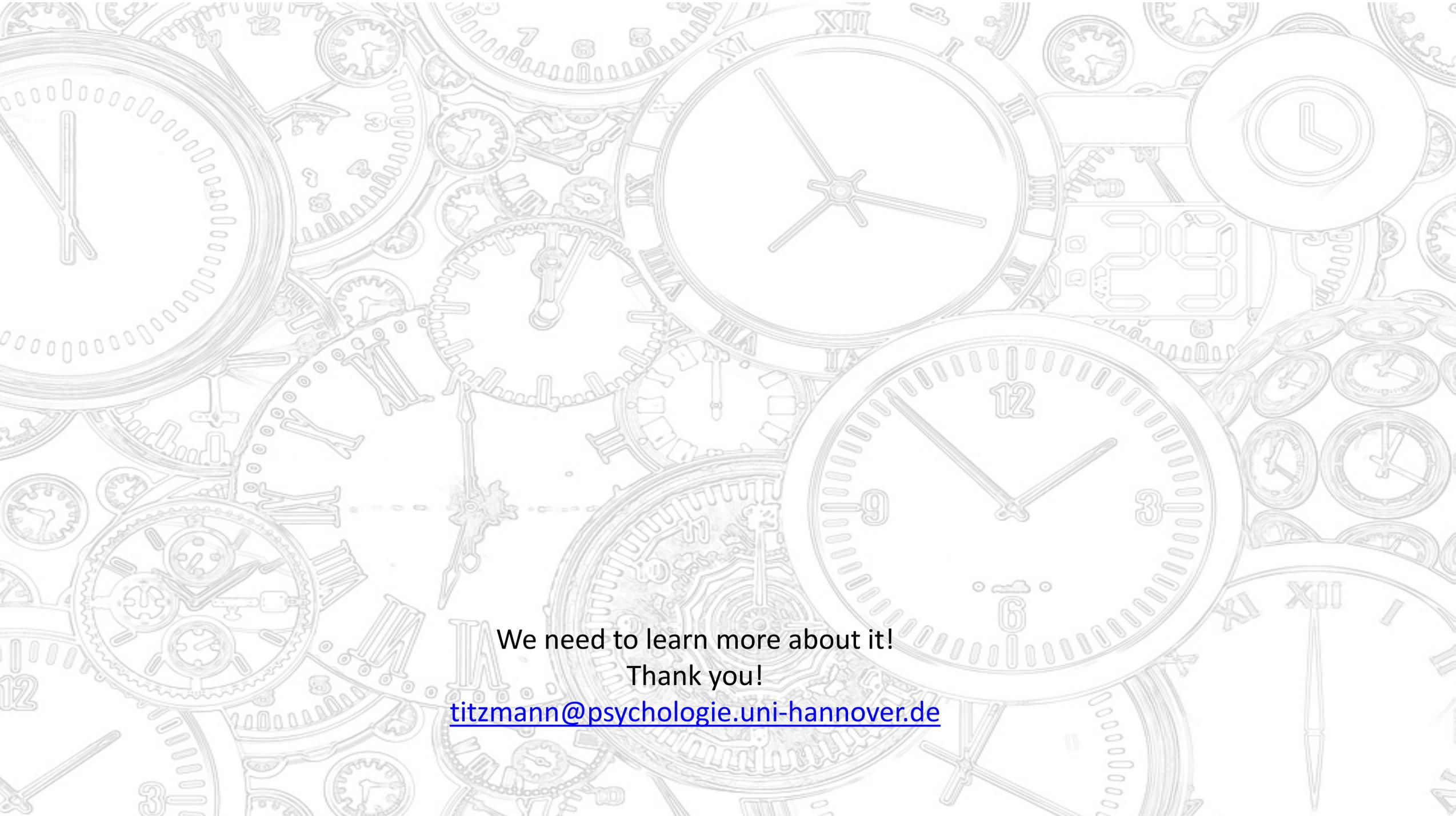
- Development is often very dynamic and is a process of change that takes place in constant interaction with proximal and distal contexts
- Variable driven research (even longitudinal research) can not be able to address the full dynamic complexity
  - Individuals (particularly adolescents) are part of **groups**
  - There are substantial inter- and intraindividual differences in **rates of change**
  - Adolescents are **differently prepared** for developmental experiences
  - Adolescents may differ in **how long it takes** to reach developmental milestones
  - ...
- **Testing moderations** that include aspects of time (developmental stages, age, time of exposure to events, etc.) seems promising – not only in immigration research
- Which aspect of timing is most relevant is a matter of the outcome

# Conclusion

Implications: Change is more than just controlling for earlier levels of a variable, what could be considered?

For example:

- **Incubation time:** On what basis are time intervals measured? How long does it take for an intervention to be change behaviors?
- **Windows of opportunities:** What is the best age for an intervention? Are there developmental stages in which a new experience can impact behavior more or less effectively?
- **Side effects:** Are there developmental conditions that are in conflict with interventions?
- **Types of individuals or subgroups:** Are there subgroups for which the finding is more (or less) applicable?



We need to learn more about it!

Thank you!

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Timing Concept	Definition	Examples
Phase Transition	A period in which established behavioral patterns are destabilized and a reorganization of the developmental system becomes necessary	Life changing events (birth of sibling, divorce, ...)
Relative developmental timing	Deviation from peers (as compared to actual level)	More or less normative group processes (puberty, drivers license, ...)
Transition timing	The actual starting point for developmental processes	<ul style="list-style-type: none"> <li>• students are better prepared for school</li> <li>• date of birth not the best indicator for premature infants</li> </ul>
Tempo of development	Duration of progressing through relevant developmental tasks or stages	Clearly defined developmental milestones (time needed to accomplish a task - getting a drivers license, developing a skill)
Developmental Synchrony	The adaptation across different spheres of life	Effects of meso-context (parent-peer agreement or disagreement)
Developmental Pace	The speed at which developmental processes occur, which may vary inter- and intrapersonal	All developmental processes without linear changes