

Anzahl der Silben einer Reihe	Anzahl der bis zum ersten fehlerfreien Hersagen (excl.) erforderlichen Wiederholungen	Wahrscheinlicher Fehler
7	1	
12	16,6	± 1,1
16	30	± 0,4
24	44	± 1,7
26	55	± 2,8

Theorizing the Learning Plateau

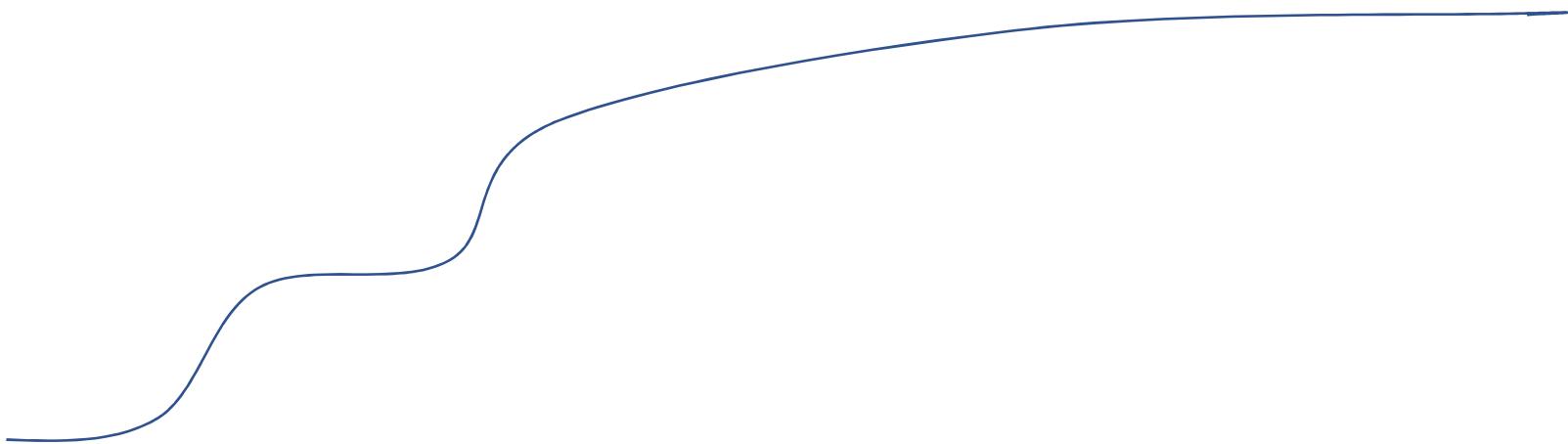
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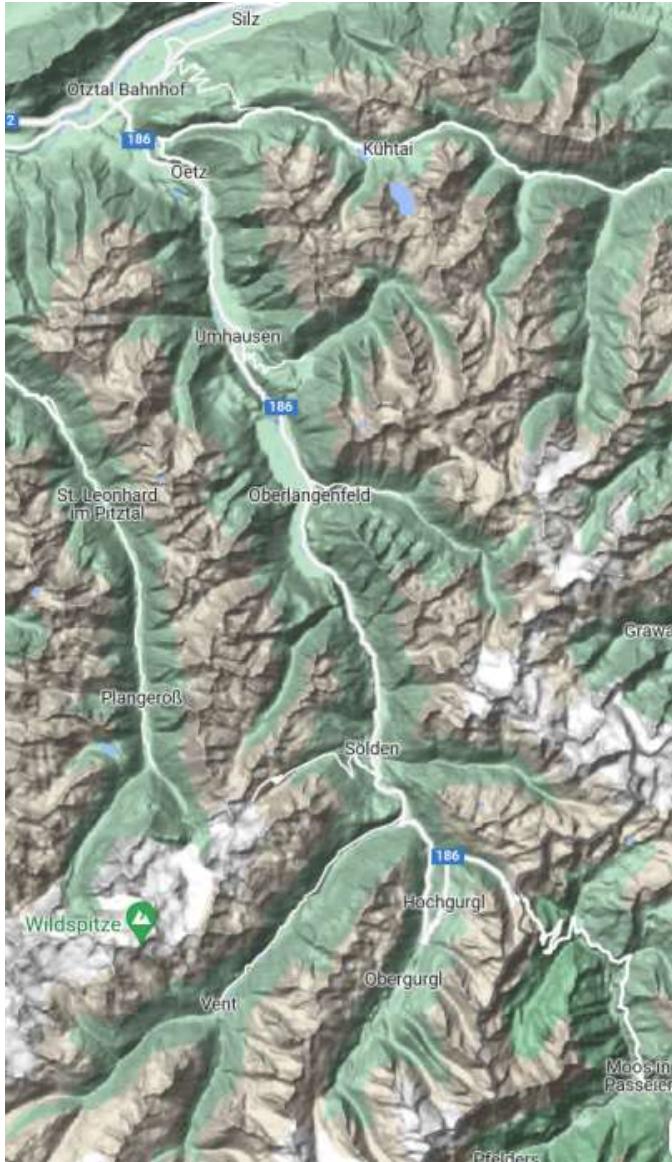
Irma Eloff

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University of Pretoria
Irma.Eloff@up.ac.za

Assoziation ...



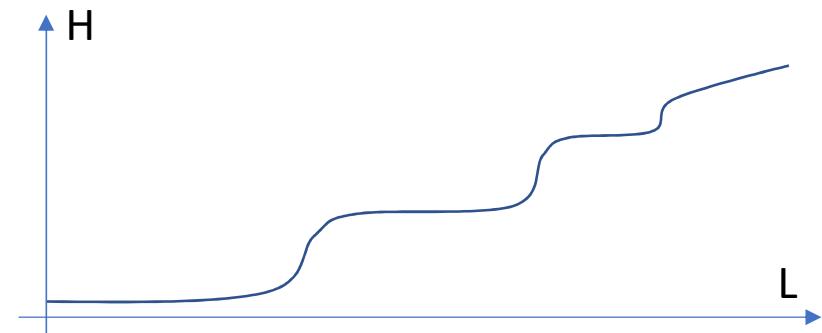
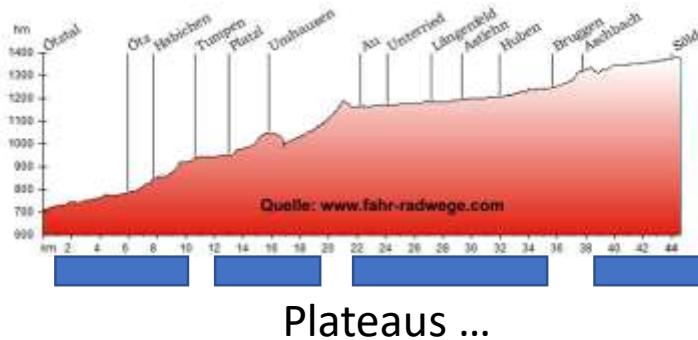
Assoziation – Grundlagen – Herkunft – Aktualität – Modell



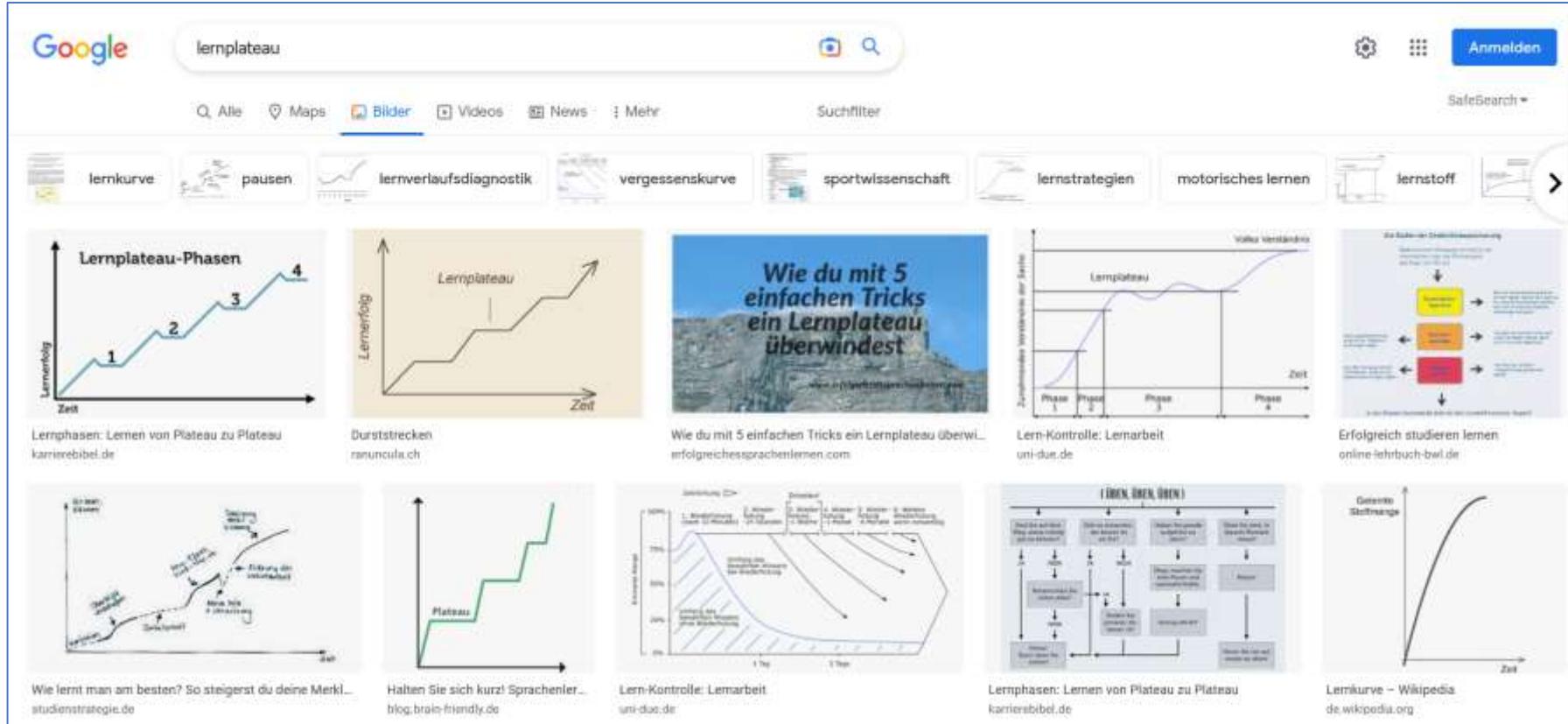
Ötztal

- fünf klimatische & landschaftliche Stufen (Obstgärten/Getreidefelder bis Gletscherregion).
- Talstufen durch Schluchten & Engen voneinander getrennt
- Talbecken von Oetz, Umhausen, Längenfeld, Sölden & Zwieselstein

Assoziation – Grundlagen – Herkunft – Aktualität – Modell

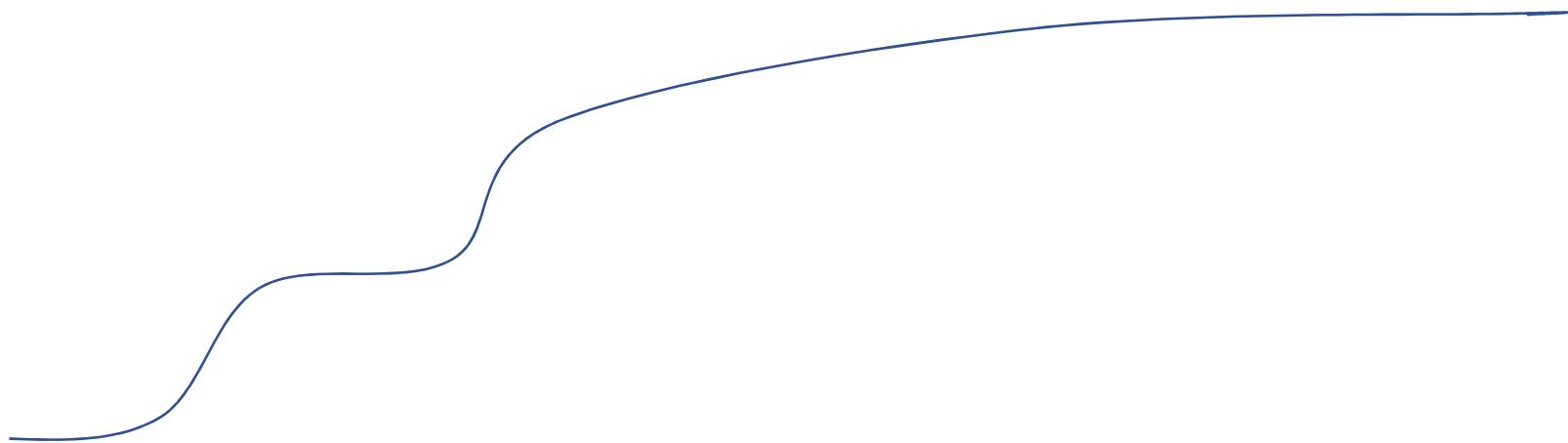


Assoziation – Grundlagen – Herkunft – Aktualität – Modell

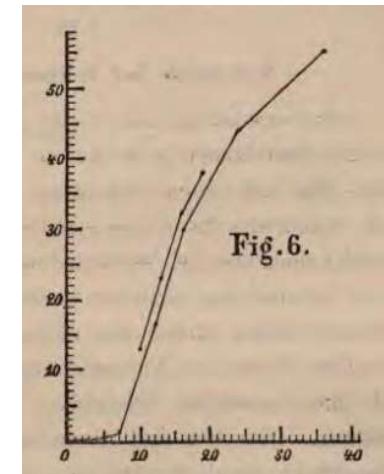


→ Lernplateau

Grundlagen ...



„Eine Lernkurve stellt den Zusammenhang zwischen dem Erfolgsgrad des Lernens einer Aufgabe und der darauf verwendeten Zeit graphisch dar. Die Lernkurve wird über den Quotienten aus Lernertrag (Stoffmenge) und Lernaufwand (Zeit) berechnet.“
(Krapp & Weidemann 2004)

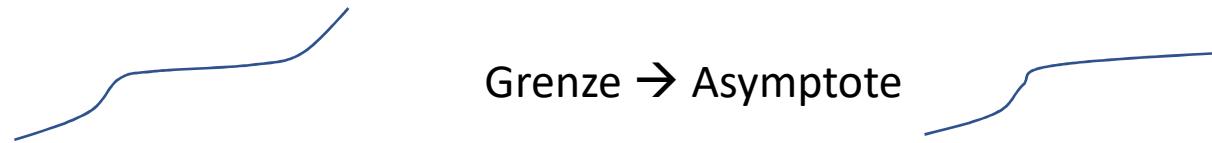


„Learning plateau is a long flat and horizontal stretch in the learning curve, which represents a stationary stage, where apparently no progress in learning is recorded. A plateau in learning represents a period in a learning process where no improvement occurs even with any number of practice.“ (Glenn 1993)

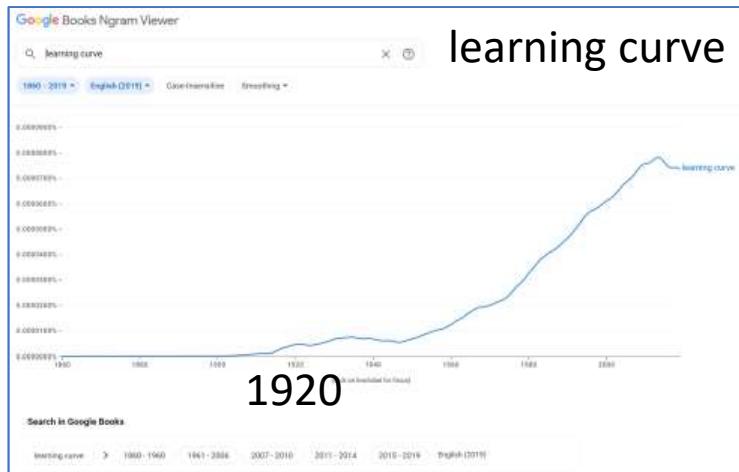
In der Lernpsychologie bezeichnet man den flachen Verlauf in einer Lernkurve, in welcher der Zusammenhang zwischen Übungszeit und Lernerfolg dargestellt wird, als Lernplateau, auf dem für einen gewissen Zeitraum der Lernfortschritt stagniert. Die Lernkurve steigt in diesem Fall also nicht weiter an und verläuft nahezu waagrecht. Eines solche Plateaubildung tritt vor allem beim Erwerb komplexer psychischer Fertigkeiten und beim Erlernen bzw. Üben motorischer Fertigkeiten [...]. Manchmal kommt es in der Lernkurve danach zu einem umso steilerer Anstieg, der auf latente Prozesse während der Plateaubildungsphase zurückgeführt werden kann, den man als Übungseffekt bezeichnet. Ein solcher Lernstillstand kann aber auch ein Hinweis auf individuelle Leistungsgrenzen eines Menschen sein, bei dem auch ein Motivationsverlust in Betracht gezogen werden sollte. Lernplateaus können daher auch eine Lernblockade zur Folge haben, wenn sich trotz Übens kein Lernfortschritt mehr einstellt.

Stangl, W. (2022, 21. September). *Lernplateau – Online Lexikon für Psychologie und Pädagogik*. <https://lexikon.stangl.eu/16752/lernplateau>.

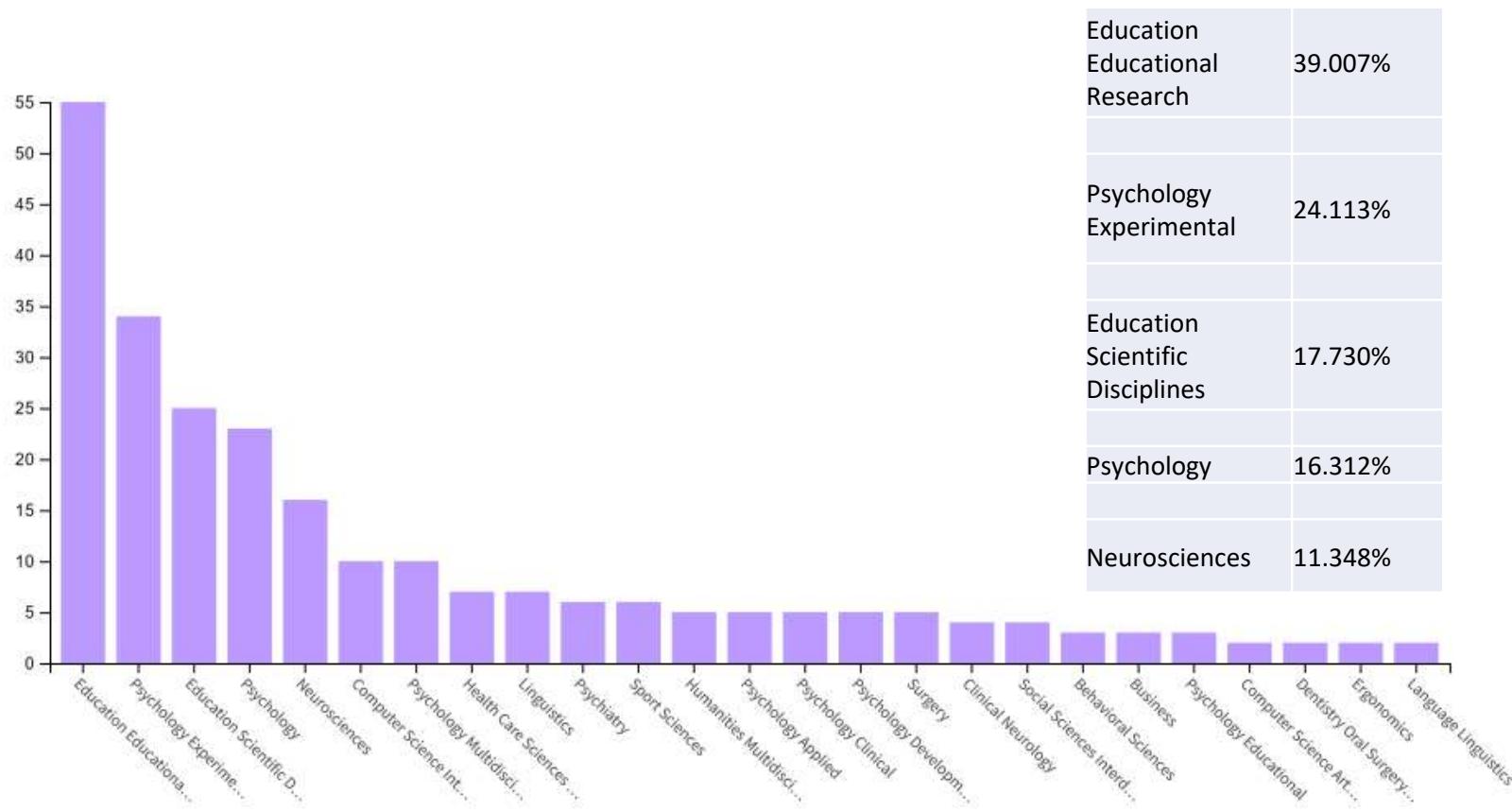
Überwinden → Plateau



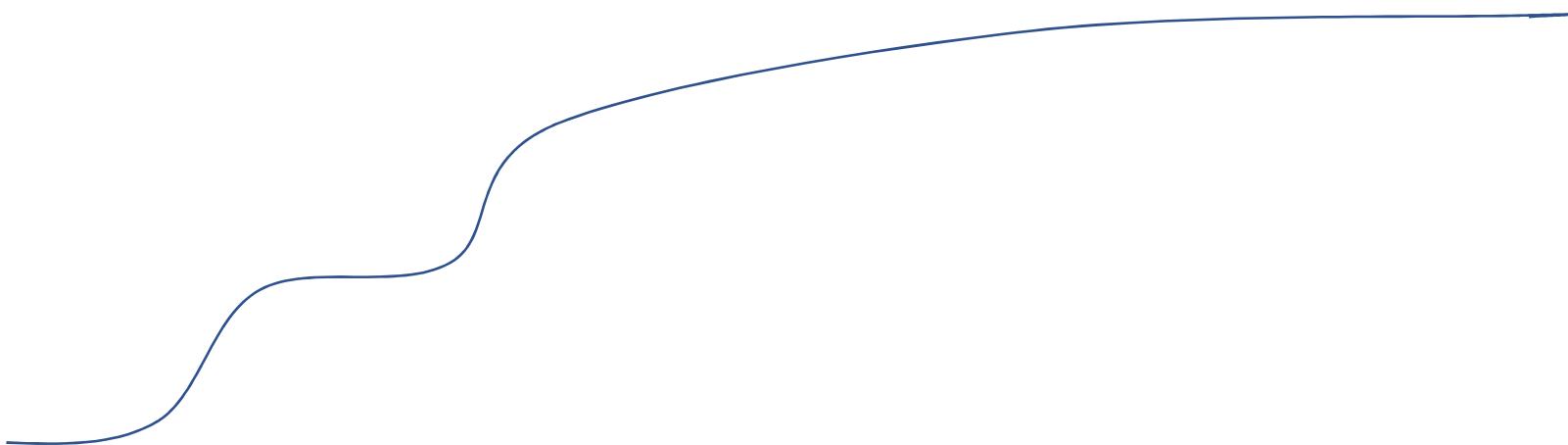
Google Ngram



Web of Science Analysis

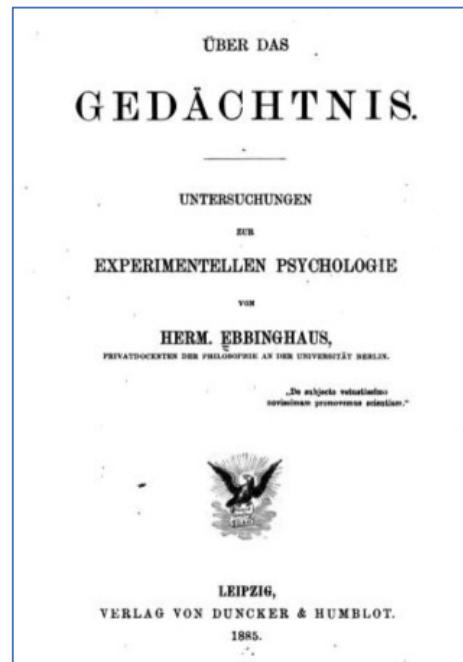


Herkunft ...

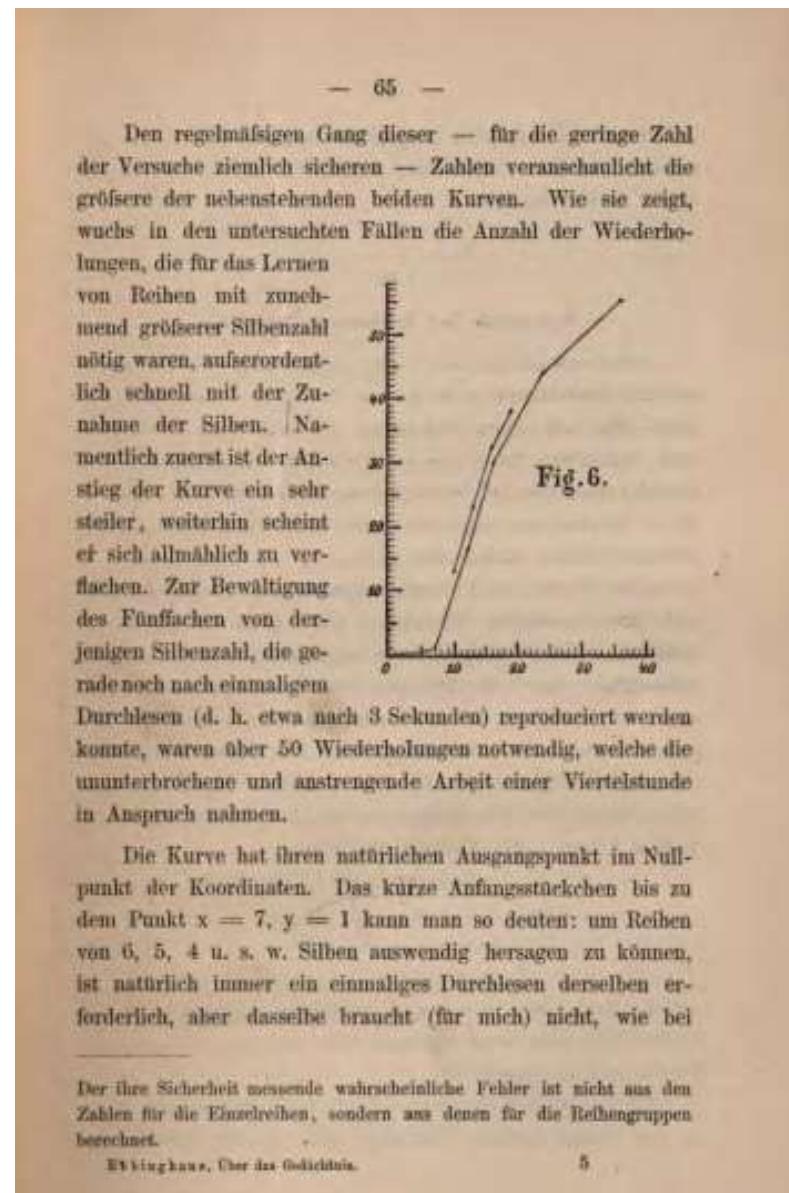




Hermann Ebbinghaus
(1850-1909)



- deutscher Psychologe
- Pionier der kognitiv-psychologischen Forschung
- experimentelle Gedächtnisforschung
- Lern- und Vergessenskurve
- Wegbereiter der empirische Lehr-, Lern- und Bildungsforschung.



STUDIES IN THE PHYSIOLOGY AND PSYCHOLOGY
OF THE TELEGRAPHIC LANGUAGE.

BY PROFESSOR WILLIAM LOWE BRYAN AND MR. NOBLE
HARTER.¹

Indiana University.

In March, 1893, Mr. Harter began at the Psychological Laboratory of the Indiana University a study of certain problems connected with the acquisition of the telegraphic language. Eleven months were spent at and away from the University in a preliminary study of these problems, in the light of his own experience, and by diligent, personal cross-examination of thirty-seven operators, employed by the Wabash Railway Company and by the Western Union Telegraph Company. Of these, seven were recognized as experts, twenty-two as men of average experience and ability, while eight had barely enough skill to hold their places. Twenty-eight of the number had been personally known to H. from two to sixteen years. Throughout these and the subsequent investigations, the members of the telegraphic fraternity showed the most cordial interest and readiness to help.

In March, 1894, H. began at the University Laboratory, an experimental study of individual differences in telegraphic writing. The experimental part of this study continued until August, 1894, and the study of the results until June, 1895. A review of certain phases of the results was made in January, 1896. During the winter of 1895–96 he was engaged with the study of the curve of improvement in sending and receiving.

II. THE PRELIMINARY STUDY.

The first year's work was in the nature of an exploring expedition in search of the problems which would repay fuller in-

¹N. H., a graduate student of Psychology at Indiana University, was for many years a railroad telegrapher, and is an expert in that branch of telegraphy. The experiments were made under Professor Bryan's direction.

VOL. VI. No. 4.

JULY, 1899.

THE PSYCHOLOGICAL REVIEW.

STUDIES ON THE TELEGRAPHIC LANGUAGE.
THE ACQUISITION OF A HIERARCHY
OF HABITS.

BY PROFESSOR WILLIAM LOWE BRYAN,
University of Indiana;
AND SUPERINTENDENT NOBLE HARTER,
Wabash, Indiana.

I.

THE PSYCHOLOGY OF AN OCCUPATION.

A field for research is offered in the psychology of occupations. The chief engagement of every one is the acquisition or exercise of one or another association of habits, such as constitutes skill in a game, trade, profession, language, science or the like. With a little license one may call all of these occupations. In mastering an occupation, doubtless the whole man is involved, body and mind, sensation and movement, thought, interest, imagination, will,—innumerable known and unknown aspects of our psycho-physical life.

It might be argued that such an affair is too complex for scientific treatment until we have done with more elementary things, the fusion of ideas, the psycho-physic law, the chemistry of the cell, or whatever may be still more elementary. In reply, it may be said that the history of science justifies the study of concrete facts, however simple or complex, whether or not the results can at once be correlated with other facts and theories. One studies microscopically, another macroscopically. One studies the chemistry of the cell, another tone sensations,

- Bryan, W. L., & Harter, N. (1897). Studies in the physiology and psychology of the telegraphic language. *Psychological Review*, 4(1), 27–53. doi:10.1037/h0073806

- Bryan, W. L., & Harter, N. (1899). Studies on the telegraphic language: The acquisition of a hierarchy of habits. *Psychological Review*, 6(4), 345–375. doi:10.1037/h0073117



Edward Lee Thorndike
(1874 - 1949)

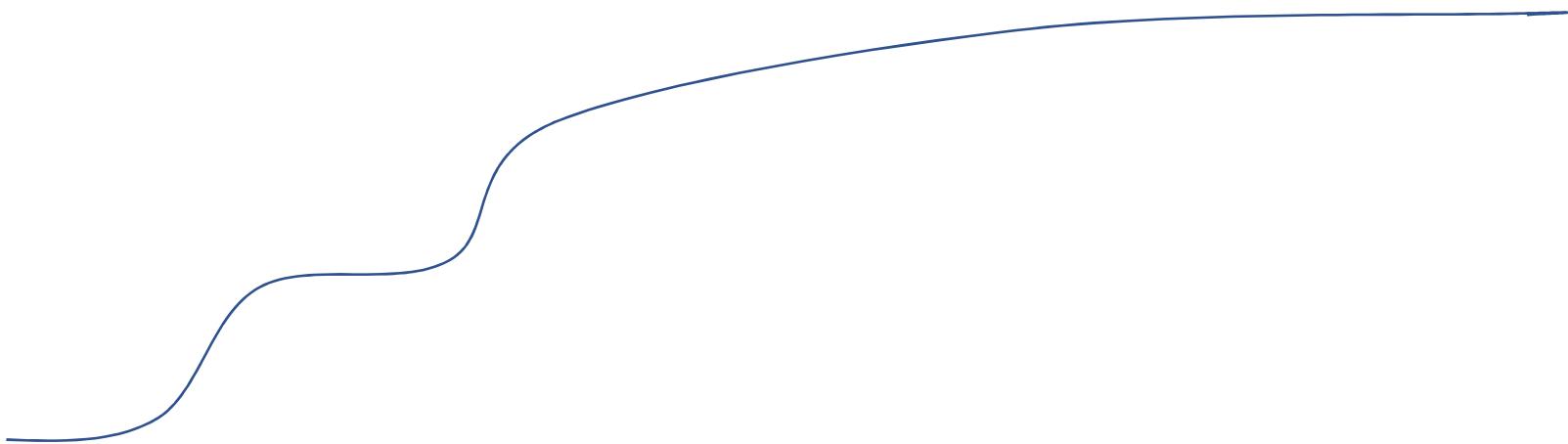
It seems to me therefore that mental training in schools, in industry and in morals is characterized, over and over and over again, by spurious limits— by **levels or plateaus of efficiency** which could be surpassed. The person who remains on such a level may have more important things to do than to rise above it; the rise, in and of itself, may not be worth the time required; the person's nature may be such that he truly cannot improve further, because he cannot care enough about the improvement or cannot understand the methods necessary. But sheer absolute restraint—because the mechanism for the function itself is working as well as it possibly can work—is rare. (Thorndike, 1913, p. 181)

It appears likely that the majority of teachers make no gain in efficiency after their third year of service, but I am confident that the majority of such teachers could teach very much better than they do.
[...]

Even in a game where excellence is zealously sought, the assertion that “I stay at just the same level, no matter how much I practice” probably does not often mean that the individual in question has really reached the physiological limit set for him in that function. (Thorndike, 1913, p. 179)



Aktualität ...



Assoziation – Grundlagen – Herkunft – **Aktualität** – Modell

Milstein, M. (1990). *Plateauing: A growing problem for educators and educational organizations*. Teaching & Teacher Education. Vol. 6, No. 2. pp. 173-181. 1990

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Zwart, F.S., Vissers, C., Kessels, R. & Maes, J. (2019). *Procedural learning across the lifespan: A systematic review with implications for atypical development*. Journal of Neuro-psychology (2019), 13, 149–182 ©2017 The British Psychological Society

Howard, R. W. (2020). *Mapping the outer reaches of the learning curve: Complex intellectual skill performance after decades of extensive practice*. Acta Psychologica. Volume 209, September 2020, 103135

Shin, S., Mercer, S., Babic, S., Sulis, G., Mairitsch, A., King, J. & Jin, J. (2021). *Riding the happiness curve: the wellbeing of mid-career phase language teachers*. The Language Learning Journal, DOI: 10.1080/09571736.2021.1979632

Gray, W.D., Banerjee, S. (2021). *Constructing Expertise: Surmounting Performance Plateaus by Tasks, by Tools, and by Techniques*. Topics in Cognitive Science 13 (2021) 610–665 © 2021 Cognitive Science Society LLC ISSN: 1756-8765 online DOI: 10.1111/tops.12575

Bereiche: Sport, Musik, Spracherwerb, Mathematik, ..., Modellierung, ...

Rahman, R., Gray, W.D. (2020). *SpotLight on Dynamics of Individual Learning*. Topics in Cognitive Science 12 (2020) 975–991

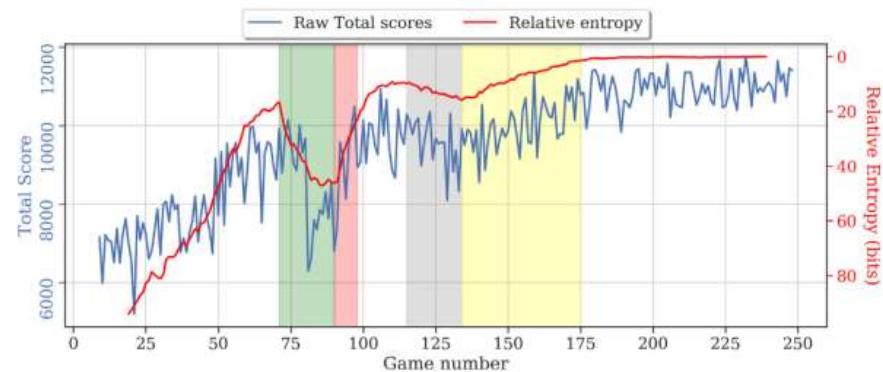


Fig. 2. Performance of our best player, Player 7, through Total score and its relative entropy curve. Green and gray regions denote two dip periods; red and yellow regions show the two leaps that follow the dips.

Gray, W.D., Lindstedt, J.K (2017). *Plateaus, Dips, and Leaps: Where to Look for Inventions and Discoveries During Skilled Performance*. Cognitive Science 41 (2017) 1838–1870

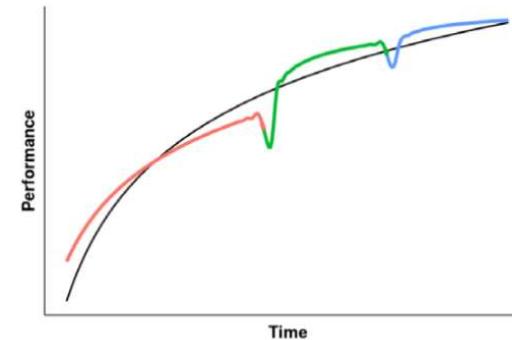


Fig. 4. Notional plot of a succession of three performance curves separated by dips and leaps.

Abfall und Sprung

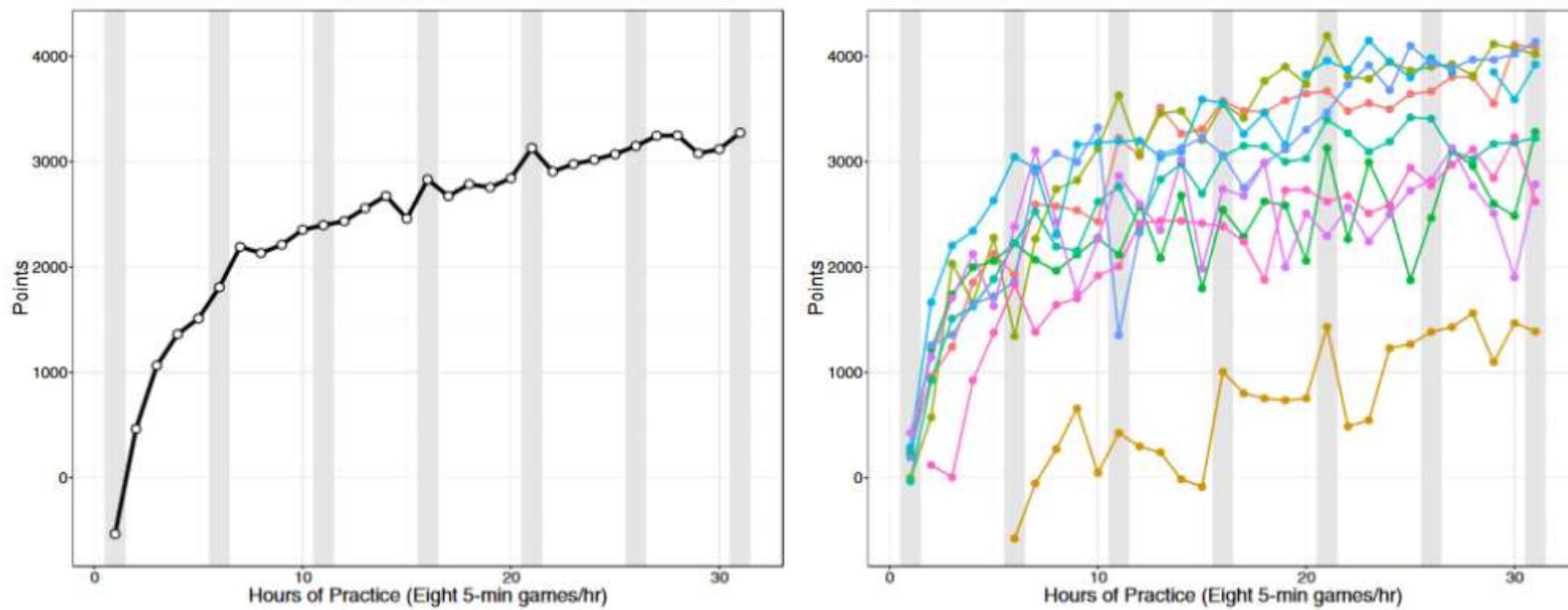
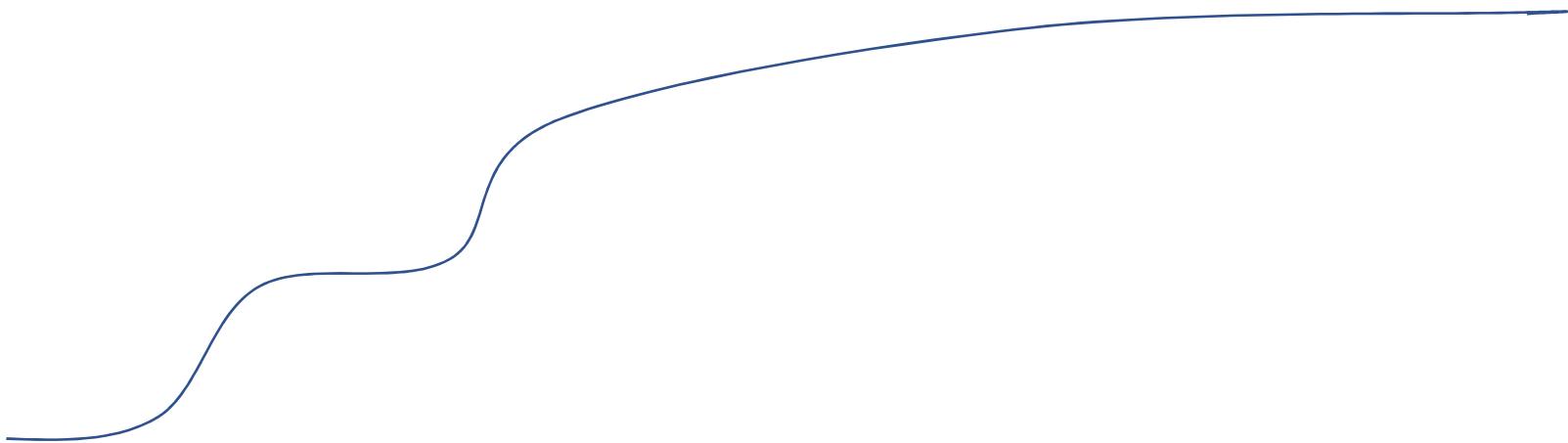


Fig. 8. Contrast between growth in performance averaged across all players (left plot—showing the black line with white dots) and variability in the growth of individual performance (right plot—colored lines with colored dots). Data come from nine people who played Space Fortress (Donchin, 1995) for 31 h (eight games per each hour, no more than 1 h per day). Note that to better highlight the plateaus, dips, and leaps in individual data, we truncated the range of the y-axis to -600 . (From Destefano & Gray, 2016.)

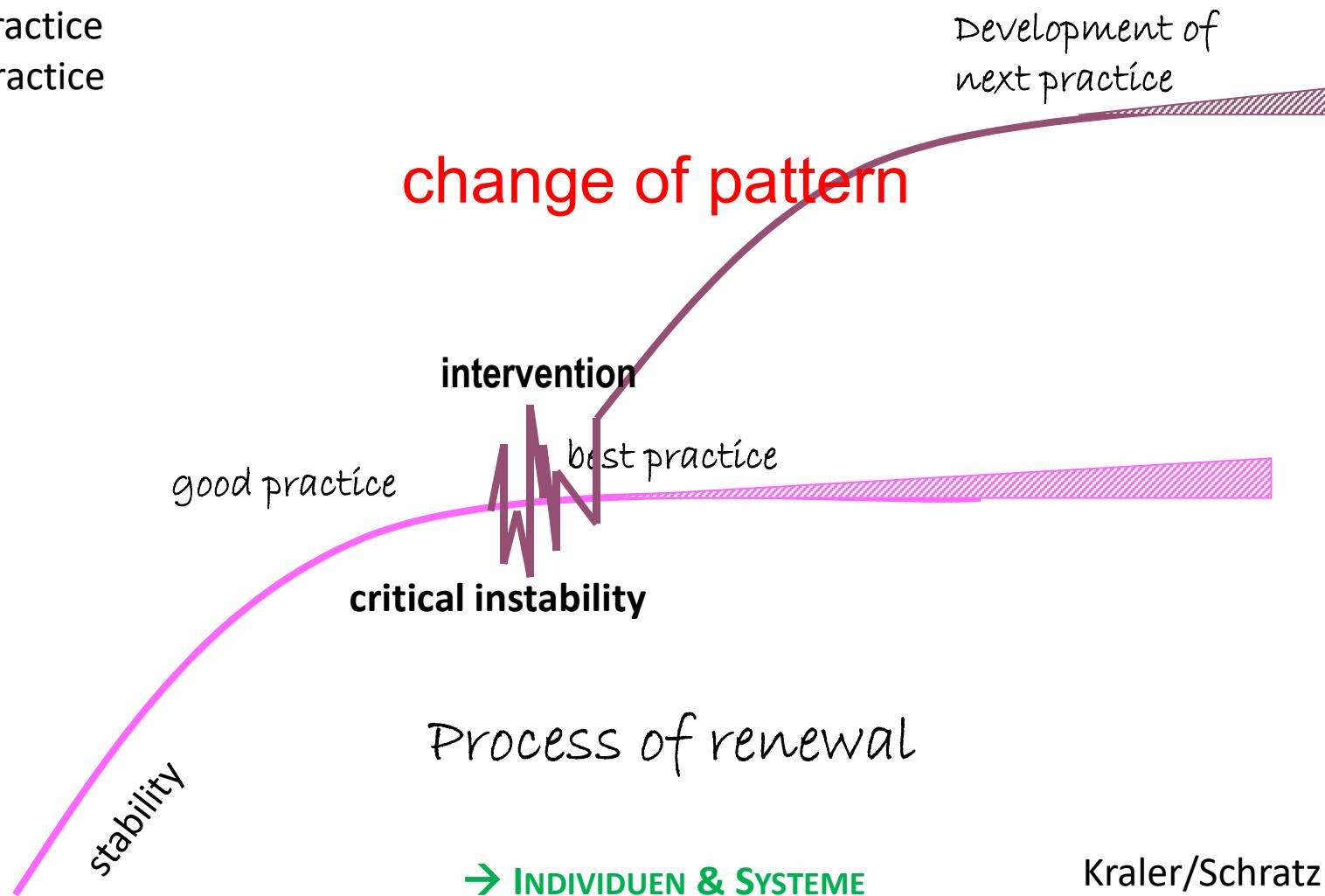
Quelle: Gray, W.D., Lindstedt, J.K (2017).

Modell ...



A shift from best practice to next practice

- good practice
- best practice
- next practice



Modell

- **gute Praxis:** wenn durch Forschung, Erfahrung und Expertenurteile plausibel gemacht ist, dass sie bezogen auf die Aufgabe wirksam zur Erreichung der gesetzten Ziele
Erfolg basierend auf zugrundeliegenden Handlungs- und Denkmustern
- **beste Praxis:** Steigerung der Bemühungen, um mehr zu erreichen, mehr erreichen durch Intensivierung/Optimierung (*mehr vom Gleichen*)
- **nächste Praxis:** einen neuen Weg finden, um mit Herausforderung umzugehen, alternative Handlungs- und Denkmuster (*Musterwechsel*)
- **shift:** Intervention zum Wechsel des bestehenden Musters

*Nachhaltiger Entwicklungsprozess über einen
Musterwechsel*

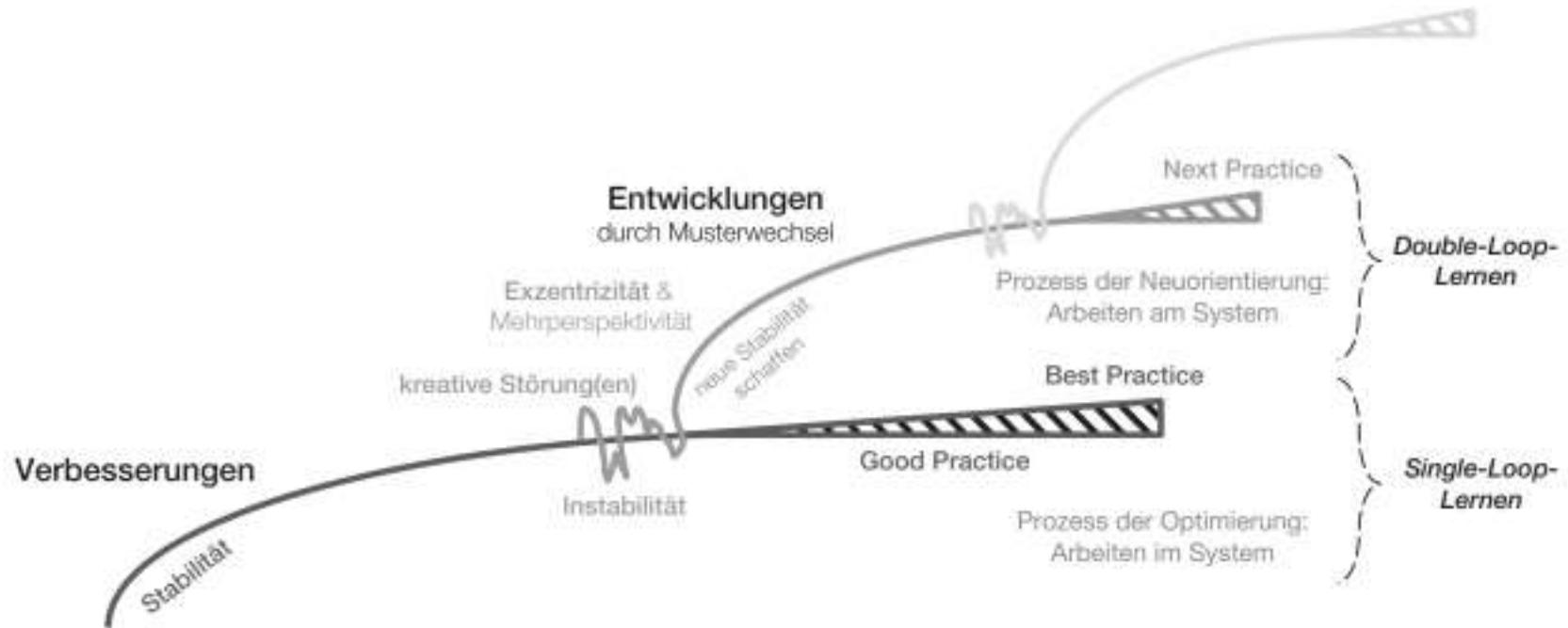
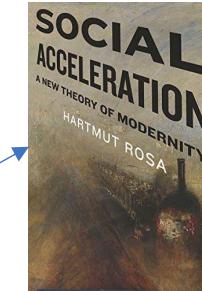
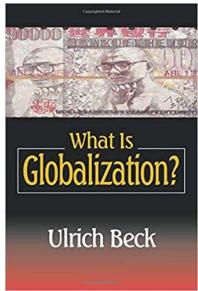


Abbildung 2: Next Practice – Von Verbesserungen zur Entwicklung und zu Verbesserungen (eigene Darstellung in Anlehnung an Kruse, 2004)

Wiesner/Schreiner 2019

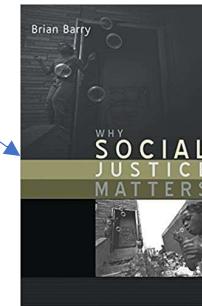
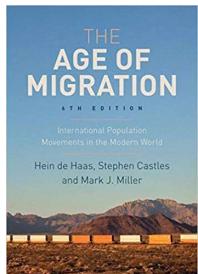
→ INDIVIDUEN & SYSTEME

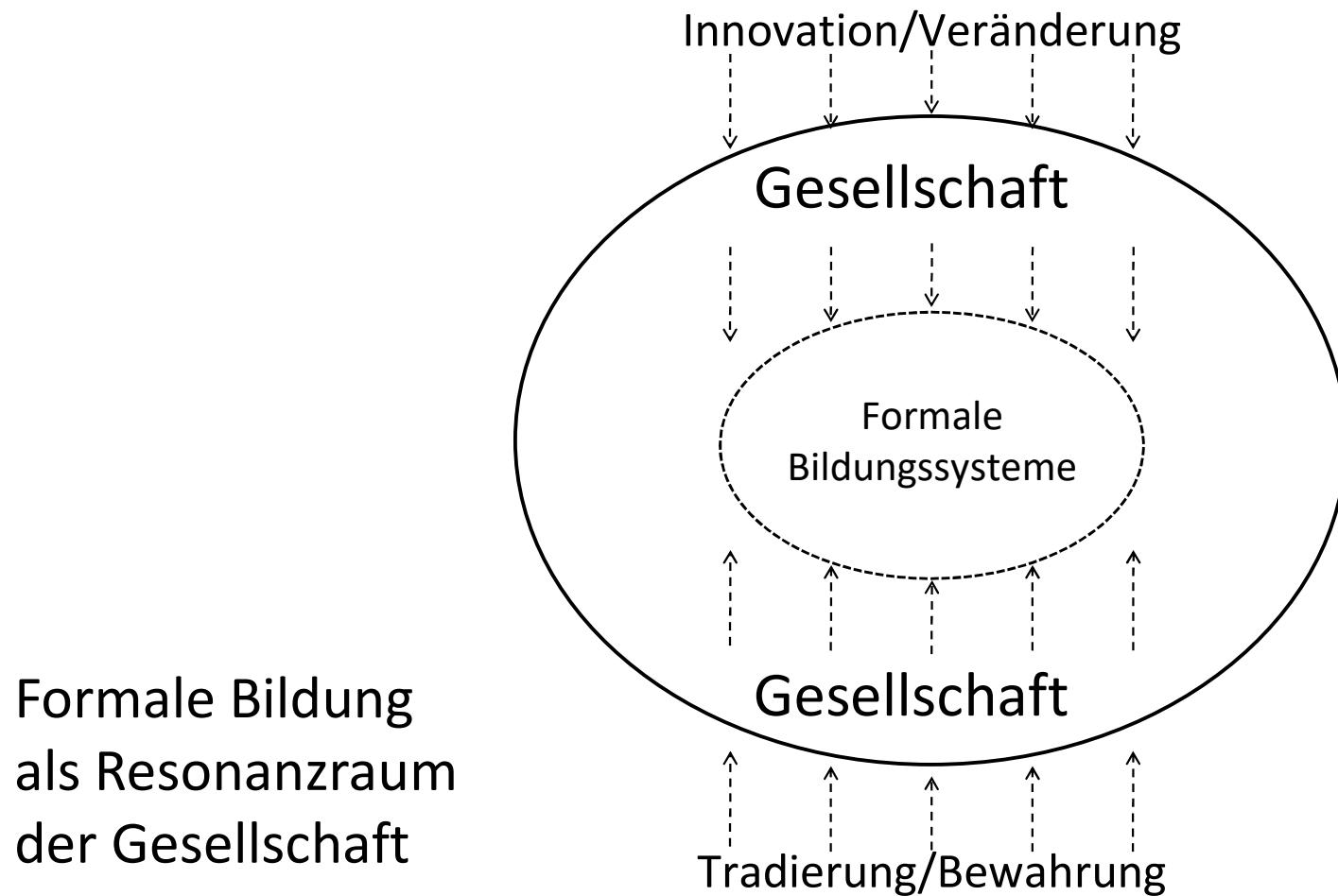
Globale Entwicklungen & Bildung



Globalisierung
Beschleunigung
Migration
Brüche

Gesellschaft – Technologie – Wirtschaft





Kraler 2012

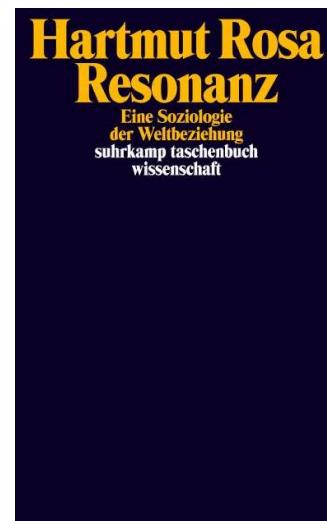
Gesellschaftliche Prozesse seit den 1990igern
technologisch-wirtschaftlichen Entwicklungen (Osterhammel 2003)

- Beschleunigung
- Quantitative Operationalisierung -> „Vermessung“
- Verfügbarkeit: räumlich-zeitliche Invarianz



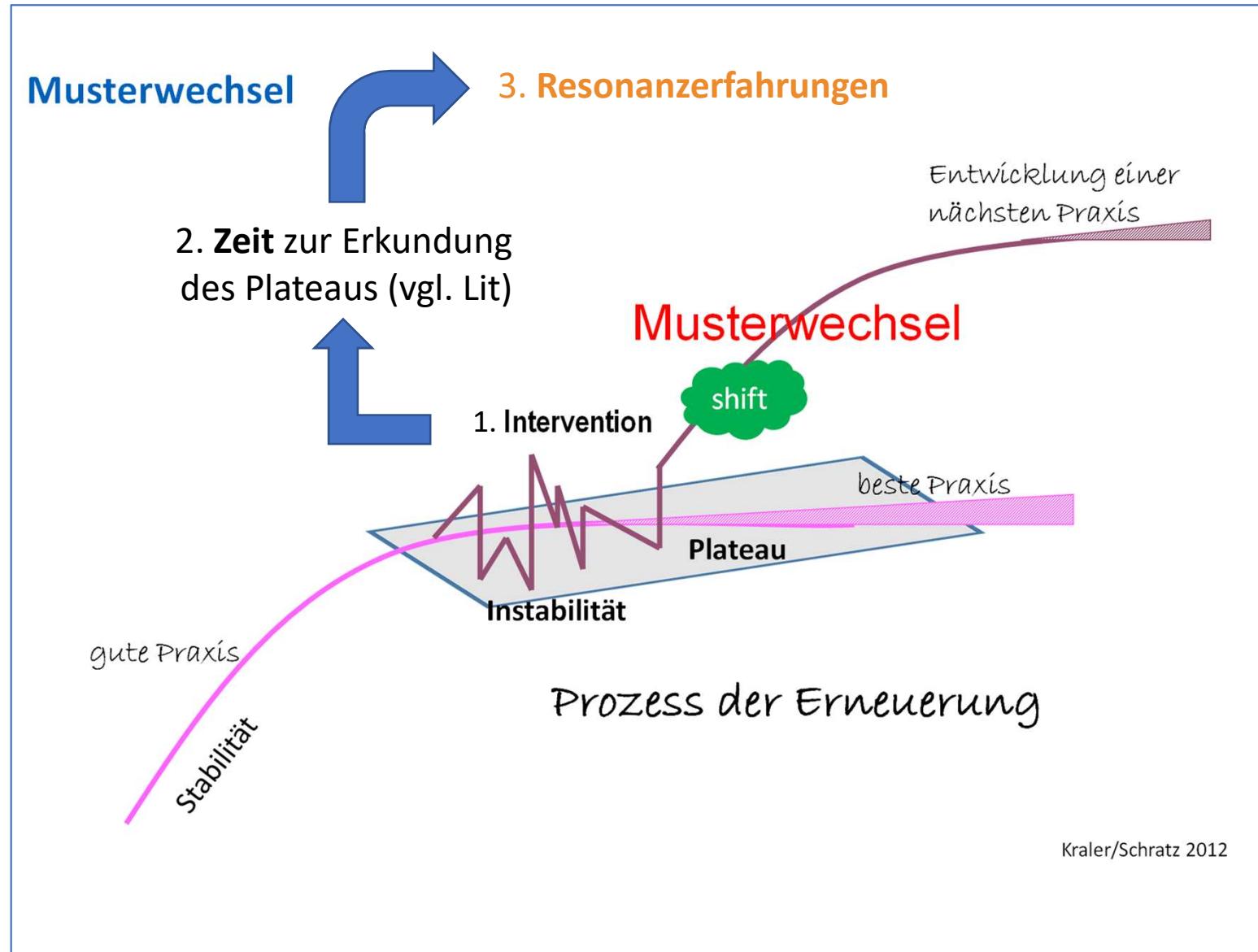
Beschleunigung. Die Veränderung der Zeitstrukturen in der Moderne. Suhrkamp, Frankfurt a. M. 2005

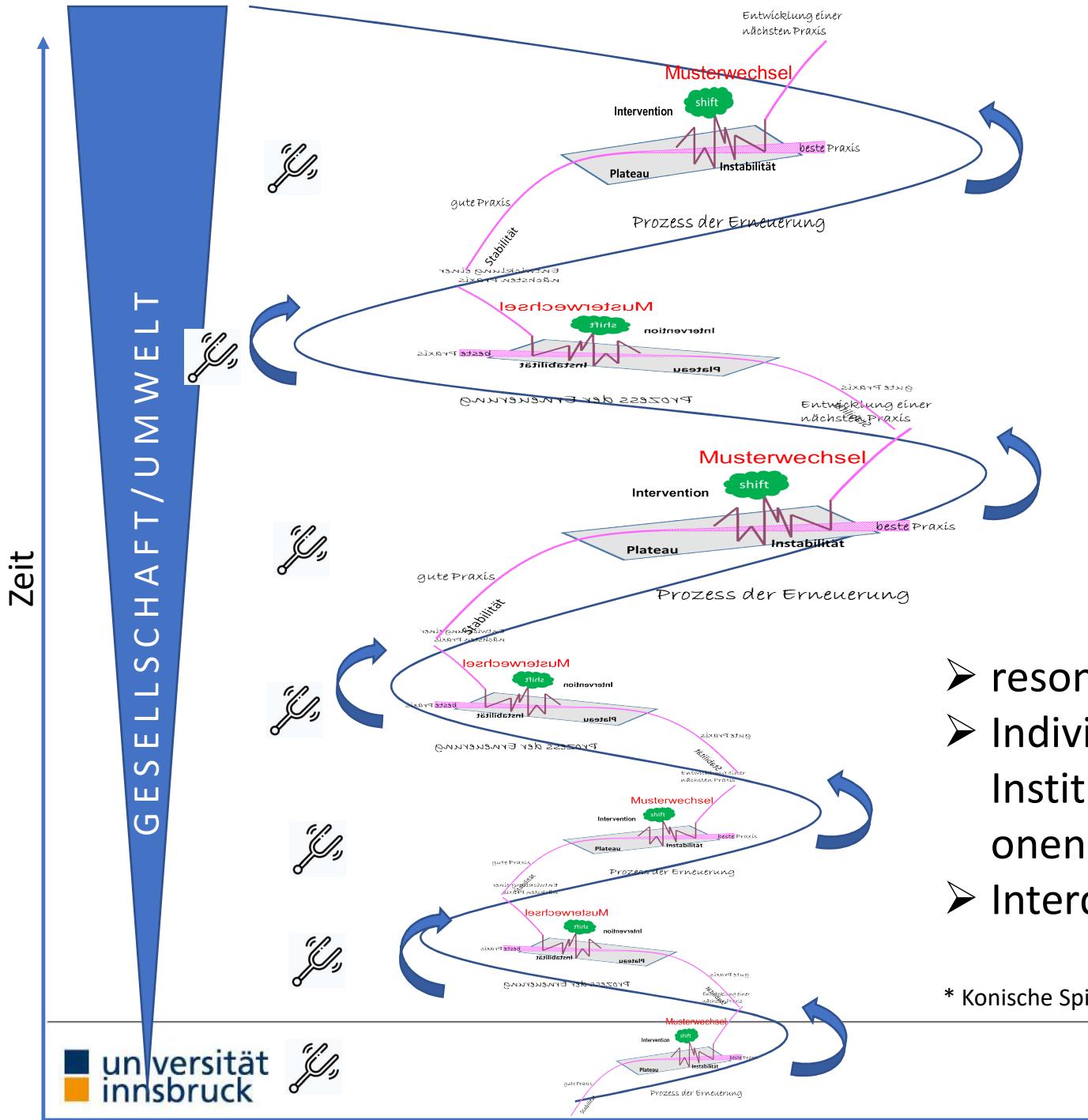
Beschleunigungs- und Wachstumsraten



Resonanz: Eine Soziologie der Weltbeziehung.
Inhaltsverzeichnis Suhrkamp, Frankfurt a. M. 2016

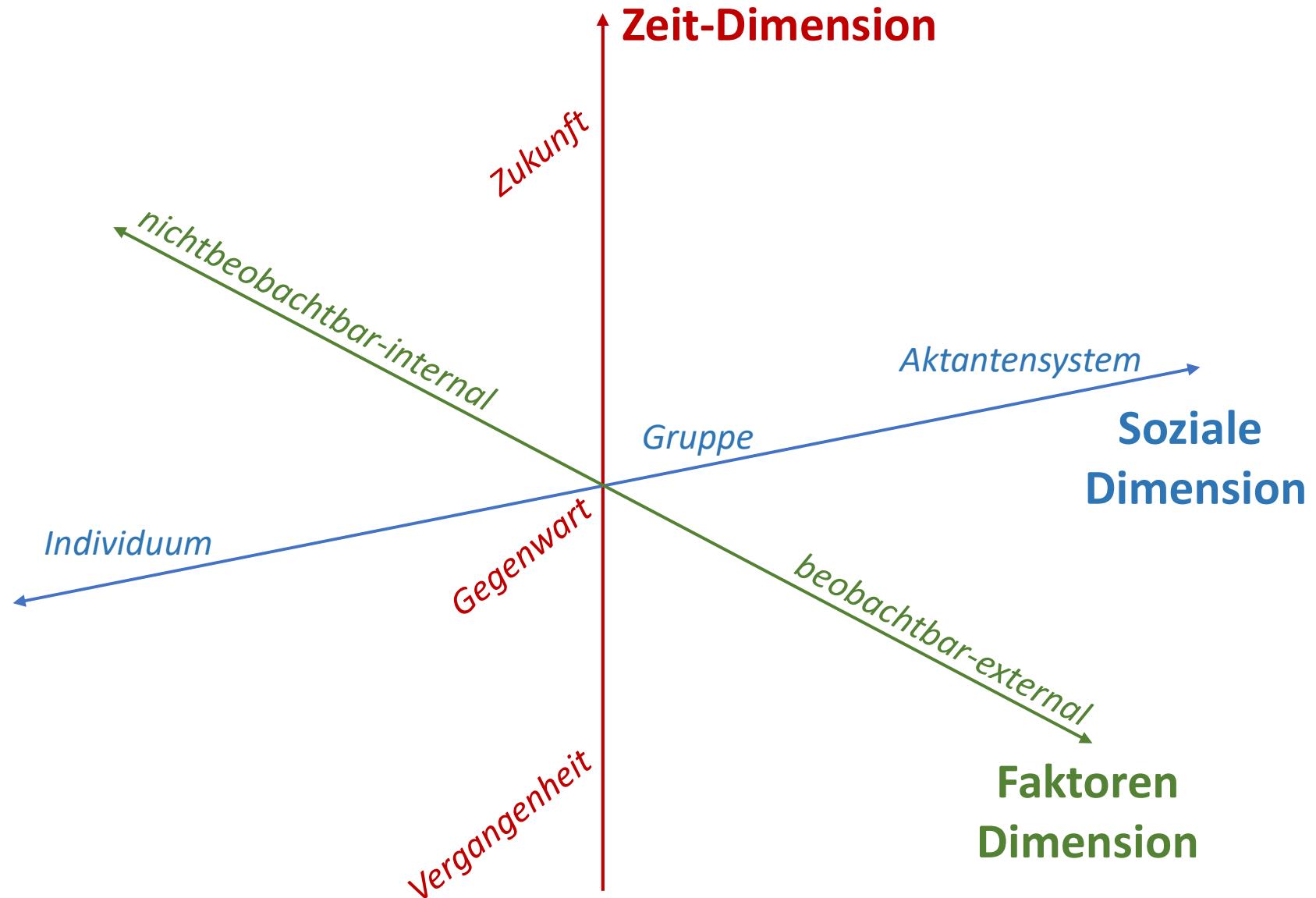
Gelingende Resonanzerfahrungen gegen die Entfremdung





- resonatives Spiralmmodell*
- Individuum, Gruppe,
Institutionen/Organisati-
onen
- Interdisziplinär

* Konische Spirale mit variabler Steigung



Konkrete Projekte:

- Theoretische Fundierung (gem. mit Universität Pretoria)
→ Whitehead, Bruner, Gendlin, Latour
- Selbstbegleitetes Singen (gem. mit Mozarteum)
→ Individuum
- Regionale Schulentwicklung (Forschungsgruppe)
→ „System“

Fragen:

- Graphische Darstellung
- Rekonstruktion resonativer Faktoren
- Skalierungsmöglichkeiten (Ort-Zeit-Aktanten)

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