
Reversed Basic Trust Engineering: Opportunities For HCI

Marcel Neuenhaus

Hamm Lippstadt University of
Applied Sciences
Hamm, NRW 59073, Germany
marcel.neuenhaus@stud.hshl.de

Julia Graefe

Hamm Lippstadt University of
Applied Sciences
Hamm, NRW 59073, Germany
julia.graefe@stud.hshl.de

Paste the appropriate copyright/license statement here. ACM now supports three different publication options:

- ACM copyright: ACM holds the copyright on the work. This is the historical approach.
- License: The author(s) retain copyright, but ACM receives an exclusive publication license.
- Open Access: The author(s) wish to pay for the work to be open access. The additional fee must be paid to ACM.

This text field is large enough to hold the appropriate release statement assuming it is single-spaced in Verdana 7 point font. Please do not change the size of this text box.
Each submission will be assigned a unique DOI string to be included here.

Abstract

The emergence of humanistic self-esteem is due to the early stages of psychosocial development of a human being. The psychoanalyst Erik H. Erikson first defined this in 1950 as "basic trust". While the development of basic trust in the early ages is solely due to external influences, as an individual grows up, they obtain the ability to influence their self-confidence.

This proposal, which is in its very infancy, focuses on partial insights in psychology, education, and technology to reveal development potential for communities who would benefit from an improved basic trust. The overarching research objective is the understanding of the foundations of basic trust by identifying and testing its parameters and solutions spaces.

Author Keywords

self-confidence; basic-trust; sub-modalities; neuro linguistic programming; prototyping;

ACM Classification Keywords

K.m [Computing Milieux] Miscellaneous.

Who are you?

Marcel Neuenhaus is currently studying in his second semester "Technical Entrepreneurship and Innovation" (M. Sc.) at the University of Applied Science Hamm-Lippstadt, Germany. He previously completed his Bachelor of Science in Visual Computing with a major in HCI and an empathy building project for Syrian refugees.

Julia Graefe is student from the Hamm-Lippstadt University of Applied Science, graduating this year in visual computing and design (B.Sc.). The last year she spent working for the German automobile manufacture AUDI AG, doing research on the personalization of the in-car HMI and the influence of human factors on the design of user interfaces.

Context and motivation

The research background was initiated by the daily observations and perceptions of the authors. As a result, the research team realized during their studies that individual students are having difficulties with their mental and emotional stability. While interviewing them, students reflected their insecurities on a variety of topics. They are afraid of failing, unsure which decision to take and how to deal with uncertainty. From an observer's point of view, respondents lacked methods and experiences to deal with their states.

This perception is also confirmed by a survey conducted in 2012 within Germany. According to GESIS, just under 48% of 1637 respondents said they had lost confidence within the last four weeks [2]. The consequences of lost self-confidence can lead to different final states. Common symptoms include chronic negative emotions and loss of quality of life.

However, the low self-esteem status is not absolute, as declining self-confidence can be counteracted. This is achievable by empowering basic trust within a person, which leads to higher self-confidence as well as mental and emotional health. Based on the described context and motivation following research goals were identified.

Research goals/questions

- The first research goal addresses the understanding of how basic trust is established within different countries and if it can be compared across individual cultures. This would reveal information about methods and strategies used within the societies.
- The second research goal aims at abstracting these findings to create a universal and applicable concept (if possible) based on the previous results (methods and strategies of certain cultures) to improve the basic trust of individuals.
- The third research goal is the assurance of the examined concepts. How long is it necessary to practice revealed methods to have lasting effects? Can basic trust be quantified and measured? Is there such thing as "too much" self-confidence? Is there an adverse effect because of too much self-confidence and how can a misuse be prevented?
- The fourth research goal is the analysis of HCI oriented solutions by understanding which technology fields provide the most significant approaches.

State of the art of prior research

The consensus of psychologists is that healthy self-esteem is developed independently of external influences [3]. This agreement is practically not the case in Germany, as a study conducted in 2017 shows. Both men and women identify external factors as a critical factor in the development of healthy self-esteem. German women most often draw their self-confidence from popularity (74%), good looks (72%) and own income (70%) [3]. German men's sources of self-confidence are the success at work (82%), finances (77%) and the profession itself (73%) [3]. Bringing to mind the consensus of psychologists, self-confidence depends on experiences, their associated emotions, and their stability [4, 5]. By these facts, self-confidence determinants are examined in more detail as an interface for the generation of basic trust.

The selection of this interface is based on the method availability. Thus, for example, the subjective meaning of a memorable or projectable experience can be influenced utilizing "submodalities" [6]. This method could be a self-confidently altering influence on those affected.

Research approach

Because the research project is still in its infancy, a mixed method approach is in use. At present, fundamental research is supported by literature to find, among other things, suitable measuring instruments for basic trust. The primary goal of basic research is to avoid the application of research methods and data analysis for results that are already available.

Basic research is followed by the empirical study if qualitative aspects of research are unclear (for example, the qualitative questioning of why people are uninterested in improving their self-confidence or which target group is the most urgent). In the third section, the quantitative phase, identified terms and methods are measured if no previous results are available. The results of basic research (literature), empirical research and the quantitative research project are followed by (technical) product development.

The quality assurance (a longitudinal study of basic trust) is evaluated using the prototype. Finally, market research on the acceptance of the prototype (how to sensitize the people to the topic and where to use it) is carried out to evaluate the research project in the meantime.

Results

Due to the early stage of research and the emphasis on basic research, current results are temporarily omitted.

Status of research

At present of research, the research team is in basic research. For the HCIXB event, this will be enriched with research hypotheses and possible use of methods and research approaches.

Expected methodological contributions

Sharing lesson's learned from observed and researched intercultural communities about the cultures' approaches on how to establish "Urvertrauen" (basic trust). The measurement is examinable by performing and comparing the overall results of the "sense of coherence" (SOC) test from Antonovsky on different communities. The results would identify communities in need of basic trust while high performing basic trust populations' approaches can be researched to uncover universal, applicable methods.

Potential prototype contributions

Outcomes in the fields of how to (technically) engineer basic trust reversed by considering the different solution spaces available. This is performable by researching and activating genetic triggers (to uncover basic trust) or by understanding and improving the effects of mental and emotional health in correlation to basic trust with the following (widely considered) Ideations:

- Idea 1: "Me-Emo" a wearable biofeedback system which informs the carrier how his or her own current words and thoughts influence its mental and emotional health. Considering the fact, that words and thoughts can raise and lower body temperature (CREDIT), for example, the system can track both disempowering and empowering words to inform the carrier. Quantifying habitual use of words provides opportunities for improving the mental and emotional health statistically and sets the interface for disciplines like deep learning or gamification.

- Idea 2: "Trust-Play" a playful examination and game aiming at improving the SOC's subcomponents; Comprehensibility, Manageability, and Meaningfulness. Since there are no current researchers on how to improve the single subcomponents within the research context (reversed basic trust engineering), a game could play a significant role. An immersive game can be tested to teach people how to understand the environment (comprehensibility), how to handle any requirements (manageability) and how to find sense behind the things that go around us (meaningfulness).

- Idea 3: "Ur-Influence" a coaching solution for raising self-confidence on neuro-linguistic and brain electrical activity basis. Concepts of neuro-linguistic programming (NLP) could be further internalized and taught by neurocognitive approaches using technologies like the NeuroSky MindWave. While NLP aims at changing mental processes, NeuroSky MindWave is able supports neurocognitive influences which last in improved behavioural changes [7]. Both methods combined provide the potential for further investigations to raise self-confidence and finding pathways to basic trust.

References

1. Blank, N. 2011. *Vertrauenskultur: Voraussetzung für Zukunftsfähigkeit von Unternehmen*. Gabler Verlag, Wiesbaden.
2. Gesis. 2012. Wie häufig haben Sie sich in den letzten 4 Wochen an Selbstvertrauen verloren?. Retrieved January 30, 2018 from <https://de.statista.com/statistik/daten/studie/277772/umfrage/selbstvertrauen-verlieren--haeufigkeit-in-deutschland/>.
3. Franke, M. 2017. Kommt gesundes Selbstbewusstsein von innen oder von außen?

Retrieved January 30, 2018 from <https://arbeits-abc.de/mangelndes-selbstbewusstsein/>.

4. Frey, D. 2015. *Psychologie der Werte: Von Achtsamkeit bis Zivilcourage – Basiswissen aus Psychologie und Philosophie*. Springer-Verlag, Berlin Heidelberg.
5. Brown J.D. and Marshall M.A. 2000. Self-Esteem and Emotion: Some Thoughts About Feelings. *PSPB Rev* 27, (5), 575-584.
6. Bandler, R. 2009. *Unbändige Motivation: Über NLP, schnelle Veränderungen und vieles mehr*. Jungermann Verlag, Paderborn.
7. Neurocog 2015. Research Outcomes. Retrieved March 31, 2018 from <http://neurocog.com.au/results/research-outcomes/>.