The influence of age on the frequency of micro movements in Personal Nonverbal Repertoires (PNR) in children

Research Summary

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INTRODUCTION

By using the INSA Method, this research aims to discover how children between the ages of 4 and 12 differ in their use of micro movements compared to adults.

The research question:
What is the relationship between age and the frequency of facial micro movements according to the INSA Method?

To address this, three sub-questions have been formulated:

1. Do children possess the same personal nonverbal repertoires as adults?
2. Are there differences in the personal nonverbal repertoires of children and adults, and if so, what are they?
3. Are there similarities in the personal nonverbal repertoires of children growing up in the same household (siblings), and if so, what are they?

Prior research using the INSA Method has not previously focused on children of primary school age, resulting in a scarcity of information regarding the similarities and differences between children and adults. This study provides an initial insight into this matter.
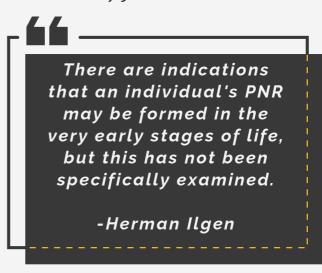
THE INSA METHOD

INSA, the Institute for Nonverbal Strategic Analysis, contributes to a deeper understanding among individuals by promoting effective communication. Through the INSA Method, communication skills are trained to make interactions with others more purposeful.

Developed by Herman Ilgen since 2011, the INSA Method is grounded in research conducted in collaboration with the University of Amsterdam and relevant scientific literature, including contributions from authors such as Nico Frijda, Agneta Fischer, Alan Fridlund, and James Russell. This method dissects subtle facial micro movements that occur unconsciously during interactions. These micro movements serve as unconscious signals of intentions and behaviours toward others, which are likewise unconsciously detected and interpreted by individuals.

The frequency of these movements contributes to someone's Personal Nonverbal Repertoire or PNR. As a pioneer in this field, INSA conducts groundbreaking independent scientific research on high-frequency facial micro movements and their connection to personality traits and interaction behaviour, in collaboration with the University of Amsterdam.l

INSA has not only developed a method but also practical tools to apply scientific insights in daily interactions. The core principle of INSA is the ability to observe objectively and defer judgment, which is essential for recognising and understanding relevant information from nonverbal behaviours. This approach is reinforced by a continuous focus on scientifically grounded research.

> *There are indications that an individual's PNR may be formed in the very early stages of life, but this has not been specifically examined.*
>
> *-Herman Ilgen*

RELEVANCE

Understanding the social and emotional development of children is crucial, and this research holds significance for professionals working with children, such as educators, psychologists, and therapists. It equips them with the knowledge of nonverbal communication development, enabling them to better address the emotional and social needs of children across various age groups. A child who displays minimal nonverbal cues may inadvertently be labeled as quiet, shy, withdrawn, or even 'cognitively impaired', as signals, such as their need for interaction, may go unnoticed. The INSA Method provides tools to address this issue and can be applied in education to shed light on the social-emotional needs of students.

This research can contribute to a deeper understanding of communication and enhance the quality of interactions among children and between adults and children.

THE RESEARCH

21 children in the age of 4 to 12 years old have been interviewed and those conversations have been recorded on video. The recorded videos were coded solely by the researcher using the INSA Method (based on FACS: Facial Action Coding System). The INSA Method was applied in accordance with the training sessions and practice sessions attended. The micro movements of all participants were coded for the ten different movements, known as Action Units or AUs.
The micro movements that were scored include: partial blink (PB), white under the iris (AU63), lowered eyelids (AU41), raised middle eyebrow (AU1), raised eyebrows (AU1plus2),

raised upper eyelids (AU5), squinting (AU7), upward mouth corners (AU12), furrowing (AU4) and raised cheeks (AU6).

The interviews were conducted in the form of a neutral and logical conversation. Questions were asked about daily life, favourite music, sports, hobbies, school, and social activities. When a topic arose that a child was enthusiastic about, the interviewer continued to ask about it, ensuring that the conversation followed a natural flow as much as possible. The interview included a mix of comfortable and uncomfortable questions.

Fifteen children were individually interviewed by the researcher. Two brothers, two sisters, and two friends came to the table together for interviews. Additionally, a brother and a sister were interviewed separately. The researcher also conducted separate interviews and filming sessions with two sisters who were initially interviewed together and were subsequently filmed by their mother. During the joint session, the researcher observed a lot of restlessness, necessitating a second session for a more in-depth analysis. This also provided an opportunity to investigate whether there were differences in PNR when questions were posed by a stranger (the researcher) or a familiar person (the mother).

The measured results were compared to two sources of previous reference videos:

1. The original research conducted by Herman Ilgen et al. (2021).
2. The compilation of all video's previously scored by the researcher, which were discussed online during the INSA practice afternoons.

FINDINGS

In comparison to the total scores, the children exhibit a lower average and a lower median. The differences between the children's totals and the measurements in Ilgen et al.'s (2021) study are greater than the differences between the children and the practice afternoon videos.

Comparison with Ilgen et al. (2021) study:
- Lower scores compared to the original research are found in AU63, PB, AU5, AU7, AU12, and AU6. In these aspects, the children score lower than the adults.
- For AU41 and AU1plus2, the children score higher than the adults in the original research.
- For AU1 and AU4, the children score lower, with the exception of the children's median score for AU1, which is higher. This aligns with the higher score on AU1plus2.

Comparison with the practice afternoon videos:
- Compared to the practice afternoon videos, the children score lower in AU41, AU63, AU5, AU1plus2, AU7, AU12, and AU6. They score lower in these aspects.
- For AU63, the median score is exactly the same (0.00), and for PB, the children score higher than the practice afternoon videos.

It is also evident that there are similarities in the accents between the siblings. Nevertheless, the limitation of the very small sample size (3 pairs) underscores the utmost caution required when interpreting this data. There is a possibility of mirroring behaviour within the same family. Additionally, there could be a role for genetic similarities influencing the PNR. There is no difference in the scores of the sisters interviewed by a stranger or the mother.

CONCLUSION

Comparative analyses make it clear that children exhibit similar facial expressions during conversations as adults. However, these micro movements manifest in children at a lower frequency than in adults. The findings offer an interesting insight into the development of nonverbal communication in children and also shed light on the similarities and differences between the facial micro movements of children and adults in interactions.

The conclusions of this research suggest that it is possible to analyse children of primary school age in the same way as adults. This provides an opportunity for the application of the INSA Method in education, which can enhance communication in interactions between teachers and individual children as well as within groups. Understanding and knowledge of the INSA Method provide teachers with additional tools to better navigate the group dynamics among various students.

LIMITATIONS

Factors like the researcher's limited experience in FACS-coding, the small sample size, and potential researcher bias raise questions about the reliability and broader relevance of these findings. Acknowledging these limitations is essential when interpreting and applying the results.

Additional research, involving a larger and more diverse sample, conducted by multiple experienced researchers, is needed for a deeper understanding of nonverbal expression in children.

RECOMMENDATIONS

Several recommendations for future applications and research emerge from this study.

Use of the INSA Method in Education

The study suggests that the similarities between children and adults allow for applying the INSA Method in education. Trained teachers can recognise children's individual needs and behaviours, aiding conflict resolution and fostering group dynamics.

Exploring Family and Social Dynamics

Expanding research to wider social contexts, including extended family members, could reveal insights into the interaction between nonverbal expression, genetics, and environment.

Contextual Analysis of Nonverbal Expression

Further investigation into contextual factors affecting nonverbal expression, like the impact of sports or friendship circles, is recommended.

Transfer of Nonverbal Patterns

Research on whether specific nonverbal traits are passed down through generations could shed light on the nature of nonverbal expression.

Understanding Emotional Dynamics

Exploring the deeper emotional dynamics behind nonverbal signals is another possibility. Research can focus on children involved in bullying behaviour and analyse the potential link between their nonverbal expression and bullying behaviour, shedding light on the origins of bullying and the role of nonverbal communication in social interactions.

Longitudinal Research

An important recommendation is to establish a comprehensive multi-year study focusing on children from age four to sixteen. By annually analysing the nonverbal signals of these children, a detailed understanding of the evolution of their nonverbal communication during various stages of development can be obtained.

These recommendations expand our knowledge of nonverbal communication and its applications in education, psychology, and beyond.

ABOUT THE AUTHOR

Nils Vermeire is a life coach, trainer and communications specialist. He has over twenty-five years of experience working for multinationals and the Dutch Government. His company Tag Yorit focusses on coaching, training and nonverbal analysis for both families and employees, helping them to learn more about themselves and others. For more information: https://tagyorit.nl/

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ABOUT THIS RESEARCH

This research was conducted for the Master paper for the Master Nonverbal Strategic Analysis, which is the conclusive part of the course Nonverbal Strategic Analysis by INSA.
The full paper is available in Dutch upon request.

For more information on the course and method: https://www.insa-foundation.org/

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