Work in Progress Symposium 2024

Program and Abstracts

ELTE

COGNITIVE PSYCHOLOGY DEPARTMENT

Program **Date and time:** Wednesday, February 7, 2024, 9:30 AM **Location:** ELTE Psychology Institute, 1064 Budapest, Izabella u. 46, Room 101
9:30 - 10:00 Opening Talk
10:00 - 11:30 Session 1
11:30 - 12:30 Session 2
12:30 - 13:30 Lunch Break
13:30 - 14:30 Session 3

Schedule & Contents

9:30 - 10:00 Opening Talk

Márton Nagy: Pupil and gaze dynamics as measures of individual statistical learning

In 3 studies (N=154) using an active spatial statistical learning paradigm and manipulating the length and the explicitness of learning, we have found that pupil size was larger on interleaved trials that violate the previously encountered regularities, than on trials that fit earlier patterns. Additionally, there was an increase in eye movements in directions consistent with the underlying statistical structure. Importantly, the strength of these effects were correlated with the performance on the subsequent familiarity test, both with explicit and implicit learning instructions. Finally, the two measures exhibited contrasting outcomes in terms of awareness of the statistical structure with implicit learning instructions: eye movements emerged as a more effective indicator of awareness of the learned structures, whereas pupil size proved to be a robust predictor of individual learning performance among implicit learners lacking awareness.

10:00 - 11:30 SESSION 1

Individual Differences & Methods

Chair: Attila Krajcsi
10:00 - 11:30

Associations between earworms, schizotypy, and subclinical obsessive-compulsive disorder

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Empirical research with results

Flóra Fülöp (Budapest University of Technology and Economics, Department of Cognitive Science; Institute of Psychology, ELTE Eötvös Loránd University), Ferenc Honbolygó (Institute of Psychology, ELTE Eötvös Loránd University)

Earworms are a form of involuntary musical imagery which are similar to musical hallucinations and obsessions present in schizophrenia and OCD, respectively. Previous research has shown relationships between earworms and schizotypy and subclinical OC-traits. The aim of this study was to investigate these associations in a Hungarian sample of 4301 participants. We hypothesized that (1) there would be significant correlations between schizotypy, subclinical OCD and earworms; (2) higher levels of OC-traits or schizotypy would be associated with more negative attitudes towards earworms, and (3) longer and more frequent earworm episodes. The findings revealed significant correlations between schizotypy, subclinical OCD, and earworm-related introspection, along with earworm-related movement. A structural equation model revealed a weak, positive link between subclinical OCD and negative attitudes towards earworms, while schizotypy and musical experience were weakly associated with increased earworm frequency. These results partially support previous findings and provide new information about the phenomenology of earworms.

Keywords: earworms; subclinical OCD; schizotypy

Development and Evaluation of a Multidimensional Computerized Adaptive Test for Measuring Fluid Reasoning

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Empirical research with results

Hanif Akhtar (Doctoral school of Psychology, ELTE Eotvos Lorand University), Kristof Kovacs (Institute of Psychology, ELTE Eotvos Lorand University)

This study had two primary objectives: firstly, to develop a new computerized adaptive test (CAT) for measuring fluid reasoning (Gf), and secondly, to compare the psychometric properties and psychological impacts between CAT and fixed-item testing (FIT). In Study 1,

we developed the Multidimensional Induction-Deduction Computerized Adaptive Test (MID-CAT), measuring two narrow abilities within Gf. We created 530 items, administered them to 2,247 participants, and calibrated them using the Rasch model. The results revealed that the final item pool spans a wide range of difficulties. Additionally, a simulation study indicated that MID-CAT offers greater measurement efficiency compared to both separate-unidimensional CAT and FIT. Study 2 was conducted to compare CAT versus FIT. We randomly assigned 286 participants to one of two conditions, varying by test type (CAT vs. FIT). The findings suggest that CAT surpasses FIT in measurement precision, yet its impact on the test-taking experience is minimal.

Keywords: fluid reasoning, multidimensional CAT, test-taking experience, motivation, anxiety

Development and Evaluation of a Multidimensional Computerized Adaptive Test for Measuring Fluid Reasoning

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Empirical research with results

Miklos Bognar (Eotvos Lorand University, Doctoral School of Psychology, Budapest, Hungary), Mate Gyurkovics (Neuroscience and Psychology, University of Glasgow, Glasgow, United Kingdom), Balazs Aczel (nstitute of Psychology, ELTE Eotvos Lorand University, Budapest, Hungary), Henk van Steenbergen (Department of Cognitive Psychology, Institute of Psychology, Leiden University, The Netherlands; Leiden Institute for Brain and Cognition (LIBC), Leiden University, The Netherlands)

The U-shaped curve has long been recognized as a fundamental concept in psychological science, particularly in theories about motivational accounts and cognitive control. In this study (N=330), we empirically tested the prediction of a non-monotonic, curvilinear relationship between task difficulty and control adaptation. Drawing from Motivational Intensity Theory (MIT) and the expected value of control (EVC) framework, we hypothesized that control intensity would increase with task difficulty until a maximum tolerable level, after which it would decrease. To examine this hypothesis, we conducted two experiments utilizing Stroop-like conflict tasks, systematically manipulating the number of distractors to vary task difficulty. We assessed control adaptation and measured subjective task difficulty. Our results revealed a curvilinear pattern between perceived task difficulty and adaptation of control. The findings provide empirical support for the theoretical accounts of MIT and EVC, highlighting the nonlinear nature of the relationship between task difficulty and cognitive control.

Keywords: cognitive control, motivational intensity

Development and Evaluation of a Multidimensional Computerized Adaptive Test for Measuring Fluid Reasoning

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Empirical research with results

Bogdány Tamás (ELTE PPK PDI), Sarudi Dániel (ELTE Pszichológia BA), Szilágyi Marcell (ELTE Pszichológia BA) és Simor Péter (ELTE PI)

This study follows the idea that vestibular processing is involved in lucid dream (LD) experiences - and that this relationship can be investigated through e.g. balance ability. Focus of this research is the interindividual difference in LD, vestibular related dream contents, wakeful imagination, and balance ability. The idea that vestibular processing is involved in LD experiences is based on the relationship between the vestibular system, REM sleep, the prevalence of LD during REM sleep, and some observation regarding the internally (vestibular input) weighted reference frame of lucid dreamers in some perceptual tasks, such as Subjective Visual Vertical estimation. Accessing LD directly in a laboratory environment is challenging, therefore methods that can capture the phenomenon outside the dream environment are preferred. Participants were interviewed on their LD frequency, lucid dreaming skills (LUSK), dream contents (such as flying, falling, etc., balance ability (mCTSIB), and the vividness of wake-induced mental imagery (VMIQ- 2).

Keywords: lucid dreaming, balance, mental imagery

Relationship between reading and working memory from developmental perspective

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Empirical research with results

Claudia Laskay-Horváth (Doctoral School of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary; Institute of Education and Psychology at Szombathely, Eötvös Loránd University, Budapest, Hungary), Ferenc Kemény (Institute of Psychology, University of Graz, Graz, Austria; Institute of Education and Psychology at Szombathely, Eötvös Loránd University, Budapest, Hungary)

Purpose. Individual differences in working memory (WM) influence reading skills. Little is known about the correlations of different WM domains with reading at different reading-experience levels. Our aim is to get a better picture of the role of WM in reading during the development. We present the role of visuospatial, verbal and phonological WM in reading through 3 empirical studies.
Methods. Hungarian children from 1st to 6th grade took part in our study. Decoding skills were measured with a one-minute word reading and a pseudoword reading tasks (Kemény et al., 2023). We examined the WM skills (Corsi blocks, digit span, nonword repetition task) in three studies on distinct samples. Correlations and moderation analyses were conducted.
Results. We observed a decreasing role of visuospatial and verbal WM in predicting reading. Although phonological WM and reading skills correlate, an age-related change in their relationship could not be detected during the development.

Keywords: reading, decoding, working-memory, elementary school

Assessing the cognitive performance of the elderly using Virtual Reality technology and psychophysiology

Research plan

Soma Zsebi (Eötvös Loránd University), Patrícia Szabó (Univeristy of Pannonia), Renáta Cserjési (Eötvös Loránd University)

Neuropsychological assesment has advanced significantly in recent years thanks to the use of virtual reality (VR) technology. An immersive tool called virtual reality therapy (VRT) has a lot of potential for treating cognitive deficits brought on by neurological disorders. Executive functions, memory, spatial cognition, and attention have all been shown to be improved by VR interventions. In our research plan, the Corsi-Block Tapping Task was transformed into a VR environment in order to assess the spatial memory performance of the elderly. Whilst our previous study, young participants showed no significant difference between the "real" Corsi Task and the VR version, we aim to test the same hypothesis among 65+ participants especially focusing on the difference between apathetic and non-apathetic participants.To make our results cleaner, we plan to measure pupillometry and heart rate varibility as well besides behavioral data.

Keywords: Aging, spatial memory, Virtual Reality

11:30 - 12:30 SESSION 2

Development

Chair: Egyed Kata
12:00 - 13:00

The impact of emotional climate on ASL: how does the caregiver's stress state influence preverbal infants' object-directed behavior

Research plan

Zsófia Ginter (Eötvös Loránd University)

Based on contextual evidence from ethnographic observation and clinical data on psychopathology, emotional climate has a profound impact on affective social learning. However, its effects and characteristics are very challenging to study empirically. To extend previous research on the mechanisms underlying affective social learning in the domain of the least frequently studied type of ASL, affective observation, we have designed a study based on the conceptual replication of the emotion imitation procedure (Repacholi & Meltzoff, 2007). Repacholi and Meltzoff (2007) provided clear evidence that preverbal infants learn from emotions directed to a third party. We are building on this data by introducing two key modifications: firstly, including the caregiver as an active participant in the study as the Emoter, allowing us to study the parent-infant dyad as the unit of ASL; and secondly, by introducing an empirical variable as a model to study the impact of emotional climate (induced mild mental stress).
Our objective is to explore the hypothesis that infants not only learn from emotions directed to a third party but they are able to detect the affective state of the Emoter and regulate their behavior accordingly.
We propose that the caregiver's induced stress condition (by extension, the emotional climate of the infant-caregiver dyad) has a similar effect as the previously studied anger affect in the emotion imitation procedure, indicated by the impact on infants' imitation and exploration behavior: we predict that in the stress condition infants will show less object-directed behavior and less positive, more negative affect during the response period.

Keywords: affective social learning, stress, affective observation, parent-infant dyad

The effect of virtual space on Theory of Mind in 4 years old

Pilot study

Alexandra Kelemen (Institute of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary, Doctoral School of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary, Social Minds Research Group, Institute of Psychology, ELTE Eötvös Loránd University)

The Covid-19 pandemic has ushered in an unprecedented shift away from the physical towards the virtual. The proliferation of daily digital interactions invites us to more thoroughly explore the ways in which we understand social partners in this novel context. Capacity for Theory of Mind expands rapidly during the early years of childhood. However, our understanding of how children follow and process others' potential mental states in virtual space remains limited. The present research aims to examine theory of mind in 4-year-olds, during different tasks, with a "social partner" either fully absent or present via zoom/face to face interaction. We hypothesise that access to information will be more limited for children in the virtual presence group, and thus, theory of mind attributions will be affected.

Keywords: theory of mind, technology, cognitive development

The synergy of voice and face: unraveling the dynamics of acoustic and facial prosody of parentese

Pilot study

Édua Koós-Hutás (Doctoral School of Psychology, ELTE, Budapest, Hungary; HUN-REN Research Centre for Natural Sciences, Institute of Cognitive Neuroscience and Psychology, Budapest, Hungary), Lőrinc András Filep (ELTE PPK; HUN-REN Research Centre for Natural Sciences, Institute of Cognitive Neuroscience and Psychology, Budapest, Hungary), József Topál (HUN-REN Research Centre for Natural Sciences, Institute of Cognitive Neuroscience and Psychology, Budapest, Hungary; NAP 3.0 Comparative Ethology Research Group) & Anna Gergely (HUN-REN Research Centre for Natural Sciences, Institute of Cognitive Neuroscience and Psychology, Budapest, Hungary; NAP 3.0 Comparative Ethology Research Group)

In recent years, the multimodal characteristics of infant-directed talk (or parentese) proved to be worth exploring. Since it is nurtured greatly by the interlocutors' reactivity and feedback, our research aims to analyse the dynamic of prosodic components in an interactional framework. Parents speaking to their 6–18-month-old infant, their family dog and their spouse were recorded in three different situations. While adults held eye contact with ease, the preliminary results revealed a similar shifting pattern of infants and dogs in looking at the speaker's face. However, dogs seem to exhibit more negative emotions towards female speakers than adults or infants. Although analyses have already revealed opposing trends in the speakers' voices and facial expressions, by incorporating the partner's behaviour, we could gain a fuller understanding of how infant-directed talk fulfills its communicative goals through the synergy of acoustic and facial prosody.

Keywords: parentese, prosody, comparative cognition, interactional framework

Selective memory in Arab Israeli Children

Research plan

Carlos Magzel (Doctoral School of Psychology, ELTE)

Adult studies show that collective forgetting and selective remembering occur when speakers and listeners share group membership. In addition, studies indicate that children are sensitive to social group information and show in-group preference. We asked here whether children, as seen in adults, display concurrent retrieval as a function of a group membership. In the present research, by adopting Hirst and Coman's (2015) design, Arab-Israeli children between 10-12 years of age learned about a summer camp, then listened to either an in-group (Arab-Israeli child) or an out-group member (Jewish-Israeli child). Lastly, they were asked to recall the items learned. We hypothesize that only those children who listened to the Arab (in-group) speaker would demonstrate SS-RIF. Furthermore, we also hypothesized a higher rate of cultural practices assessed by parental questionnaires would likely correlate with a higher SS-RIF among children in the in-group condition.

Keywords: collective memory, selective memory, children's memory, SS-RIF

Do children learn from their mistakes? - The effect of feedback on children's learning

Pilot study

Schvajda Réka (Pszichológiai Doktori Iskola, ELTE Eötvös Loránd Tudományegyetem) Király Ildikó (ELTE PPK Pszichológiai Intézet)

In our study, we wanted to replicate the findings of Eskreis-Winkler and Fishbach (2019) who found that adult participants performed worse in a learning task, after getting negative feedback on their responses. We aimed to explore how feedback influences children's learning performance. Thus, we adapted the Learning from Failure Task to children. In the learning phase, participants are shown two cats then they are asked which cat they think is named A. Following their choice, children are told whether they were right (success condition) or wrong (failure condition). In the test phase, children are again shown the same pair of cats and then asked which cat they think is named B. Based on the mutual exclusivity principle, 4-to-6-year-olds should be able to infer the correct answer. If children are less prone to negative feedback, they should be able to answer correctly in the test phase.

Keywords: learning, feedback, motivation

Exploration and pedagogy mutually support learning in preschool children

Empirical research with results

Rebeka Zsoldos (Eötvös Loránd University), Ildikó Király (Eötvös Loránd University)

Pedagogy is claimed to be a “double-edged sword” as pedagogical demonstration has been shown to convey information rapidly and efficiently at the cost of limiting subsequent exploratory behavior. However, educational and developmental research imply that pedagogical signals facilitate learning even in an explorative context, suggesting that pedagogy and teaching are not mutually exclusive processes. In order to disentangle how the two learning processes relate, we designed an object exploration task for preschool-aged children (N = 148), in which we compared instructed (pedagogical) exploration to pedagogical demonstration. According to our findings, in all situations, pedagogical signals helped children infer the relevance of the discovered information, and it did not limit exploratory behavior if children were allowed to find the target information. These results imply that pedagogy and exploration work in tandem to support information acquisition. Our findings also prove that communicative signals alone are sufficient to evoke pedagogical expectations in children.

Keywords: exploration, pedagogy, learning

The relationship between maternal mind-mindedness and behaviours observed in interactive book reading situations

Research Plan

Zsófia Szentgyörgyi-Zombor (ELTE PPK, Pszichológiai Intézet)

The focus of the Social Mentality & Development Research Group's project is the study of maternal mind-mindedness (MM), which refers to the caregiver's tendency to attribute mental states different from her own to her child. In the context of my BA thesis, I have been involved in the Hungarian adaptation of two measures of maternal MM, the interactional (IA-MM) and the representational (R-MM) coding systems, which are currently being used for data collection. The IA-MM is measured in two situations: the mother-child pair is involved in an interactive book reading situation (IBR) and then observed during free play. Since we hypothesize that mindreading ability is necessary for a parent to effectively engage their child in a situation such as book reading, I aim to investigate the relationship between maternal MM and the parent's strategies as well as the child"s behavior in IBR situations. As a first step, I will investigate the parent's strategies using the IBR coding system and its relationship with the I-MM and R-MM indicators, focusing on which one shows a stronger correlation and becomes a more effective candidate for predicting IBR strategies.

Keywords: mind-mindedness, interactive book reading, theory of mind

Understanding of visual symbol in connection with parental mind-mindedness

Research Plan

dr. Gerda Szalai (ELTE PPK, Pszichológiai Intézet), **András Szauer** (ELTE PPK, Pszichológiai Intézet)

The Parental Mind-Mindedness (MM) construct, created by Elisabeth Meins, describes the parent's way of thinking about their child as a being with a mind of its own. To examine the construct, she developed two types of measurements: the interactional MM measures the parent's verbal comments, while the representational MM examines the child's mentalization in the description of the child. Since parental MM shows a positive correlation with the child's verbal development, the question arises whether it also correlates with the development of the understanding of visual symbols. Based on previous results, we know that before the age of three, if the social origin and intentionality of the creation of the symbol become accessible to the child, it results in better performance in a model-based search situation. The role of the investigator facilitator is assumed by the parent, who provides verbal assistance to their young child in the search situation based on prior instructions, and we also use the parental MM as an independent variable. We hypothesize that children whose parents are more typical of MM perform better in the search task.

Keywords: mind-mindedness, visual symbols, development

13:30 - 14:30 SESSION 3

Neural correlates

Chair: Bálint Forgács
13:30 - 14:30

Exploring the relationship between individual differences in statistical learning and semantic adaptation efficiency: an N400 study

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Empirical study with results

Márton Munding (Department of Cognitive Psychology, ELTE Eötvös Loránd University, Budapest, Hungary; Doctoral School of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary;) Bálint Forgács (Department of Experimental and Neurocognitive Psychology, Freie Universität Berlin, Germany; Department of Cognitive Psychology, ELTE Eötvös Loránd University, Hungary;) Krisztina Sára Lukics (Department of Cognitive Science, Faculty of Natural Sciences, Budapest University of Technology and Economics, Budapest, Hungary; MTA-BME Momentum Language Acquisition Research Group, Eötvös Loránd Research Network (ELKH), Budapest, Hungary;) Ágnes Lukács (Department of Cognitive Science, Faculty of Natural Sciences, Budapest University of Technology and Economics, Budapest, Hungary; MTA-BME Momentum Language Acquisition Research Group, Eötvös Loránd Research Network (ELKH), Budapest, Hungary)

Statistical learning (SL) has been long linked to language acquisition (Saffran et al., 1996, 1999) and in recent decades, to language processing (Christiansen et al., 2012). Lately, empirical results have linked N400, one of the most studied ERP components in cognitive science, with predictive language comprehension processes based on SL (Hodapp & Rabovsky, 2021). In this study we tested participants' (n=31) SL skills, then measured their N400 responses during reading sentences with varying cloze-probabilities (CP) to investigate how individual differences in SL affect the N400 responses. Participants with better online statistical learning skills (SL-ON) produced larger N400 responses, supporting our initial hypothesis. We also found a significant main effect of CP and working memory on N400, the latter in interaction with SL-ON. Our results support the involvement of SL based predictive cognitive processes in language comprehension and simultaneously raise questions about the underlying relations of these processes and the exact mechanisms of the N400.

Keywords: statistical learning, N400, individual differences

Visual mismatch negativity is more than the sum of microsequences

Empirical study with results

Lili Kővári (Institute of Cognitive Neuroscience and Psychology, HUN-REN Research Centre for Natural Sciences, Magyar tudósok körútja 2., H-1117 Budapest, Hungary; Doctoral School of Psychology, Eötvös Loránd University, Kazinczy utca 23-27. H-1075, Budapest, Hungary), Petia Kojouharova (Institute of Cognitive Neuroscience and Psychology, HUN-REN Research Centre for Natural Sciences, Magyar tudósok körútja 2., H-1117 Budapest, Hungary), Zsófia Anna Gaál (Institute of Cognitive Neuroscience and Psychology, HUN-REN Research Centre for Natural Sciences, Magyar tudósok körútja 2., H-1117 Budapest, Hungary), István Czigler (Institute of Cognitive Neuroscience and Psychology, HUN-REN Research Centre for Natural Sciences, Magyar tudósok körútja 2., H-1117 Budapest, Hungary)

Visual mismatch negativity (vMMN), the difference between the event-related potentials (ERPs) to repeated events and changing events can be caused by the diminished activity to the repeated ones (stimulus-specific adaptation, SSA), the increased activity to the new ones, or by both effects. In this study we investigated the effect of repetition on visual ERPs. To this end, we measured electrical brain activity to task-irrelevant stimuli both in case of stimulus onset (continuously present objects, ON-events) and stimulus offset (frequently or infrequently disappearing parts of the objects, OFF-events). We compared ERPs to change stimuli, first and second repetitions and to changing events preceded by one, two or three different events in non-oddball (50-50%) sequences with ERPs to similar events in oddball (12,5%) sequences. The absence of exogenous N1 adaptation in non-oddball sequences and the emergence of vMMN in oddball sequences seems to prove that vMMN is more than pure adaptation.

Keywords: EEG, ERP, visual mismatch negativity, adaptation

Evidence for hippocampal involvement in remembering conceptually similar verbal memory traces

Empirical study with results

Alex Ilyés (Institute of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary; Doctoral School of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary; Brain Imaging Centre, HUN-REN Research Centre for Natural Sciences, Budapest, Hungary), Borbála Paulik (Institute of Psychology, ELTE Eötvös Loránd University), Krisztina Cseh (Institute of Psychology, ELTE Eötvös Loránd University), Borbála Brosig (Institute of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary; Brain Imaging Centre, HUN-REN Research Centre for Natural Sciences, Budapest, Hungary), Donát Keszthelyi (Institute of Psychology, ELTE Eötvös Loránd University), Attila Keresztes (Hungary, Brain Imaging Centre, HUN-REN Research Centre for Natural Sciences, Budapest, Hungary; Institute of Psychology, ELTE Eötvös Loránd University, Budapest, Hungary)

The ability of the hippocampus (HC) to compare to be encoded inputs to already existing representations is a key function of the episodic memory system. Recent computational models have suggested that the HC may contribute to manipulation of conceptual knowledge. In a cross-sectional study with 40 young and 40 old adults we used the semantic mnemonic similarity task (sMST) to assess mnemonic discrimination – a behavioral proxy for pattern separation – of conceptually similar verbal memory traces. We have discovered a previously unidentified age effect, wherein, compared to young adults, older adults exhibited a higher rate of false alarms for phrases with moderate similarity. To understand how hippocampal operations interact with conceptual knowledge at the mechanistic level, we assessed hippocampal subfield contributions to mnemonic discrimination in the sMST in 30 young adults using high-resolution functional magnetic resonance imaging. Preliminary results suggest that hippocampal pattern separation is affected by semantic information.

Keywords: episodic memory, semantic memory, word2vec, specificity, pattern separation

Individual differences in neural entrainment to auditory rhythmic patterns

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Empirical study with results

Maria de Lourdes Noboa (ELTE Doctoral School of Psychology), Ferenc Honbolygó (Brain Imaging Centre, Research Centre of Natural Sciences, and Hungarian Academy of Sciences), Neža Slosar (University of Ljubljana)

Entrainment is defined as the temporal alignment of endogenous neural activity to an exogenous rhythmic stimulus. We conducted an EEG experiment to detect individual differences in the patterns of entrainment to music. Participants were exposed to two simple auditory rhythms: syncopated and unsyncopated. In addition, participants performed a finger-tapping task to music and metronome sounds. Through frequency tagging, an EEG method that quantifies Steady-state Evoked Potentials (SS-EP) we identify larger amplitudes in the EEG frequencies of interest based on the rhythm envelopes. This suggests that participants' neural activity was more synchronized at the expected frequencies. The strength of SS-EPs was used as a measure of neural entrainment and was found to have a

significant positive correlation with average finger-tapping consistency to the metronome sound. These results show that the variability in the neural entrainment to auditory rhythmic patterns can help us understand the variability in rhythm processing skills. entrainment, EEG, rhythm, music

Keywords: entrainment, EEG, rhythm, music