3. RESULTS

This part is divided into five sections. First, findings on univariate age-group differences in the individual predictors will be described. Second, I will present findings on how variability in dyadic asynchrony can be explained by differences between dyads and between individuals. These findings were further specified by including individual predictors (e.g., individual asynchrony with metronome, social skills) in the analyses. The respective results will be described in the third section. In the fourth section, I will present findings on variability in dyadic asynchrony due to differences in the age composition of the dyads. Finally, individuals' experiences of the interaction partner and the situation will be analyzed as individual outcomes predicted by dyadic action synchronization accuracy.

Different analyses were carried out to investigate the three research questions introduced in Section 1.5: The first two research questions referred to the expected relationship between individual and dyadic predictors and interpersonal action synchronization (i.e., dyadic outcome). These were analyzed using multilevel modeling techniques based on Bayesian estimation procedures. As described in the Method part, it was thus possible to capture the hierarchical structure of the data, that is, explain observed variance in interpersonal action synchronization by differences between individuals and between dyads. The question on individual consequences of interpersonal action synchronization accuracy was examined with multilevel models explaining differences in individuals' subjective experience (i.e., individual outcome).

3.1 Age-Related Differences in Individual Predictors of Dyadic Asynchrony

Based on theoretical assumptions and former empirical evidence, I expected individuals' sensorimotor abilities and social competencies as predictors of dyadic action synchronization to show developmental change across the lifespan. As the present study is based on cross-sectional comparisons, conclusions on longitudinal changes cannot be made. However, age-related differences can be approached by analyzing age-group differences in the individual predictors. The following section therefore summarizes results on age-group differences in individual predictors (i.e., individual asynchrony, interpersonal flexibility, situational flexibility, and social skills). Descriptive statistics and group comparisons obtained from univariate analyses of variance for each of the four individual variables with the between-subjects factor age group (4) are shown in Table 3.1.

Individual asynchrony. Results from the univariate analysis of variance with individual asynchrony (i.e., individuals' synchronization accuracy within metronome conditions) as the

Table 3.1
Age-group Differences in Individual Predictors of Dyadic Asynchrony

	Age Groups										
	Younger Children		Older Children		Younger Adults		Older Adults		ANOVA		
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	df	*F*	η^2
Individual asynchrony[a]	9.55_a	0.17	$8.74_{a,b}$	0.29	$8.37_{a,b}$	0.41	8.60_a	0.37	3, 68	44.91*	.67
Interpersonal flexibility[b]	3.80	0.35	4.04	0.49	4.05	0.34	3.98	0.41	3, 65	1.50	.07
Situational flexibility[c]	-	-	-	-	34.22	7.61	43.28	8.31	1, 36	11.62*	.26
Social skills[d]	2.41	0.19	2.59	0.19	-	-	-	-	1, 33	7.19[#]	.19

Note. Means in a row sharing subscripts are significantly different (Scheffé Test); * $p < .01$, # $p = .01$; [a] Individual asynchrony = mean asynchrony across metronome conditions, $N = 72$; [b] Interpersonal flexibility = others' report questionnaire, $N = 69$; [c] Situational flexibility = self-report on Battery of Interpersonal Capabilities (BIC), $N = 36$; [d] Social skills =others' report on Social Skills Rating System (SSRS), $N = 33$.

dependent variable revealed significant age-group differences in individual asynchrony, $F(3, 68) = 44.91$, $p < .01$, $\eta^2 = .67$. For example, younger children showed the highest individual asynchrony ($M = 9.55$), whereas younger adults showed the lowest individual asynchrony ($M = 8.37$; see also Appendix 6.2.1, Figure B1). A *Scheffé Test* for post-hoc comparisons between the four age groups (i.e., younger children, older children, younger adults, and older adults) indicated significant differences between younger children and older children ($\Delta = 0.81$, $p < .01$), younger children and younger adults ($\Delta = 1.18$, $p < .01$), younger children and older adults ($\Delta = .95$, $p < .01$), and older children and younger adults ($\Delta = .37$, $p = .01$). Younger adults and older children did not differ significantly from older adults.

Interpersonal flexibility (others' report). Although there was a slight trend for younger children ($M = 3.80$) and older adults ($M = 3.98$) to be described as less flexible in interpersonal situations than the other two age groups ($M > 4$), age-group differences on this variable did not reach statistical significance, $F(3, 65) = 1.50$, *n.s.*

Situational flexibility (self-report). As situational flexibility was only available for adults in the sample, the univariate analyses of variance were carried out comparing younger and older adults (between-subjects factor). Mean values indicated significant differences between the two age groups, $F(1, 36) = 11.62$, $p < .01$, $\eta^2 = .26$, such that younger adults reported lower situational flexibility ($M = 34.22$) than older adults ($M = 43.28$).

Social skills (others' report). Report by others on social skills was only obtained for the child sub-sample. The effect for age group was significant in the respective univariate analysis of variance, $F(1, 33) = 7.19$, $p = .01$, $\eta^2 = .19$, indicating that younger children were reported to have less social skills at their disposal ($M = 2.41$) than older children ($M = 2.59$).

To summarize, three of the four constructs introduced as predictors of dyadic asynchrony, namely individual asynchrony as a sensorimotor predictor and situational flexibility and social skills as social predictors, showed age-related differences. However, all constructs were used in the analyses referring to individual predictors of dyadic asynchrony.

3.2 Variability in Dyadic Asynchrony

The first two sets of research questions relate to variability in dyadic asynchrony as explained by individual and dyadic differences. Therefore, I set up multilevel models to predict dyadic asynchrony. All models included two levels, that is, a dyadic level (Level 1) and an individual level (Level 2) to further specify differences within dyads. Unless noted otherwise, analyses were based on a total of 144 dyads, in which each of the 72 individuals was included four times.

In the present study, all multilevel models that referred to differences in dyadic asynchrony were analyzed using Bayesian parameter estimation methods, more specifically *Markov Chain Monte Carlo* (MCMC) estimation (see also Section 2.4.2.). For all models, three chains were estimated in parallel, with 100,000 iterations for each chain. The *burn-in period* was set to 5,000, that is, the first 5,000 estimated values were discarded. After this, all values of the chains were included in the estimation of the value (i.e., *thinning* = 1). For all models presented here, the $\hat{R}$ s for all parameters indicated sufficient convergence between the three chains (i.e., all $\hat{R} \leq 1.004$).

3.2.1 Variability in Dyadic Asynchrony as Explained by Differences Between Dyads and Individuals

The first model was set up to answer the question of how much variance in dyadic asynchrony can be explained by (a) differences between dyads and (b) differences between individuals within dyads. This simplest multilevel model without additional predictors separated the variance components on each of the two levels (i.e., individual and dyad level). The functional form of this model introduced in Section 2.4.3 was

$$Y_i \text{(Dyadic Asynchrony)} = \beta_0 + u_j\,[\,p1_i\,] + u_j\,[\,p2_i\,] + \varepsilon_i, \qquad (1)$$

where Y_i represents the dyadic asynchrony for the dyad i and β_0 is the average dyadic asynchrony across all dyads in the whole sample. Variances of the distributions of u_j and ε_i denote the between-individual and between-dyad variances respectively. Table 3.2 depicts the means and Bayesian Credible Intervals for all estimated parameters (BCI; 2.5th and 97.5th percentile of the posterior distribution). If the BCI does not include "0" as a possible value, results for the estimated parameters can be considered as reliably different from zero; in short, they will be referred to as *reliable*. Within Bayesian estimation procedures, posterior distributions for all parameters are estimated. In the following, the mean values of these distributions will be treated as the best point estimate for the respective parameter.[19]

The mean of the posterior distribution of the intercept, $M = 8.65$, represents the grand-mean of dyadic asynchrony across all dyads (β_0). The value refers to the mean value of asynchrony between two individuals within one session (after logarithmic transformation).

[19] The respective standard deviations will not be reported, but can be obtained easily as half the difference between the posterior mean and a bound of the interval.

Comparing the means of the posterior distributions of the variance components at each level indicated that 24% of the explained variance (0.25) could be attributed to differences between dyads (0.06), whereas 76% could be related to differences between individuals within dyads (0.19). Therefore, it can be concluded that more than three times as much of the total variance was located between individuals. This empty model without additional predictors (Model 1) will in the following be referred to as basic model when comparing further models.[20]

Table 3.2
Model 1: Characteristics of Between-Person and Between-Dyad Variability in Dyadic Asynchrony (N = 144)

	Mean	95% BCI
Fixed Effects		
Intercept	**8.65**	(8.45, 8.86)
Random Effects (Variance Components)		
Between dyads	**0.06**	(0.04, 0.08)
Between individuals	**0.19**	(0.13, 0.27)
DIC	**59.75**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

3.3 Individual Predictors of Variability in Dyadic Asynchrony

The first research question of the present study addressed individuals' sensorimotor abilities and social competencies and attitudes underlying interpersonal action synchronization accuracy. Hence, individual predictors were integrated into the model at Level 2 to further specify the variance assigned to differences between individuals. The functional equation tested in these models was equivalent to Model 1, except that u_j was further specified as $u_j \sim N(a \cdot V, \sigma^2_u)$, with V as the placeholder for any additional individual predictor (see also Section 2.4.3, Equation (3)).

Sensorimotor abilities were operationalized as the mean asynchrony of an individual drumming with different stable and variable metronome frequencies, called *individual asynchrony* (after logarithmic transformation). Social competencies were operationalized as *interpersonal flexibility* reported by others, self-report on *situational flexibility* (assessed by adults only), and others' report on *social skills* by teachers or kindergarten nurses for the children. To explore the effect of *age-specific attitudes* on dyadic asynchrony, age-related stereotypic expectations were included as indicators. As this individual predictor referred to the respective partner within a dyad, it was methodologically necessary to include this predictor at the dyadic level. Analyses on

[20] Due to missing values, some models included less than 144 dyads. Results referring to the respective basic models (Model 1a–1c) can be found in Appendix 6.2.2, Tables B1, B2, and B3.

the predictive effect of age-specific attitudes will therefore be reported as an excursus in the context of possible dyadic predictors. All individual predictors were centered to the mean (i.e., the overall mean was subtracted from all values; e.g., Hox, 2002; Singer & Willett, 2003).

The following sections will be organized according to the different predictors introduced at the individual level: individuals' sensorimotor abilities (i.e., operationalized as individual asynchrony) and social competencies (i.e., operationalized as interpersonal and situational flexibility, and social skills). First, I analyzed each construct of interest separately as a univariate predictor. Finally, I included individual asynchrony and interpersonal flexibility as multivariate predictors in the same analyses to test the effects of both variables above and beyond each other.

3.3.1 Individual Asynchrony as an Individual Predictor

Model 2 was set up to analyze the hypothesis that individuals' ability to synchronize with a metronome is related to dyadic asynchrony. More specifically, higher individual asynchrony was expected to be associated with higher dyadic asynchrony.

Results for this model are shown in Table 3.3. The mean value of the posterior distribution for the intercept in this model (β_0) described the mean dyadic asynchrony ($M = 8.65$) between two individuals with mean individual asynchrony. The positive mean value for individual asynchrony (1.14) indicated that higher dyadic asynchrony was related to higher individual asynchrony. That is, if individuals' synchronization performance with a metronome was one unit more asynchronous, the dyadic asynchrony within the respective dyad was 1.14 units higher.[21] In addition, the proportion of the explained between-individual variance was considerably lower relative to Model 1 (reduced by 67%), indicating that additional variance between individuals could be explained by individual asynchrony as the individual predictor. Still, there is variance related to differences between dyads that is reliably different from zero (0.06). Furthermore the DIC value indicated an important improvement in model fit as compared to Model 1 ($\Delta_{DIC} = 10.42$[22]).[23]

[21] To illustrate the effect size: The overall dyadic asynchrony was $M = 8.65$; $SD = 0.63$.
[22] Δ_{DIC} is the absolute difference between DIC values of two models of interest.
[23] In an exploratory follow-up analysis, I further examined whether the variance of individuals' *preferred tempo* in the baseline session predicts dyadic asynchrony. Results indicate that stability in baseline performance did not account for a reliable proportion of variance in dyadic asynchrony (see Appendix 6.2.3, Table B4). In addition, the absolute difference between partners' preferred tempo was also not related to variance in dyadic asynchrony.

Table 3.3
Model 2: Variability in Dyadic Asynchrony Explained by Individual Asynchrony (N = 144)

	Mean	95% BCI
Fixed Effects		
Intercept	**8.65**	(8.53, 8.77)
Individual Predictor		
Individual asynchrony	**1.14**	(0.94, 1.35)
Random Effects (Variance Components)		
Between dyads	**0.06**	(0.04, 0.08)
Between individuals	**0.06**	(0.03, 0.08)
DIC	**49.33**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

3.3.2 Interpersonal Flexibility, Situational Flexibility, and Social Skills as Individual Predictors

Interpersonal Flexibility

My second hypothesis was that higher interpersonal flexibility predicts lower dyadic asynchrony. Therefore, I included others' report on interpersonal flexibility as the individual predictor of dyadic asynchrony in Model 3. The respective analysis was based on 132 dyads because three individuals had missing values on the individual predictor variable. Therefore 12 dyads were excluded from the analyses.

In this model, the estimate of the intercept, M = 8.69, can be interpreted as the dyadic asynchrony between individuals with mean interpersonal flexibility (see Table 3.4). The mean of the posterior distribution for interpersonal flexibility (-0.28) indicated that interpersonal flexibility had a small predictive effect on dyadic asynchrony. That is, lower interpersonal flexibility, as an indicator of social competencies, was related to higher dyadic asynchrony (1 unit change in interpersonal flexibility leads to 0.28 units decrease in dyadic asynchrony). In comparison to Model 1a, the between-individual variance component was reduced by 6% in relation to the respective empty model (basic model of comparison with N = 132: Model 1a; for results see Appendix 6.2.2, Table B1). However, the very small difference in the model fit indices (Δ_{DIC} = 0.08) indicates that this effect cannot be interpreted with confidence. To conclude, although there appeared to be a marginal predictive effect of interpersonal flexibility on dyadic asynchrony in the hypothesized direction, this effect cannot be interpreted with confidence as not all estimation criteria were met.

Table 3.4
Model 3: Variability in Dyadic Asynchrony Explained by Interpersonal Flexibility (N = 132)

	Mean	**95% BCI**
Fixed Effects		
Intercept	**8.69**	(8.49, 8.89)
Individual Predictor		
Interpersonal flexibility	**-0.28**	(-0.54, -0.02)
Random Effects (Variance Components)		
Between dyads	**0.06**	(0.04, 0.08)
Between individuals	**0.17**	(0.11, 0.25)
DIC	**61.62**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

Situational Flexibility and Social Skills

The following section refers to the predictive effect of two additional individual predictors that were included into the analyses as indicators of social competencies. For adults, *situational flexibility* was assessed through self-report on the Battery of Interpersonal Capabilities (BIC). For children, a measure of *social skills* was obtained from report by teachers and kindergarten nurses on the Social Skills Rating System (SSRS; Gresham & Elliott, 1990). Each of these two individual predictors was only obtained for two of the four age groups (i.e., adults or children only). Data analyses were therefore each carried out on different sub-samples.

Situational flexibility. Table 3.5 displays the results of Model 4 with situational flexibility as the individual predictor for the adult sub-sample (N = 36 dyads). The mean of the posterior distribution for the intercept, M = 8.00, relates to the mean dyadic asynchrony for adults with mean situational flexibility. The mean of the posterior distribution of situational flexibility indicates that there is no reliable predictive effect of this variable on variability in dyadic asynchrony, because “0” (i.e., no effect) cannot be excluded as a possible value. More specifically, the parameter estimates imply that with a probability of 95%, this value does not differ from zero by more than 0.01. Compared to the respective empty Model 1b (with N = 36; for results see Appendix 6.2.2, Table B2), the estimated values of the variance components did not differ. The DICs did not show any interpretable discrepancies either. These results indicate that situational flexibility as an individual predictor does not explain additional variance in dyadic asynchrony.

Table 3.5
Model 4: Variability in Dyadic Asynchrony Explained by Situational Flexibility (Self-Report for Adults; N = 36)

	Mean	95% BCI
Fixed Effects		
Intercept	**8.00**	(7.87, 8.15)
Individual Predictor		
Situational flexibility	-0.00	(-0.01, 0.01)
Random Effects (Variance Components)		
Between dyads	**0.03**	(0.01, 0.07)
Between individuals	**0.04**	(0.01, 0.07)
DIC	**-5.91**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

Social skills. In Model 5, social skills as reported by others were included in the analyses as the individual predictor for variability in dyadic asynchrony in children (N = 30 dyads). The mean of the posterior distribution of the intercept (9.22) refers to the mean dyadic asynchrony between two children with average social skills (see Table 3.6). Results indicate that social skills were reliable predictors of dyadic asynchrony: Lower social skills (-0.79) were related to higher dyadic asynchrony. In comparison to the respective basic model (Model 1c; for results see Appendix 6.2.2, Table B3), the estimated values of the variance component related to differences between individuals changed by 12.5%, and the DICs indicated a substantial change in the model fit (Δ_{DIC} = 5.45).

Table 3.6
Model 5: Variability in Dyadic Asynchrony Explained by Social Skills (Others' Rating for Children; N = 30)

	Mean	95% BCI
Fixed Effects		
Intercept	**9.22**	(9.02, 9.43)
Individual Predictor		
Social skills	**-0.79**	(-1.39, -0.21)
Random Effects (Variance Components)		
Between dyads	**0.06**	(0.01, 0.20)
Between individuals	**0.07**	(0.00, 0.15)
DIC	**14.20**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

The relatively small or non-reliable effects in the last two analyses can be related to the reduced sample sizes and less heterogeneity in the sub-sample as compared to the main sample (i.e., adult or child dyads only). Two follow-up analyses to consolidate these findings (using Pearson correlations and Bayesian correlations) treated the observations of dyads as independent from each other (see Appendix 6.2.4). The directions of the results were replicated.

To conclude, situational flexibility was not a reliable predictor of dyadic asynchrony, whereas multilevel model analyses revealed a negative relationship between social skills and dyadic asynchrony in children. These results were supported by follow-up analyses ignoring the dependent structure of the data.

3.3.3 Differentiating the Effects of Individual Asynchrony and Interpersonal Flexibility

To test the predictive effect of individual asynchrony and interpersonal flexibility above and beyond each other, I set up an additional model including both predictors simultaneously (Model 6).[24] A significant correlation between individual asynchrony and interpersonal flexibility (r = -.30, p = .01) implied an association between higher individual asynchrony and lower interpersonal flexibility. However, the two individual predictors are statistically and theoretically distinguishable from each other.

The results are presented in Table 3.7. They indicated that when including both the sensorimotor and the social predictor, only the sensorimotor predictor (i.e., individual asynchrony) explained unique variance (0.67). Compared to the basic Model 1a (with N = 132; for results see Appendix 6.2.2, Table B1), the model fit was markedly increased (Δ_{DIC} = 14.32). However, the difference in model fit compared to a model including only individual asynchrony as predictor[25] (Model 6a; for results see Appendix 6.2.5, Table B6) was negligible (Δ_{DIC} = 1.42). These results indicate that interpersonal flexibility does not account for variance in dyadic asynchrony over and above individual asynchrony.

To summarize, sensorimotor abilities operationalized as individual asynchrony were found to explain substantial proportions of the variance component between individuals. Furthermore, social skills as social predictor were found to be related to variance in dyadic

[24] The two other social predictors, situational flexibility and social skills, were not included in follow-up analyses due to the small sample sizes with valid values on the predictor variables.

[25] Due to the smaller sample size in the models with multiple predictors, Model 6a with N = 132 instead of Model 2 with N = 144 was used as the model for comparison.

Table 3.7
Model 6: Variability in Dyadic Asynchrony Explained by Individual Asynchrony and Interpersonal Flexibility (N = 132)

	Mean	95% BCI
Fixed Effects		
Intercept	**8.69**	(8.59, 8.78)
Individual Predictors		
Individual asynchrony	**0.67**	(0.57, 0.77)
Interpersonal flexibility	-0.01	(-0.14, 0.13)
Random Effects (Variance Components)		
Between dyads	**0.06**	(0.04, 0.09)
Between individuals	**0.03**	(0.02, 0.05)
DIC	**47.38**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

asynchrony in children. In contrast, interpersonal flexibility resulted in a marginal effect that did not differ from zero when individual asynchrony was included in the model.

3.4 Dyadic Predictors of Variability in Dyadic Asynchrony

The second research question addressed the effects of differences in the age-group composition of the dyads on dyadic asynchrony. In the following section, I will therefore first report results from multilevel models integrating all possible age-group combinations of the dyads as predictors at the dyadic level (Level 1). Furthermore, dyadic age-group compositions were hypothesized to differ due to underlying age-related differences in sensorimotor abilities (i.e., individual asynchrony) as well as social competencies (e.g., interpersonal flexibility). I will therefore present findings from models analyzing whether the predictive effect of differences between age-group combinations of the dyads on dyadic asynchrony can further be explained by individuals' sensorimotor skills and social competencies.

3.4.1 Age-Group Compositions as Dyadic Predictors

In Hypotheses 2a, I made the assumption that same-age dyads with younger adults show lowest dyadic asynchrony compared to other dyads. Figure 3.1 depicts the dyadic asynchrony for each dyadic age-group combination across the 16 trials within a session.

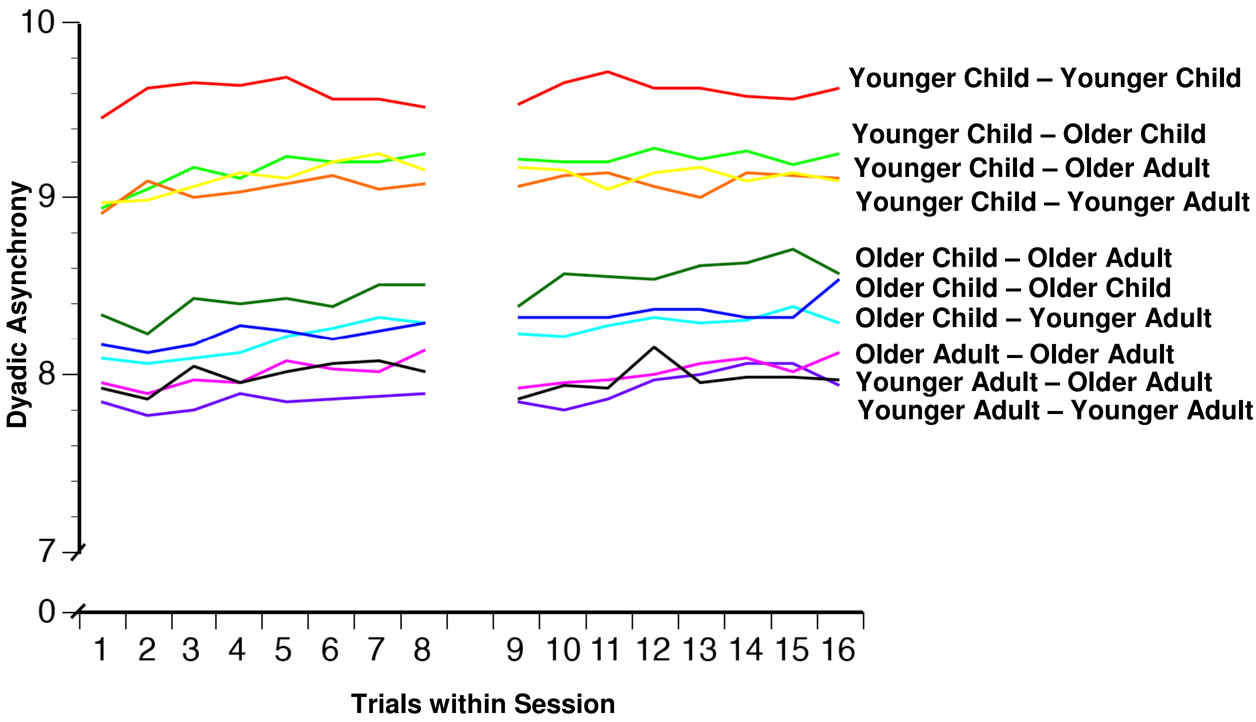

Figure 3.1. Dyadic asynchrony within one session by dyadic age-group composition (2 blocks à 8 trials).

All dyads including children showed higher dyadic asynchrony (and higher variability between trials) compared to all other dyads. As hypothesized, younger adults drumming with younger adults appeared to show the lowest dyadic asynchrony. Therefore, this age-group combination was set as the reference group for the following analyses. All other possible dyadic age-group compositions were included into the model as dummy variables at the dyadic level (Level 1), that is, "younger child – younger child," "younger child – older child," "younger child – younger adult," "younger child – older adult," "older child – older child," "older child – younger adult," "older child – older adult," "younger adult – older adult," "older adult – older adult." Thus, the respective model is represented by the following equation (see also Section 2.4.3)[26]:

$$Y_i = \beta_0 + u_j\,[\,p1_i\,] + u_j\,[\,p2_i\,] + \beta_1 \cdot YCYC + \beta_2 \cdot YCOC \qquad (3)$$

$$+ \beta_3 \cdot YCYA + \beta_4 \cdot YCOA + \beta_5 \cdot OCOC + \beta_6 \cdot OCYA$$

$$+ \beta_7 \cdot OCYA + \beta_8 \cdot OCOA + \beta_9 \cdot OAOA + \varepsilon_i.$$

The mean of the posterior distribution for the intercept (β_0), M = 7.93, indicates the mean dyadic asynchrony for the reference group, that is, younger adults drumming with younger adults (see Table 3.8). Estimated means of the posterior distributions of all other age-group compositions showed positive derivations from the intercept, that is, higher values of dyadic

[26] YC: younger child, OC: older child, YA: younger adult, OA: older adult; reference category: YAYA combination.

asynchrony. For example, the dyadic age composition that showed the highest dyadic asynchrony compared to the reference group were younger children drumming with younger children ($\beta_{0\,(YCYC)}$= 7.93 + 1.71 = 9.64). Most discrepancies in dyadic asynchrony between other dyadic combinations and the reference group resulted in parameter estimates that differed reliably from zero, except for "younger adult – older adult" and "older adult – older adult," respectively. This can be interpreted as non-reliable differences in dyadic asynchrony between dyads with younger adults and older adults drumming with each other, that is, younger and older adults did not differ with respect to their interpersonal synchronization accuracy. Compared to Model 1, the difference between the DICs (Δ_{DIC} = 65.91) suggested an importantly higher model fit, that is, differences in dyadic age-group compositions are substantial predictors of dyadic asynchrony. Note that estimated values of the variance components changed by 33.3% (dyadic level) and 84.2% (individual level).

Table 3.8
Model 7: Variability in Dyadic Asynchrony Explained by Dyadic Age-Group Compositions (N = 144)

	Mean	**95% BCI**
Fixed Effects		
Intercept	**7.93**	(7.72, 8.13)
Dyadic Age-Group Compositions		
Younger child – younger child	**1.71**	(1.41, 2.00)
Younger child – older child	**1.30**	(1.04, 1.55)
Younger child – younger adult	**1.20**	(1.00, 1.39)
Younger child – older adult	**1.24**	(0.99, 1.50)
Older child – older child	**0.60**	(0.31, 0.89)
Older child – younger adult	**0.35**	(0.16, 0.55)
Older child – older adult	**0.40**	(0.15, 0.66)
Younger adult – older adult	0.12	(-0.08, 0.31)
Older adult – older adult	0.08	(-0.22, 0.38)
Random Effects (Variance Components)		
Between dyads	**0.04**	(0.03, 0.05)
Between individuals	**0.03**	(0.02, 0.05)
DIC	**-6.16**	

Note. Reference group: Younger adult – younger adult; BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

In Hypothesis 2b, I expected that age-mixed dyads including one younger adult would show higher synchronization accuracy compared to all other dyads. As described above, same-age dyads with two younger adults showed lower dyadic asynchrony (i.e., higher interpersonal action synchronization accuracy) than most other dyadic age combinations, except those in which only younger or older individuals were paired with each other. However, as illustrated in Figure 3.1, not all age-mixed dyads including one younger adult showed lower dyadic asynchrony than the remaining other dyads. Results from Model 7 also underline this finding: In contrast to the assumption, the mean discrepancies in dyadic asynchrony between the reference group (i.e., "younger adult – younger adult") and age-mixed dyads including one younger adult (i.e., $\beta_{3\,(YCYA)} = 1.2$, $\beta_{6\,(OCYA)} = 0.35$, $\beta_{7\,(OCYA)} = 0.12$) are not smaller than discrepancies between the reference group and other dyadic combinations that do not include younger adults. For example, younger adults drumming with younger children showed higher dyadic asynchrony than older children drumming with older adults ($\beta_{0\,(YCYA)} = 7.93 + 1.20 = 9.13 > \beta_{0\,(OCOA)} = 7.93 + 0.40 = 8.33$).[27] These results indicate that younger adults drumming with other age groups do not inevitably show higher interpersonal action synchronization accuracy than dyads without younger adults.

Follow-Up Analyses

A novel exploratory question presented itself based on the results of Model 7 (see Table 3.8). Findings suggested that individuals in both child age groups showed better performance when paired with an adult than with another child. The follow-up question therefore was whether children can benefit from adults' competencies in the dyadic situation, that is, whether dyadic asynchrony is lower for children drumming with an adult than when drumming with a same-age partner. In the following section, I will present the results for each of the child age groups separately. All results for the estimated parameters presented can also be seen in Table 3.8. However, that table referred to Model 7 with the reference category "younger adult – younger adult." For the purpose of easier comparison with regard to the respective same-age dyad among children, Table 3.9 depicts the results from equivalent models with the combinations "younger child – younger child" (Model 7a) and "older child – older child" (Model 7b) as reference categories.

[27] As the BCIs of the two parameters did not overlap, the probability that the two values are within a given bound of each other is very low. That is, the difference between each of these two dyadic combinations as compared to the reference group can be described as considerable.

Table 3.9
Model 7a & 7b: Variability in Dyadic Asynchrony Explained by Dyadic Age-Group Compositions (Sub-Samples)

	Model 7a Reference: Younger Child – Younger Child		**Model 7b Reference: Older Child – Older Child**	
	Mean	**95% BCI**	**Mean**	**95% BCI**
Fixed Effects				
Intercept	**9.64**	(9.43, 9.85)	**8.53**	(8.32, 8.73)
Dyadic Age-Group Compositions				
Younger child – younger child	–	–	**1.11**	(0.82, 1.21)
Younger child – older child	**-0.42**	(-0.61, -0.22)	**0.70**	(0.50, 0.89)
Younger child – younger adult	**-0.51**	(-0.71, -0.32)	**0.60**	(0.34, 0.85)
Younger child – older adult	**-0.47**	(-0.66, -0.27)	**0.65**	(0.39, 0.90)
Older child – older child	**-1.11**	(-1.41, -0.82)	–	–
Older child – younger adult	**-1.36**	(-1.62, -1.10)	**-0.25**	(-0.44, -0.05)
Older child – older adult	**-1.31**	(-1.57, -1.05)	**-0.20**	(-0.40, -0.00)
Younger adult – younger adult	**-1.71**	(-2.01, -1.41)	**-0.60**	(-0.90, -0.30)
Younger adult – older adult	**-1.59**	(-1.85, -1.33)	**-0.48**	(-0.74, -0.22)
Older adult – older adult	**-1.63**	(-1.93, -1.33)	**-0.52**	(-0.81, -0.22)
Random Effects				
Between dyads	**0.04**	(0.03, 0.05)	**0.04**	(0.03, 0.05)
Between individuals	**0.03**	(0.02, 0.05)	**0.03**	(0.02, 0.05)
DIC	**-6.23**		**-6.20**	

Note. BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

Younger children. Results for Model 7a are summarized in the left column of Table 3.9. Younger children drumming with younger children showed the highest dyadic asynchrony: The mean of the respective posterior distribution indicates that the mean dyadic asynchrony for this dyadic age-group combination was M = 9.64. Results further indicate that all dyads including one younger child (i.e., "younger child – older child," "younger child – younger adult," and "younger child – older adult") yield interpretable differences in comparison to younger children's same-age dyads, that is, younger children show lower dyadic asynchrony when paired with a partner of an older age group than in same-age dyads. However, the dyadic combinations including one younger child (but not two) did not show reliable differences among each other (i.e., the BCIs overlap). For example, there were no differences in dyadic asynchrony between younger children synchronizing with younger or older adults. Overall, the results indicated that younger children benefit from synchronizing with a partner of an older age group compared to dyads with a same-age partner.

Older children. Results from the analyses with reference group "older child – older child" (Model 7b) are summarized in the right column of Table 3.9. The mean of the posterior distribution of the intercept, M = 8.53, indicated the mean dyadic asynchrony for the reference group. In general, all dyads that included a younger child showed positive derivations from the mean performance of older children drumming with age peers (i.e., younger children's synchronization performance was less accurate). Comparing dyads including one older child and a member of another age group with each other (i.e., "younger child – older child," "older child – younger adult," and "older child – older adult"), it was found that older children showed the highest dyadic asynchrony when drumming with a younger child ($\beta_{0\ (YCOC)}$ = 8.53 + 0.70 = 9.23) and the lowest dyadic asynchrony when paired with adults ($\beta_{0\ (OCYA)}$ = 8.53 - 0.25 = 8.28; $\beta_{0\ (OCOA)}$ = 8.53 - 0.20 = 8.33). In line with findings for younger children, the differences between older children drumming with younger adults and older children drumming with older adults were not reliably different from zero (because the BCIs of the two estimated parameters overlap), that is, children benefited equally from synchronizing with younger and older adults. To summarize, results indicate that same-age dyads with older children show higher synchronization accuracy than dyads between younger and older children. Furthermore, older children benefited equally from synchronizing with someone who is older than they were, that is, younger and older adults.

To conclude, same-age dyads with <u>two</u> younger adults showed higher synchronization accuracy than most other dyads except dyads only including adults (i.e., "younger adult – older adult," "older adult - older adult"). This interesting finding indicated that dyads among younger and older adults showed comparable dyadic synchronization accuracy. Inconsistent with my hypothesis, age-mixed dyads with <u>one</u> younger adult did not show higher synchronization accuracy than dyads without younger adults regardless of the age of their respective partner. However, results from follow-up analyses indicated that children of both age groups showed lower dyadic asynchrony when drumming with participants from an older age group than their own. Interestingly, both younger and older children benefited equally from younger and older adults.

3.4.2 Differences in Dyadic Asynchrony Between Age-Group Compositions Explained by Individual Asynchrony and Interpersonal Flexibility

I hypothesized that the dyadic age-group compositions would differ in their dyadic asynchrony due to underlying age-related differences in the individual predictors (i.e., sensorimotor abilities and social competencies). In order to analyze this effect, further multilevel models included age-group compositions as predictors at the dyadic level (Level 1) and individual asynchrony and interpersonal flexibility, respectively, as predictors at the individual level (Level 2; see Table 3.10.).

Table 3.10

Models 8 & 9: Variability in Dyadic Asynchrony Explained by Age-Group Compositions and Individual Asynchrony (N = 144) *or Interpersonal Flexibility* (N = 132)

	Model 8 Individual Asynchrony		**Model 9 Interpersonal Flexibility**	
	Mean	**95% BCI**	**Mean**	**95% BCI**
Fixed Effects				
Intercept	**8.12**	(7.90, 8.33)	**7.94**	(7.73, 8.14)
Individual Predictors				
Individual Asynchrony	**0.43**	(0.20, 0.65)	—	
Interpersonal Flexibility	—		-0.06	(-0.19, 0.07)
Dyadic Age-Group Compositions				
Younger child – younger child	**1.18**	(0.78, 1.58)	**1.68**	(1.38, 1.98)
Younger child – older child	**0.96**	(0.66, 1.26)	**1.28**	(1.03, 1.54)
Younger child – younger adult	**0.93**	(0.70, 1.17)	**1.18**	(0.98, 1.38)
Younger child – older adult	**0.93**	(0.64, 1.22)	**1.24**	(0.97, 1.50)
Older child – older child	**0.46**	(0.18, 0.74)	**0.60**	(0.31, 0.90)
Older child – younger adult	**0.28**	(0.09, 0.47)	**0.35**	(0.16, 0.55)
Older child – older adult	**0.28**	(0.04, 0.53)	**0.44**	(0.18, 0.70)
Younger adult – older adult	0.07	(-0.12, 0.26)	0.15	(-0.06, 0.35)
Older adult – older adult	-0.01	(-0.29, 0.26)	0.09	(-0.23, 0.41)
Random Effects (Variance Components)				
Between dyads	**0.04**	(0.03, 0.05)	**0.04**	(0.03, 0.06)
Between individuals	**0.02**	(0.01, 0.04)	**0.03**	(0.02, 0.05)
DIC	**-6.94**		**4.04**	

Note. Reference group: Younger adult – younger adult; BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

The results indicated that when controlling for individual asynchrony, differences between dyadic combinations were reduced relative to the model without individual predictors; that is, Model 7 (see Table 3.8.) but still remain reliable: Individual asynchrony explained 20–31% of differences between dyadic age-group compositions at most (see Appendix 6.2.6, Table B8), but did not reveal a substantial change in the DIC (Δ_{DIC} = 0.78). In line with previous results on interpersonal flexibility as individual predictor, this indicator did not explain additional observed variance compared to Model 7c (see Appendix 6.2.6, Table B7).

To summarize, analyses revealed that variability in dyadic asynchrony related to differences between dyadic age-group combinations could partly be explained by individual asynchrony as the individual predictor. The pattern of differences between dyadic age-group combinations, however, remained the same.

3.4.3 Excursus: Exploratory Analyses Including Age-Stereotypic Expectations

Age-stereotypic expectations were operationalized as the mean rating of reciprocal age-specific attributions within a dyad. That is, I built an average across both partners' ratings of age-specific attributions as measured with the *AGED* questionnaire referring to the age group of the respective partner. For example, in sessions where younger adults drummed with older adults, it was averaged across the rating of the younger adults' attributions towards older adults in general and the older adults' attributions towards younger adults. Means within age groups related to the respective age group are summarized in Figure 3.2. For example, at a descriptive level, "a typical 5-year-old" is associated with the most positive attitudes by older children, whereas "a typical person in his/her 70s" is described as equally positive by all other age groups.[28]

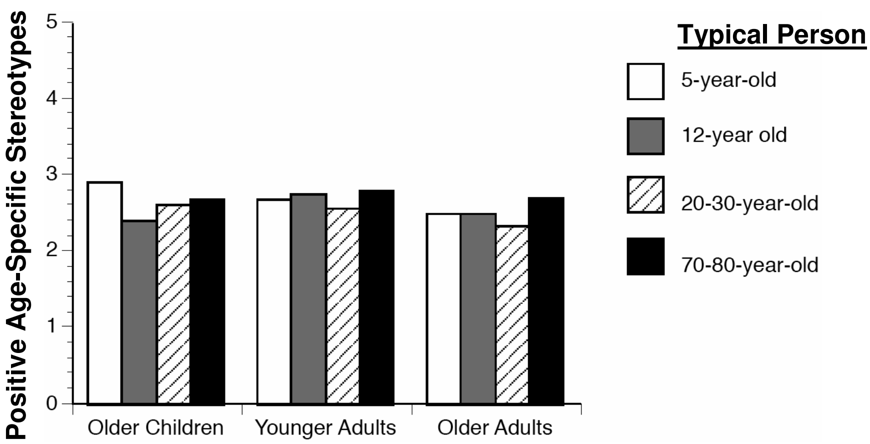

Figure 3.2. Mean positive stereotypic expectation towards a typical person in a specific age group (by age group).

[28] No ratings on the *AGED* questionnaire were available for younger children.

This reciprocal mean score was implemented in another multilevel model analysis as a predictor at the dyadic level (i.e., each dyad was associated with one specific reciprocal mean score) in Model 10a. Higher values on this predictor indicated more positive reciprocal attributions between the two partners. Dyads in which both partners held missing values on the predictor variable were excluded from the analyses (i.e., *N* = 135).

The results of Model 10a are summarized in the left column of Table 3.11. The mean of the posterior distribution of the intercept, *M* = 8.93, refers to the mean dyadic asynchrony for dyads with average reciprocal age-stereotypic attributions. However, the fact that the estimated parameter for the dyadic predictor did not reliably differ from zero (i.e., "0" cannot be excluded as a possible value for the parameter) suggests that the age-stereotypic attributes did not explain a reliable amount of variance in dyadic asynchrony.

Table 3.11
Model 10a & 10b: Variability in Dyadic Asynchrony Explained by Age-Group Compositions and Age-Specific Expectations (N = 135)

	Model 10a AGED		**Model 10b AGED & Dyadic Age-Group Compositions**	
	Mean	**95% BCI**	**Mean**	**95% BCI**
Fixed Effects				
Intercept	**8.93**	(8.30, 9.57)	**8.55**	(7.95, 9.15)
Dyadic Predictors				
Age-specific expectations	-0.08	(-0.26, 0.10)	**-0.18**	(-0.34, -0.02)
Younger child – older child	—	—	**1.23**	(0.96, 1.50)
Younger child – younger adult	—	—	**1.18**	(0.98, 1.37)
Younger child – older adult	—	—	**1.25**	(0.99, 1.51)
Older child – older child	—	—	**0.63**	(0.32, 0.93)
Older child – younger adult	—	—	**0.33**	(0.13, 0.52)
Older child – older adult	—	—	**0.40**	(0.13, 0.65)
Younger adult – older adult	—	—	0.12	(-0.08, 0.31)
Older adult – older adult	—	—	0.06	(-0.25, 0.36)
Random Effects (Variance Components)				
Between dyads	**0.04**	(0.03, 0.06)	**0.04**	(0.03, 0.05)
Between individuals	**0.22**	(0.15, 0.32)	**0.03**	(0.02, 0.05)
DIC	**24.38**		**-9.20**	

Note. Reference group: Younger adult – younger adult; BCI = Bayesian Credible Interval; DIC = Deviance Information Criterion; bold = estimated value reliably different from zero.

After controlling for different age-group compositions in Model 10b (see right column in Table 3.11), however, the mean of age-stereotypic attributions within a dyad was found to reveal a reliable predictive effect (-0.18). Compared to Model 10c only including age-group combinations for N = 135 (see Appendix 6.2.6, Table B9), the difference between the DICs (Δ_{DIC} = 9.13) suggested a substantially higher model fit. This result indicates that more negative expectations with reference to the age group of the respective partner predicted higher dyadic asynchrony over and above the dyadic age-group composition.

3.5 Variability in Dyadic Asynchrony Predicting Individual Experience

The third research question addressed the predictive effect of dyadic asynchrony on interpersonal experience (i.e., as an individual outcome variable). The respective effects on the subjective evaluation of the interaction partner and the situation were analyzed within a repeated-measures design with four measurement occasions per individual (i.e., four different partners from the respective age groups) using SAS 9.1 for Windows (SAS Institute Inc., 2003) based on ML estimation procedures. In the following section, I will summarize the analyses referring to this question. The respective functional equation of the model tested was explained in more detail in Section 2.4.3:

$$Y_{ij} = \beta_{0j} + \beta_{1j}\,\text{Dyadic Asynchrony}_{ij} + \varepsilon_{ij}\,. \quad (6)$$

The following section focuses on the effect of dyadic asynchrony on the impression of the partner as assessed at the end of the session (i.e., *last impression*). Afterwards, I will report on analyses of experiencing the situation (e.g., *positive experience*, *satisfaction* with the dyadic drumming performance, and *difficulty* of the situation). Because data was only available for older children and adults, analyses were based on 54 individuals.

3.5.1 Experience of the Interaction Partner

At the end of the session, participants were asked to rate their *last impression* of the drumming partner at the end of the session. In the respective analyses, I used a mean aggregate of the last impression scale as described in Section 2.3.2.[29] Higher values indicate a more positive evaluation of the drumming partner at the end of the session. As shown in Table 3.12 (Model 11a), the mean of the last impression for individuals in dyads with average dyadic

[29] The aggregate was based on ratings on the following questions: "*How likeable/friendly/cooperative was today's drumming partner?*" and "*How much would you like to get to know today's drumming partner better?*"

Table 3.12
Model 11a, 11b, & 11c: Prediction of Last Impression by Dyadic Asynchrony (N = 54)

	Model 11a Dyadic Asynchrony Only	**Model 11b Controlling for Age of Partner**	**Model 11c Controlling for First Impression**	**Model 11d Controlling for Age Group x Dyadic Asynchrony**
Fixed Effects				
Intercept	3.72*	3.68*	3.68*	3.73*
Dyadic asynchrony	-0.48*	-0.93*	-0.61*	-0.45*
Younger child (YC)	—	0.62*	0.32#	0.15
Older child (OC)	—	-0.05	0.02	-0.02
Older adult (OA)	—	-0.27#	-0.14	-0.34*
First impression	—	—	0.74*	0.74*
YC x Dyadic asynchrony	—	—	—	-0.00
OC x Dyadic asynchrony	—	—	—	0.03
OA x Dyadic asynchrony	—	—	—	-0.72*
Random Effects				
Within individuals (ε_{ij})	0.15*	0.18*	0.03+	0.03#
Goodness-of-Fit				
Deviance (-2LL)	421.8	409.4	277.6	268.6

Note. Reference group: Younger adult. The covariance between dyadic asynchrony and last impression across the four age groups was fixed to zero to ensure greater parsimony and model conversion.* $p < .01$, # $p = .03$, + $p = .05$

asynchrony was β_{0j} = 3.72. Results from Model 11a further indicate that lower dyadic asynchrony predicts significantly higher values on the last impression scale (β_{1j} = -0.48, $p < .01$). In other words, individuals rated their drumming partner more positively when the dyadic drumming performance was more accurate.

The predictive effect of dyadic asynchrony on last impression remained significant after controlling for the age of the respective partner (Model 11b). Compared to younger adults ($\beta_{0j\ (YC)}$ = 3.68), on average, younger children as partners were evaluated more positively ($\beta_{0j\ (YC)}$ = 3.63) and older adults were rated more negatively ($\beta_{0j\ (OA)}$ = 3.41). However, age-group differences did not explain the relationship between lower dyadic asynchrony and more positive evaluation of the partner (β_{1j} = -0.93, $p < .01$).

A third model (Model 11c) included the average subjective evaluation of the partner at the beginning of a session as additional predictor (i.e., *first impression*). The respective estimated value (β_{5j} = 0.74, $p < .01$) indicates that drumming partners who were rated more positively on the first impression scale, were also evaluated positively at the end of the session. However, the effect of dyadic asynchrony was robust against the effect of first impression (β_{1j} = -0.61, $p < .01$), that is, regardless of the first impression of the drumming partner, higher dyadic asynchrony still predicts less positive evaluation at the end of the session. Follow-up analyses in this context revealed a significantly negative correlation between dyadic asynchrony and the discrepancy between last and first impression (r = -.38; $p < .01$), after controlling for the age of the drumming partner. This indicates that individuals in dyads that reached higher synchronization accuracy were more likely to rate their partner more positively at the end of the session compared to the beginning. Figure 3.3 shows the mean change from first to last impression for two groups, namely those with low (below median) and high (above median) dyadic asynchrony.

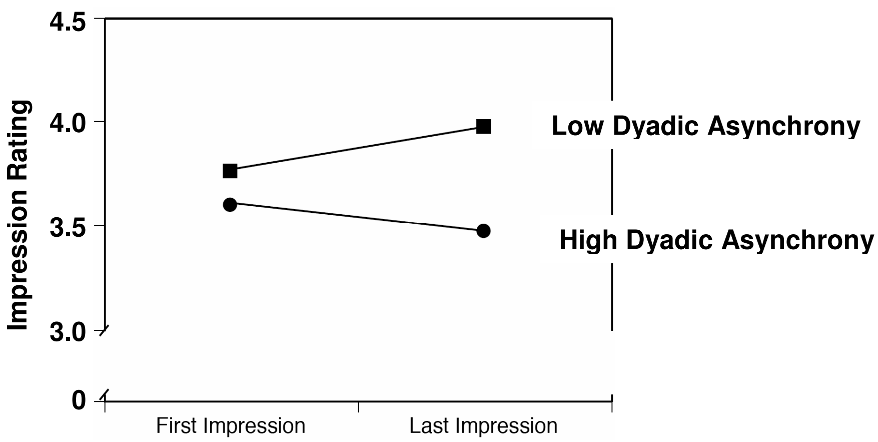

Figure 3.3. Change from first to last impression by high and low dyadic asynchrony (groups divided by median split).

Interestingly, there was no reliable predictive effect of first impression on dyadic asynchrony (see Appendix 6.2.7, Table B10). This suggests that the first impression of the other person at the beginning of a session was not relevant for the accuracy in dyadic performance, but in turn, lower dyadic asynchrony was related to higher positive evaluation at the end of the session.

In a final model (Model 11d), I was able to show that the effect of dyadic asynchrony on last impression still remained significant after controlling for the interaction between dyadic asynchrony and the respective age group of the partner. As shown before, dyadic asynchrony varies with age-group composition of the dyads (see also Section 3.4.1). However, dyadic asynchrony still explains a significant proportion of variance in the last impression of the partner irrespective of age.

3.5.2 Experience of the Situation

With respect to the situation, three single-question ratings were analyzed as predicted by dyadic asynchrony: *positive* experience of the situation, *satisfaction* with the dyadic drumming performance, and the experience of *difficulty* of the drumming task. Analyses based on multilevel modeling in a repeated-measures design were carried out for each of these outcome variables as being predicted by dyadic asynchrony in the respective session (see Models 12, 13, and 14, Table 3.13).

Table 3.13
Models 12, 13, & 14: Dyadic Asynchrony Predicting Positive Experience, Satisfaction, and Difficulty Within Drumming Situation (N = 54)

	Model 12 Positive Experience	**Model 13 Satisfaction**	**Model 14 Difficulty**
Fixed Effects			
Intercept	3.95*	3.76*	3.55*
Dyadic asynchrony	-0.62*	-0.74*	1.38*
Random Effects			
Within individuals (ε_{ij})	0.21*	0.10^{+}	0.13$^{\#}$
Goodness-of-Fit			
Deviance (-2LL)	379.6	329.7	595.7

Note. The covariance between dyadic asynchrony and last impression across the four age groups was fixed to zero to ensure greater parsimony and model conversion. * $p < .01$, $^{+}p = .05$, $^{\#}p = .04$.

Results for the intercept refer to the mean of the respective dependent variables for individuals in dyads with average dyadic asynchrony. Findings on the predictive effects of dyadic asynchrony on the respective dependent variables indicated that lower dyadic asynchrony was related to a more positive experience of the situation (β_{1j} = -0.62, $p < .01$) and to higher satisfaction with the dyadic drumming performance (β_{1j} = -0.74, $p < .01$). Furthermore, the drumming task was experienced as more difficult when dyadic asynchrony was higher (β_{1j} = 1.38, $p < .01$). These effects were robust after controlling for the age group of the respective partner in follow-up analyses (see Appendix 6.2.7, Table B11). In addition, the interaction between dyadic asynchrony and the respective age group of the partner did not account for further variance in the subjective outcomes. However, including the interaction terms in the analyses resulted in reduction of the predictive effect of dyadic asynchrony on the subjective outcomes, except for the experience of difficulty of the drumming task (see Appendix 6.2.7, Table B12).

In sum, variability in dyadic asynchrony is a significant unique predictor of different aspects of subjective experience in the dyadic drumming situation. Higher synchronization accuracy is related both to a more positive evaluation of the interaction partner at the end of the encounter and to a more positive experience of the interaction situation as a whole.

3.6 Summary of Results

To summarize, in this part of the dissertation, I presented findings from statistical analyses examining the research questions and hypotheses underlying the present investigation.

Results from multilevel modeling analyses demonstrated that dyadic asynchrony was related to both differences between dyads and between individuals (i.e., within dyads). These effects were further explained by individual sensorimotor (i.e., reliable predictive effects of individual asynchrony) and social predictors (i.e., reliable predictive effect of social skills for the child sub-sample). Interpersonal flexibility did not account for an interpretable amount of variance in dyadic asynchrony, particularly after controlling for individual asynchrony.

Furthermore, I found differences in dyadic asynchrony between dyads, more specifically, between specific dyadic age-group compositions. The analyses revealed reliable differences in dyadic asynchrony between same age-dyads of younger adults and all other possible dyadic age-group combinations, except between pairings among younger and older adults. Inconsistent with my hypothesis, age-mixed dyads, in which one younger adult was paired with members of other age groups, did not show higher synchronization accuracy than all other dyads. However, both child age groups showed lower dyadic asynchrony when paired with an older partner (specifically an adult partner) as compared to pairings with an age peer. Furthermore, differences in dyadic asynchrony between dyadic age-group combinations could partly be explained by individual asynchrony as the individual predictor.

Statistical results supported the hypothesis that individuals in dyads who reach higher synchronization accuracy experience the situation and the interaction partner more positively. This was true for the impression of the drumming partner at the end of the respective session as well as the rating of positive experience, satisfaction, and difficulty within the situation. Results are summarized in Table 3.14 with reference to the respective research questions and hypotheses.

Table 3.14
Overview of Research Questions and Summary of Supported and Unsupported Hypotheses

	Research Questions and Hypotheses	Empirically Supported?
I.	How do individual and age-related differences in sensorimotor abilities and social competencies relate to dyadic action synchronization?	
	1a. Higher individual sensorimotor abilities within a dyad predict higher accuracy of dyadic action synchronization.	*Yes*
	1b. Higher individual social competencies within a dyad predict higher accuracy of dyadic action synchronization.	*Partly (only in children)*
II.	Do dyads of varying age compositions differ in dyadic action synchronization?	
	2. Due to age-related differences in sensorimotor abilities and social competencies, dyadic action synchronization accuracy varies depending on the age composition of the dyad:	
	2a. Same-age dyads of younger adults show highest dyadic action synchronization accuracy.	*Partly (not in comparison to dyads among adults)*
	2b. Age-mixed dyads with one younger adult show higher dyadic action synchronization than all other dyads (except same-age dyads of younger adults).	*No*
	2c. Differences between age compositions of the dyads can be predicted, in part, by the extent of individual sensorimotor abilities and social competencies.	*Partly (only sensorimotor predictor)*
III.	How does the accuracy of dyadic action synchronization affect individuals' subjective experience of the situation and the interaction partner?	
	3. Individuals in dyads who reach higher dyadic action synchronization accuracy experience the situation and their interaction partner more positively.	*Yes*