**Appendix: Results of the Raw Data Analysis**

**Results of Experiment 1**

As shown in Table 1, the two participant groups differed in Father's and Mother's education levels, but stepwise regression analyses showed that only the latter (ps < .05) but not the former (ps > .1) could predict the dependent variables, and thus Mother's education level was used as a covariate in data analysis. Specifically, it could predict all the ACCs and RTs except for Task 2 RT in the dual-task_450 condition, and Task 2 ACC in all the dual-task conditions.

*Task 1 ACC.* The ANCOVA (Group × Condition, with a covariate of Mother's education level) only revealed a significant effect of the covariate (F(1, 68) = 5.90, p = .018, $\eta_p^2$ = .080), suggesting Mother's education level had an effect on the ACC of Task 1. No other main effects or interactions were significant (ps < 1.6, ps > .1), suggesting no modulation effect of Mother's education level on other factors.

*Task 2 ACC.* The ANCOVA (Group × Condition, with a covariate of Mother's education level) revealed a main effect of Condition (F(3, 204) = 18.51, p < .001, $\eta_p^2$ = .214). Pairwise comparison with Bonferroni correction showed that the ACC in the dual-task_450 condition was significantly larger than those in the other two conditions (ps < 0.5), but no significant difference between the latter two (p = .332). No other main effects or interactions were significant (Fs < 1.5, ps > .1).

*Task 1 RT.* The ANCOVA (Group × Condition, with a covariate of Mother's education level) revealed a main effect of Group (F(1, 68) = 5.21, p = .026, $\eta_p^2$ = .071), with the Interpreting group responding faster than the Control group, suggesting more efficient auditory information processing for the Interpreting group. The main effect of Condition was also significant (F(3, 204) = 47.92, p < .001, $\eta_p^2$ = .413). Pairwise comparison with Bonferroni correction showed that the RT in the dual-task_450 condition was larger than those in the other two conditions (ps < .001), but the latter two conditions did not differ from each other (p = 1.000). The interaction between Group and Condition was not significant (F(3, 204) = .481, p = .561, $\eta_p^2$ = .007). No others were significant (Fs < 3.3, ps > .07).

*Task 2 RT.* The ANCOVA (Group × Condition, with a covariate of Mother's education level) revealed a main effect of Group (F(1, 68) = 5.50, p = .022, $\eta_p^2$ = .075): the Interpreting group

responded faster than the Control group. The main effect of Condition was also significant (F(3, 204) = 263.91, p < .001, $\eta_p^2$ = .795). Pairwise comparison with Bonferroni correction showed that all the four conditions differed significantly from each other (single-task < dual-task_450 < dual-task_150 < dual-task_100, ps ⩽ .001). Besides, the interaction between Group and Condition was significant (F(3, 204) = 3.40, p = .042, $\eta_p^2$ = .048). The simple effect analysis showed that the Interpreting group was faster than the Control group in all dual-task conditions (ps < .05), but not in the single-task condition (p = .144), *suggesting an interpreter advantage in the coordination skill.* The effect of the covariate was also significant (F(1, 68) = 4.88, p = .031, $\eta_p^2$ = .067), suggesting an effect of Mother's education level on the RT of Task 2. But its interaction with Condition was not significant (F(3, 204) = 1.79, p = .175, $\eta_p^2$ = .026), suggesting no modulation effect of Mother's education level on other factors.

To summarize, the key results are that the Interpreting group exhibited faster responses than the Control group in the dual-task conditions but not in single-task ones in Task 2. However, no such results were obtained in Task 1. *The results thus suggest an interpreter advantage in the coordination skill, especially in the bottleneck switching component.*

**Results of Experiment 2a**

As shown in Table 3, the two participant groups differed in L2 proficiency, frequency of L2 use and WM updating accuracy. As all the three factors could predict some of the dependent variables (all ps < .05), they were used as covariates in data analysis. Specifically, L2 proficiency could predict Task 1 RT in the dual-task_450 condition (p = .017) and Task 2 RT in the dual-task_100 condition (p = .021); frequency of L2 use could predict Task 1 RT in the single-task (p = .026) and dual-task_100 (p = .008) conditions, and Task 2 ACC in the dual-task_450 condition (p = .006); WM updating accuracy could predict Task 1 RT in the dual-task_150 (p = .021) condition, and Task 2 RT (p = .023) and ACC (p = .045) in the single-task condition.

***Task 1 ACC.*** The ANCOVA (Group × Condition, with covariates of L2 proficiency, frequency of L2 use and WM updating accuracy) did not reveal any significant results, i.e., none of the main effects or interactions reached significance (Fs < 2.5, ps > .09).

***Task 2 ACC.*** The ANCOVA (Group × Condition, with covariates of L2 proficiency, frequency of L2 use and WM updating accuracy) revealed a main effect of frequency of L2 use ($F(1, 52) = 4.70$, $p = .035$, $\eta_p^2 = .083$), suggesting frequency of L2 use has an effect in the accuracy of Task 2 response. No others reached significance ($Fs < 2.7$, $ps \geq .05$).

***Task 1 RT.*** The ANCOVA (Group × Condition, with covariates of L2 proficiency, frequency of L2 use and WM updating accuracy) revealed a main effect of Group ($F(1, 52) = 6.03$, $p = .017$, $\eta_p^2 = .104$), with the Interpreting$_{-less}$ group responding faster than the Control group, suggesting more efficient auditory information processing for the Interpreting group. The main effect of Condition was also significant ($F(3, 156) = 6.34$, $p = .004$, $\eta_p^2 = .106$). Pairwise comparison with Bonferroni correction showed that the RT in the dual-task_450 condition was larger than those in the other two conditions ($ps < .001$), but the latter two conditions did not differ from each other ($p = .376$). Other statistical results were not significant ($Fs < 1.1$, $ps > .1$).

***Task 2 RT.*** The ANCOVA (Group × Condition, with covariates of L2 proficiency, frequency of L2 use and WM updating accuracy) revealed a main effect of Condition ($F(3, 156) = 14.28$, $p < .001$, $\eta_p^2 = .215$). Pairwise comparison with Bonferroni correction showed that the RT was smaller in the dual-task_450 condition than those in the other two conditions ($ps < .001$), but the latter two conditions did not differ from each other ($p = .284$). No other main effects or interaction reached significance ($Fs < 2$, $ps > .1$).

To summarize, no significant results concerning group differences in the coordination skill were obtained, suggesting no evidence for an interpreter advantage in coordination at the beginning stage of interpreting training.

**Results of Experiment 2b**

As shown in Table 5, the two participant groups differed in L2 proficiency and frequency of L2 use. As stepwise regression analyses showed that only L2 proficiency could predict some independent variables ($ps < 0.5$), this factor was used as a covariate in data analysis. Specifically,

L2 proficiency could predict Task1 RT in the single-task condition (p = .001), and in Task 1 ACC in the dual-task_100 (p = .041) and dual-task_150 (p = .034) conditions.

      ***Task 1 ACC.*** The ANCOVA (Group × Condition, with a covariate of L2 proficiency) did not reveal any significant results, i.e., none of the main effects or interactions reached significance (Fs < 1.5, ps > .1).

      ***Task 2 ACC.*** The ANCOVA (Group × Condition, with a covariate of L2 proficiency) revealed no significant results, i.e., none of the main effects or interactions were significant (Fs < 2.5, ps > .07).

      ***Task 1 RT.*** The ANCOVA (Group × Condition, with a covariate of L2 proficiency) revealed a main effect of Group ($F(1, 67) = 6.44$, $p = .013$, $\eta_p^2 = .088$), with the Interpreting-more group responding faster than the Control group, suggesting more efficient auditory processing for the Interpreting group. Other statistical results were not significant (Fs < 1.5, ps > .1).

      ***Task 2 RT.*** The ANCOVA (Group × Condition, with a covariate of L2 proficiency) revealed a main effect of Condition ($F(3, 201) = 17.06$, $p < .001$, $\eta_p^2 = .203$). Pairwise comparison with Bonferroni correction showed that all the four conditions differed significantly with each other (single-task < dual-task_450 < dual-task_150 < dual-task_100, ps < .05). No other main effects or interaction reached significance (Fs < 1, ps > .1).

      To summarize, no significant results concerning group differences in the coordination skill were obtained, suggesting no evidence for an interpreter advantage in coordination at the beginning stage of interpreting training.