Supplementary Material 3

Method Study 2

Self-estimated numerical intelligence. A participant's numerical intelligence rating (SE NI) was assessed with a single item. The item named and described the specific domain of numerical intelligence, using a short description of the construct that was very close to the definition given in the test manual of the IST 2000 R (Liepmann et al., 2007). Students were asked to rate their numerical intelligence on a scale ranging from 1 (*very low score*) to 7 (*very high score*). Steinmayr and Spinath (2009b) demonstrated the validity of this item and found significant correlations with numerical intelligence measured with the subscale of the IST 2000 R (girls: $r = .40$; boys: $r = .46$; $p < .001$ for both sexes).

Math ability self-concept. We used a short form of the subscale of the Skalen zur Erfassung des schulischen Selbstkonzepts (SESSKO; Scales for assessing the academic self-concept; Schöne, Dickhäuser, Spinath, & Stiensmeier-Pelster, 2002) to assess participants' math ability self-concept (MASC). Originally, the items referred to school in general, but we substituted the phrasing "in math" for "in school" (see Steinmayr & Spinath, 2009a). The scale contained four items. On a 5-point rating scale, students had to indicate how talented they thought they were in math, how easy/hard most assignments in math were for them, how easy/hard it was to learn new things in math, and how much they knew in math. Higher values indicate a more positive belief about their competencies in math.

Achievement motives. Achievement motives were assessed with the Achievement Motives Scale (AMS; Gjesme & Nygard, 1970, cited in Göttert & Kuhl, 1980). The two subscales "hope for success" and "fear of failure" consisted of 14 items each. For the present study, we used a short form that measured each construct with seven items and had been successfully applied before (e.g., Steinmayr & Spinath, 2009a). All items were answered on a 4-point scale ranging from 1 (*does not apply at all*) to 4 (*fully applies*). Example items for the

two scales were “Difficult problems appeal to me” and “Matters that are slightly difficult disquiet me.”

Math anxiety. We administered two scales to assess students’ math anxiety (Schwarzer & Jerusalem, 1999). The scales followed the German version of the Test Anxiety Inventory (TAI; Hodapp, Laux, & Spielberger, 1982). The instructions asked the students to apply the following questions to their next math exam. The scales consisted of five items each and measured the two anxiety components worry (W) and emotionality (Emo). Emotionality refers to the perception of physical reactions to a math test, whereas worry captures the cognitive aspects of anxiety. All items were answered on a 4-point scale ranging from1 (*hardly ever*) to 4 (*almost always*). An example item from the emotionality component is “When I think about my next math exam, I get nervous.” The worry component was measured with items such as “When I think about my next math exam, I am worried about the fact that something could go wrong.”

Intrinsic value. The students’ opinions regarding the intrinsic value of math as a subject (IntV) were assessed with three items. These items constitute a subscale of the Skalen zur Erfassung subjektiver schulischer Werte (SESSW; Scales for assessing subjective academic values; Steinmayr & Spinath, 2010), a German scale that is based on the expectancy-value model by Eccles and colleagues (1983; for more details about the German scale, see Steinmayr & Spinath, 2010). For this study, only the subscale assessing the intrinsic task value was used. The items were the following: “I like doing math”; “I enjoy doing math”; and “Math is interesting.” Students had to indicate their estimation on a 5-point scale ranging from 1 (*this does not apply to me at all*) to 5 (*this applies to me exactly*).

Expectations of success. The students’ expectations of success (EoS) were assessed with three items that were originally developed by Eccles and Wigfield (1995). For the present study, the original items were reformulated so that they did not refer to math at school but to the student’s achievement on the subsequent numerical intelligence test. The items used

in the present study were the following: “Compared with other students in your class, how well do you expect to do on the following test, which is designed to assess your mathematical competencies?”; “How well do you think you will do on the following test?”; and “If you were to order all the students in your math class from the worst to the best on the following test, where would you put yourself?” All items were answered on a 7-point rating scale, with higher numbers indicating higher expectation values.