

Supplementary Material

1 Mplus Inputs

The variable names used in the analysis are as follows: putv = proximal utility value; dutv = distal utility value; efc = effort cost; ch = academic choice intentions, avnt = avoidance intentions; prc = Procrastination; ftp = future time perspective.

1.1 SEM analysis in Study 1

```
TITLE:      Study 1
DATA:      FILE IS utility_c_mplus.dat;
VARIABLE:  NAMES ARE sid cntr sch grd cls nmb sex yy mm clus
           putv1-putv2 dutv1-dutv4 efc1-efc3 ch1-ch3
           putv dutv efc ch;
           Missing = ALL (-99);
           Usevariables = sex putv1-putv2 dutv1-dutv4
           efc1-efc3 ch1-ch3;
           Cluster = clus;
```

```
ANALYSIS: TYPE = COMPLEX;
```

```
MODEL: putv BY putv1-putv2;
       dutv BY dutv1-dutv4;
       efc BY efc1-efc3;
       ch BY ch1-ch3;

       efc ON sex putv dutv;
       ch ON sex putv dutv efc;
```

```
MODEL INDIRECT:
```

```
  ch IND putv;
  ch IND dutv;
```

```
OUTPUT:  SAMPSTAT STANDARDIZED;
```

1.2 SEM analysis in study 2

```
TITLE:      Study 2 SEM
DATA:      FILE IS utility_k_mplus.dat;
VARIABLE:  NAMES ARE sid sch grd cls nmb sex age sgc t1scr t2scr
           t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
           t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;
```

```

Missing = ALL (-99);
Usevariables = sex t1putv1-t1putv2 t1dutv1-t1dutv2 t2efc1-t2efc3
              t2avnt1-t2avnt3 t2prc1-t2prc5;

```

```

MODEL: putv BY t1putv1-t1putv2;
       dutv BY t1dutv1-t1dutv2;
       efc BY t2efc1-t2efc3;
       avnt BY t2avnt1-t2avnt3;
       prc BY t2prc1-t2prc5;

```

```

       efc ON sex putv dutv;
       avnt ON sex putv dutv efc;
       prc ON sex putv dutv efc;

```

MODEL INDIRECT:

```

       avnt IND putv;
       prc IND putv;
       avnt IND dutv;
       prc IND dutv;

```

OUTPUT: SAMPSTAT STANDARDIZED;

1.3 Latent moderated SEM (LMS) analysis in study 2

1.3.1 Model 1

```

TITLE: Study 2 LMS MODEL1
DATA: FILE IS utility_k_mplus.dat;
DEFINE:
STANDARDIZE t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
            t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;
VARIABLE: NAMES ARE sid sch grd cls nmb sex age sgc t1scr t2scr
            t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
            t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;

```

```

Missing = ALL (-99);
Usevariables = sex t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
              t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;

```

```

MODEL: putv BY t1putv1-t1putv2;
       dutv BY t1dutv1-t1dutv2;
       ftp BY t1ftp1-t1ftp6;
       efc BY t2efc1-t2efc3;
       avnt BY t2avnt1-t2avnt3;
       prc BY t2prc1-t2prc5;

```

```
efc ON sex putv dutv ftp;
avnt ON sex putv dutv ftp efc;
prc ON sex putv dutv ftp efc;
```

MODEL INDIRECT:

```
avnt IND putv;
prc IND putv;
avnt IND dutv;
prc IND dutv;
```

OUTPUT: SAMPSTAT STANDARDIZED;

1.3.2 Model 2

```
TITLE: Study 2 LMS MODEL2
DATA: FILE IS utility_k_mplus.dat;
STANDARDIZE t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
            t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;
VARIABLE: NAMES ARE sid sch grd cls nmb sex age sgc t1scr t2scr
            t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
            t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;

Missing = ALL (-99);
Usevariables = sex t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
            t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;
```

```
ANALYSIS: TYPE = RANDOM;
ALGORITHM=INTEGRATION;
```

```
MODEL: putv BY t1putv1-t1putv2;
       dutv BY t1dutv1-t1dutv2;
       ftp BY t1ftp1-t1ftp6;
       efc BY t2efc1-t2efc3;
       avnt BY t2avnt1-t2avnt3;
       prc BY t2prc1-t2prc5;
```

```
efc ON sex putv dutv ftp;
avnt ON sex putv dutv ftp efc;
prc ON sex putv dutv ftp efc;
```

```
dutvxftp | dutv XWITH ftp;
efc ON dutvxftp;
avnt ON dutvxftp;
prc ON dutvxftp;
```

OUTPUT: SAMPSTAT;

1.3.3 Model 3

```

TITLE:      Study 2 LMS MODEL3
DATA:      FILE IS utility_k_mplus.dat;
STANDARDIZE t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
           t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;
VARIABLE:  NAMES ARE sid sch grd cls nmb sex age sgc t1scr t2scr
           t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
           t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;

           Missing = ALL (-99);
           Usevariables = sex t1ftp1-t1ftp6 t1putv1-t1putv2 t1dutv1-t1dutv2
           t2efc1-t2efc3 t2avnt1-t2avnt3 t2prc1-t2prc5;

ANALYSIS:  TYPE = RANDOM;
           ALGORITHM=INTEGRATION;

MODEL:     putv BY t1putv1-t1putv2;
           dutv BY t1dutv1-t1dutv2;
           ftp BY t1ftp1-t1ftp6;
           efc BY t2efc1-t2efc3;
           avnt BY t2avnt1-t2avnt3;
           prc BY t2prc1-t2prc5;

           efc ON sex putv dutv ftp;
           avnt ON sex putv dutv ftp efc;
           prc ON sex putv dutv ftp efc;

           putvxftp | putv XWITH ftp;
           efc ON putvxftp;
           avnt ON putvxftp;
           prc ON putvxftp;

OUTPUT:    SAMPSTAT;

```