St. Cloud State University
theRepository at St. Cloud State

Culminating Projects in Community Psychology, Counseling and Family Therapy | Department of Community Psychology, Counseling and Family Therapy

5-2017

Analyzing the Effects of a Family Study Room on Academically-Related Outcomes in a Replicated ABA Design

Nicole Takle
St. Cloud State University, nktakle@stcloudstate.edu

Follow this and additional works at: https://repository.stcloudstate.edu/cpcf_etds

Recommended Citation
Takle, Nicole, "Analyzing the Effects of a Family Study Room on Academically-Related Outcomes in a Replicated ABA Design" (2017). *Culminating Projects in Community Psychology, Counseling and Family Therapy*. 37.
https://repository.stcloudstate.edu/cpcf_etds/37

This Thesis is brought to you for free and open access by the Department of Community Psychology, Counseling and Family Therapy at theRepository at St. Cloud State. It has been accepted for inclusion in Culminating Projects in Community Psychology, Counseling and Family Therapy by an authorized administrator of theRepository at St. Cloud State. For more information, please contact rswexelbaum@stcloudstate.edu.

Analyzing the Effects of a Family Study Room on Academically-Related Outcomes in a Replicated ABA Design

by

Nicole K. Takle

A Thesis

Submitted to the Graduate Faculty of

St. Cloud State University

In Partial Fulfillment of the Requirements

For the Degree of

Master of Science

In Applied Behavior Analysis

April, 2017

Thesis Committee:
Benjamin Witts, Chairperson
Michele Traub
Kimberly Schulze
E. Justin Page

Abstract

Throughout the United States the number of students with dependents pursuing higher education continues to rise. It is predicted that around 25% of college students currently attending school in the United States are student parents. Comparable schools have provided student parents with a family-friendly study room on campus containing a small area for the parents to study and a different area for children to safely play. The parents are able to monitor their children through soundproof glass that separates the two areas. Once a room of this nature is constructed, it simply runs itself and does not require ongoing financial support. The aim of this project was to determine if access to a family study room at at this university will affect academic-related outcomes of student parents such as number of hours spent studying per day, self-reported stress, and quality of studying. Results show that although access to family study room did not have a large impact on out dependent variables, participants reported that it gave them a quiet, supportive studying environment free from distractions. In addition, all participants said they would be very likely to use a family study room if the university were to construct one and that it would be very beneficial for all student parents.

Keywords: student parents; family study room; academic outcomes; daily diaries; social validity

Table of Contents

List of Tables

List of Figures

Figure Page

Chapter I: Introduction and Review of Literature

Within higher education there are two main groups of students: traditional and nontraditional. Traditional students are those who enrolled in college immediately, or at least shortly after graduating high school. Nontraditional students are students with children, student veterans, and adult learners. For the purposes of this paper, *adult learners* are defined as undergraduate students who are over 25 years of age. Compared to traditional students, nontraditional students typically face a great deal of stress due to the higher levels of uncertainty and demand across a wide range of roles (e.g., parent, student, employee; Query, Parry, & Flint, 1992). Typically, these populations are more diverse compared to traditional students and often include students who are young parents, veterans, or older adults with grandchildren (Munro, 2011). Within the classroom, nontraditional students are often overlooked due to the large numbers of traditional undergraduate students (Brown, 1988 as cited in Bamber & Tett, 2000). For example, universities tend to gear their events and orientation toward the traditional student to enhance their experience on campus. Brown (1988; as cited in Bamber, & Tett [2000]) further explained that this overlooking often leads faculty to pass over this growing population and not make course changes to accommodate their specific needs. It may not always be feasible for this population to attend a course for one hour, four times a week. Therefore, nontraditional students often turn toward alternative course options, such as online courses, to fulfill their degree requirements.

One group of nontraditional students in particular not only have to deal with the difficulties of being a student, but also have to face the challenges of being a parent (Institute for Women's Policy Research [IWPR], 2011). Currently, 25% of college students in the United States are students with dependents, otherwise known as student parents (IWPR, 2010a; 2010b;

2013c as cited in IWPR 2013), and half of those students are unmarried (IWPR, 2011). Students with dependents are also more likely to be first-generation college students compared to their traditional student counterparts (IWPR, 2010b; 2013c as cited in IWPR 2013). While the difficulties faced by student parents is typically greater than their traditional student counterparts, the benefits of student parents pursuing higher education are substantial. Consider the fact that student parents pursuing postsecondary education have both the short-term salary benefit to their family after graduation and also long-term, multigenerational benefits (IWPR, 2011; 2013). For example, children of parents who earn higher education credentials are more likely to pursue higher education themselves (IWPR, 2011). Additionally, parents earning a degree from college improves their children's overall education, social, and economic outcomes (Attewell & Lavin, 2007 as cited in IWPR 2011).

Along with the difficulties of simply being a student in higher education, student parents also face added difficulties related to finances, persistence, conflicted roles, and childcare. With regards to finances, student parents are more than twice as likely to be low-income status compared to their non-parent classmates (IWPR, 2010a). While there are more student loan opportunities for student parents, they have additional financial needs that either a) make the loans not go as far and/or b) require that student parents incur more debt for the same degree as non-student parents (IWPR, 2013).

Student parents' persistence in school also differs from their non-parent counterparts. Research shows student parents, in general, have lower basic literacy skills and are more likely to take remedial classes (IWPR, 2010b). Further, 53% of postsecondary student parents leave college after 6 years without obtaining their degree, compared to 31% of students without dependents (IWPR, 2013). However, student parents are also more likely to complete a shorter

programs of study (e.g., associate's degree, certificates; IWPR, 2010a) and often have higher grade point averages than non-parent students (IWPR, 2013).

Beyond educational and institutional stressors, student parents' familial relationships can often be strained as a result of earning a degree or certificate. Brooks (2012a) explained that many mothers conceal their parental role while at school and then, in turn, conceal their role as student while at home. As Brooks (2012b) noted, many student mothers are perceived as being irresponsible for deciding to pursue higher education, as doing so violates societal norms on what motherhood should consist of. Unlike their non-parent classmates, some student parents view studying as a duty that comes second to childcare and familial responsibilities[1] (Brooks, 2012a; 2012b). In addition to attending classes, maintaining a family, and studying, student parents are also more than twice as likely to work full-time while attending college compared to students without children (IWPR, 2010a), with up to 50% of all student parents being employed full time (IWPR, 2011).

A final barrier that student parents face in higher education is access to affordable and quality childcare (IWPR, 2011). Not only do students need to find care for their children when they are in classes, but also when they have meetings with a professor or other students, when they are at work, and for some when studying (IWPR, 2010a). In a study conducted by the IWPR (2010a), researchers found that 80% of respondents stated that having access to on campus childcare was very important when deciding where to enroll in college. Further, 46% of respondents stated that access to on-campus childcare was their top determining factor of where to attend. Not surprisingly, not all of the childcare needs of students with children are being met,

1 While the cited article focused on mothers as student parents specifically it is used here as an example of role separation.

as the current demand greatly exceeds available services (IWPR, 2010a; 2011). In fact, in 2015 it was found that just under half of the public four-year institutions within the United States provided campus childcare. In addition, the number of childcare centers on campuses has been declining since 2005 even though the number of student parents on college campuses continues to rise (IWPR, 2011; 2016).

Few academic institutions directly address the needs of student parents, due perhaps in part to the fact that many do not even know how many student parents are enrolled (IWPR, 2013). Often, the only way to determine if a student is a parent is if they apply for financial aid and indicate that they have one or more dependents (Gasser & Gasser, 2010). In a review of student parent needs across campuses, Gasser and Gasser (2010) stated that, "in order to grasp the scope of the issue, it is crucial for each campus to examine its student demographics and specific needs" (p. 3). Here at a large Midwestern university, the Student Parent Support Center has followed Gasser and Gasser's advice and examined student parent demographics unique to our campus. Prior assessments conducted by the Student Parent Support Center on campus identified a number of barriers and potential solutions to better support student parents. More specifically, during the assessments student parents noted they would value a family study room on campus. The present study is an initiative to address these needs and examine if access to a family-friendly study room increases the number of hours spent studying of student parents at a large Midwestern university.

A common barrier to research with this population is data collection due to their multiple roles and time constraints. Previous research has suggested that diaries as a form of data collection provide richer, more accurate data compared to other forms of data collection (Kochan, Janssens, Bellemans, & Wets, 2007). A study conducted by Mays, Cremeens, Usdan,

Martin, Arriola, and Bernhardt (2010) compared two groups, one that used paper-based data collection and another than used mobile devices for data collection. They found that completion rates by participants were similar across both groups. However, after assessing participant feedback, it was found that participants rated the mobile device data collection as more convenient and for the paper-based method, participants often completed data retrospectively. Burns and Grove (2005; as cited in Nicholl [2010]) echoed this same point by stating that diary data collection reduces errors in recall because it requires participants to report data with a minimal delay between the event and reporting. Therefore, the primary form of data collection for this study is through the use of daily diaries.

Chapter II: Method

Participants

Our participants were 9 student parents currently attending a large Midwestern university. They were recruited through an email sent to all identified students with dependents and all students over the age of 25 (see Appendix C for recruitment email). The criteria for participants were they (1) must be current students attending the university (i.e., taking one or more credits), (2) must have one or more dependent, and (3) the children must be between 2-10 years old. Students were then chosen based on their availability during the intervention week.

A total of 12 children accompanied their parents. Their ages ranged from 1 to 10 years-old. Although the minimum age of the children was initially set at 2-years old, the inclusion criteria was relaxed to increase the number of participants.

Design and Data Collection

A replicated ABA design was used[2]. The participants were divided into three groups of 2-4 participants each, based on their availability during the intervention week. Each group participated for three to four weeks, with each week starting on Sunday and ending on the subsequent Saturday. The first and last phases of the intervention were baseline phases in which no intervention was present. The intervention week consisted of two implementations of the intervention. Groups started this three to four-week process staggered by one-week intervals (see Table 1 for a visual depiction of the schedule). Groups 1 and 2 had an additional week of extended baseline due to spring break.

[2] While the current design could be construed as a nonconcurrent multiple baseline design, see Harris & Jenson (1985a, 1985b) for an argument on nonconcurrent multiple baselines as replicated AB designs (cf. Hayes, 1985)

The primary data consist of the number of hours spent studying per day, and were collected via daily diaries. Based on the suggestions in previous research of diary data collection, the present study required participants to collect data each night using a 10-question Qualtrics survey (see Figure 1 for a screenshot of the questions and options). The secondary data are additional information gathered from this daily survey, such as self-reported stress levels and number of hours slept the previous night. Finally, during the intervention, momentary-time sample data were collected using a VT-5-minute schedule for on task and off task studying (see Figure 2 for data sheet).

Setting and Materials

The study took place in a conference room on campus at a large Midwestern university. The materials present in the room consisted of one large conference table and 6 chairs. One trained research assistant was present in the conference room, referred to as the study room from now on. For groups 1 and 3, the participants' children were located in an on-campus child care center located in the same building. The child care center was equipped with toys and various activity stations. For group 2, the participants' children were located in a nearby playroom as there were fewer children during these study sessions. The playroom was also equipped with toys, books, and activities. A minimum of two trained child supervisors, comprised of secondary research assistants and the lead investigator, were present in the child care center and playroom for the duration of the study sessions. Due to the fact that safety was always the research assistants' first priority, any child that engaged in dangerous behavior that put him/herself or others in danger, his/her guardian was notified immediately and asked to leave the study room to attend to the child, after which the participant returned back to the study room to finish the study

session. If the child dangerously misbehaved a second time, the participant and his/her child were asked to leave for the day. There were no instances of dangerous behavior during the study.

Qualtrics survey. The daily Qualtrics survey was sent as a link via text message. The survey began with a reminder for participants to turn their phones sideways so they could get the full view of the survey. Next, the participants were asked to answer a variety of questions on visual analogue scales (see Figure 1 for survey). The responses to all of the survey questions, with the exception of the studying duration question, were combined to create our secondary variables. These variables were analyzed both in terms of secondary dependent variables and independent variables affecting the primary dependent variable, number of hours spent studying. All data were collected anonymously. The following is a brief description of each survey question.

How was your day? This open-ended question was included to serve as a discriminative stimulus and begin the intraverbal process for the remainder of the survey. The options provided were horrible (0), neither good nor bad (5), to excellent (10).

Compared to a typical day, today's classes, assignments, and exams were… The options provided for this question were less difficult (0), same as usual (5), to more difficult (10). This comparison to a typical day was included to account for environmental variables such as a midterm, paper, or upcoming presentation. These variables have the potential to indirectly alter the primary dependent variable of number of hours spent studying.

If employed, how many hours did you work today? For this question the participants could choose from 0-10 hours based on 1 hour increments. Also, a not applicable button was included that could be clicked if the participant was not employed. The number of hours spent working could directly affect the number of hours available to spend studying.

How stressed were you today? The scale for this stress question ranged from 0 being very stressed, 5 being somewhat stressed, to 10 being not stressed. General stress was included as a secondary variable due to the fact that it can encompass not only stress related to academics but also marital stress, child rearing stress, and work related stress.

How many hours did you sleep last night? The participants were able to use a scale from 0-12 hours that is broken down into 1 hour increments. The rationale behind this question is that the duration of sleep could have a direct impact on the number of hours spent studying, our primary dependent variable.

How was your child's/children's day today? When rating their child's/children's day, participants were presented with a scale from 0 (horrible), 5 (neither good nor bad), to 10 (excellent). Rating of the child's/children's day was incorporated because their behavior and day's activities can greatly impact the number of hours available to study.

How many hours did you spend studying/doing homework today? The response to this question was our primary dependent variable. The options provided were 1-10 hours which were manually broken down into 30 minute increments for precision (see more below).

How sure are you that the entered duration of studying is correct? The rationale of this question was to determine how valid the participants' responses were to our primary dependent variable, or the previous question. The options included were very unsure/just guessed (0), somewhat unsure (3), somewhat sure (7), to very sure (10).

How satisfied are you with the QUALITY of studying? For this question, the participants selected from 0 (very distracted, not enough done), 5 (neutral), to 10 (very satisfied, so much accomplished). The reasoning behind the inclusion of this question was to demonstrate that it

was not just quantity of hours spent studying, but also quality of studying done during those hours.

Do you want to provide any additional comments regarding your answers? For this final question, if yes was selected, a text box would appear for text entry and if no was selected, the survey would end. This commenting option was included for the possibility that an extraneous event could occur and alter responses drastically (e.g., sick child, death in the family, midterms).

The final daily survey included additional social validity questions to assess the utility of the study room (see Figure 3). Participants were first asked what they liked and disliked about being in the study room. These text entry questions were included to assess the advantages and disadvantages of both family study rooms in general and also this specific pilot study room. Participants were also asked how likely they would be to use a family study room on campus, how beneficial it would be for their family, and how beneficial they think it would be to all student parents at the university. These questions were asked through the use of a visual analogue scale ranging from 0 (very unlikely or not beneficial)- 10 (very likely/beneficial). These final questions were included as a form of social validity to determine how useful and beneficial a family study room would be at this particular university. Finally, participants were debriefed during this exit survey and notified about the deception used in this study.

A viewer was created to be placed on the computer screen when judging responses from the Qualtrics survey that were not touching numbered grid lines (see Figures 4-6). The view window was the same width as the distance between the gridlines on the survey. This window was divided into three equal portions.

Procedure

Participants were recruited through email and chosen based on their availability. Participants met with the lead investigator for an initial meeting to review the study parameters, sign informed consent documents, and discuss any participant and child dietary restrictions (see Appendix D). At this meeting participants also nominated a time they preferred to receive the nightly Qualtrics survey text. At the second phase change they were again asked if the time they selected was still working well for them or if they would like to change it. Participants were encouraged to select a time that allowed them to report on the entire day's activities (i.e., to receive the survey as late as comfortable). After this meeting a test text was sent to the number provided to ensure the software was working properly.

Intervention took place in two location: a study room for student parents and a play room or child care center for their children. During the intervention, the study room was available for two nights (per group availability and preference), and participants were required to attend both nights for two hours each night. Participants were reminded through email of the study sessions either the night before or morning of the study session. The lead investigator and secondary research assistant(s) were present in the child care center or outside of the playroom at least 15 minutes prior to the designated study time to greet student parents. The lead investigator then escorted the participants to the study room where the primary research assistant was located. While escorting the participants the lead investigator read a short script informing them of the purpose and procedures of the study room (see Appendix E and F). The start time for each participant was recorded and once all participants had arrived the study session began. Due to late arrival of participants, the average study session was around 1 hour and 36 minutes (see Tables 2 and 3). The intervention was designed to provide participants with a quiet, supportive

study area. To accomplish these goals, they were encouraged to stay on task and not distract others from studying. The study sessions took place during the evening on weekdays between 5:00 pm and 8:00 pm, the typical time that dinner is served. To ensure that hunger would also not be a distraction, pizza and refreshments were served during the study sessions. Participants with dietary restrictions received an alternative meal. In addition, participants were notified of the group contingency that any group who had all members complete at least 90% of the diaries and attend both of the study sessions earned a pizza party for all of the group members and their families. In reality, all participants and their families received a pizza party regardless on their performance; however, they were not notified of this until the completion of the study. Finally, the lead investigator checked in on the participants about halfway through the study session to see if they had any questions or needed additional pizza.

The only deception used during this project was the primary research assistant in the study room collecting momentary-time sample (MTS) data on the student parents' studying while pretending to do homework (see Figure 2 for data sheet). The research assistant was situated facing all participants, though at a distance. To keep the data sheet out of view from the participants, it was either kept in a three-ring binder or completed electronically on a computer. MTS data collection was signaled on a variable time (VT) 5-minute schedule via a tone played through headphones worn by the research assistant. A VT-5-minute schedule was selected so participants did not notice a pattern in data collection and also to form a representative sample of behavior. The behavior recorded for each participant is on-task. *On-Task* was defined as being actively engaged with school-related tasks and materials (e.g., books, computers, notebooks). It should be noted that the participants could have been engaging in non-school related activities (e.g., participating on social media sites) and it would have still been recorded as "on-task," as

the primary research assistant did not have direct access to the materials on which the student was working.

Research assistant training. The data collection procedures were explained and modeled for the primary research assistant by the lead investigator (see Appendix G for full training script). First, examples of on task and off task studying were provided and any questions were answered. Then the data sheet and VT-5 minutes schedule were described in depth. Next, the lead investigator modeled how to take data with hypothetical participants. The research assistant then rehearsed taking data and the lead investigator provided positive and corrective feedback based on the performance. Also during this training, one mock session occurred with confederates (two graduate students at the university) posing as participants while actually studying. This mock session was 15 minutes in duration. The research assistant was required to record data using the VT-5-minute schedule three times; however, the confederates could only notice her collecting data once. The lead investigator encouraged the research assistant to practice using her peripheral vision to determine if the students were on or off task while studying. During the mock session, the lead investigator sat next to the research assistant and recorded the same data; however, the lead investigator was able to look directly at participants to observe them. During the mock sessions the lead investigator kept the data sheet out of the research assistant's view. The research assistant had two attempts to perform the data collection procedures to 90% accuracy. The accuracy of the research assistant was scored by calculating inter-observer agreement between the two observers. Each interval was scored as an agreement or a disagreement. All the agreements were added, then divided by the sum of the agreements plus disagreements, and multiplied by 100 to determine the accuracy. If the research assistant did not reach this mastery criterion, he or she was either retrained or dismissed.

The secondary research assistants were emailed the morning of each study session to remind them of their duties, describe the group of children they would be supervising that night (i.e., number and age range), and confirm their availability (see Appendix H for the full script).

Treatment integrity. Treatment integrity was not directly measured during the study sessions due to the obtrusive nature of having a second observer present. All protocols were followed accurately for all study sessions. The primary research assistant was instructed to note any deviations directly on the data sheet. Throughout the study, there were no deviations from the script and procedures mentioned above.

Calibration test. Although the survey software, Qualtrics, already does numerous accuracy checks, a calibration test was conducted to test for accuracy of the software reporting survey responses. A profile of a hypothetical participant was created (see Table 4 for specific responses). The same answers were entered three times to the survey and then the data were analyzed for errors.

Interobserver agreement (IOA). Due to the limited precision of the visual analogue scales, each response was manually recorded by the lead investigator. While examining the responses, any response that was touching a gridline on the scale, was recorded as the whole number corresponding to that gridline (see Figure 5). Any response that was not touching a gridline was subject to further analysis using a second observer and the viewer described above (see Figure 6). The viewer was held up to the computer screen and the window was aligned to match the gridlines the response was between. If the slider's arrow was pointing to the first portion, the response was rounded down to the smaller whole number. If the arrow was pointing to the middle section, the value was recorded as the smaller whole number plus 0.5. If the arrow was pointing towards the last portion of the viewer, the value was rounded up to the larger whole

number. Fifteen responses were not touching a gridline and required the use of the viewer and a second observer.

Chapter III: Results

During the research assistant training, the primary research assistant performed at 100% accuracy for the mock training session and did not require any additional training sessions. Further, there were no instances of the confederates observing data being collected.

For the daily surveys, responses that were not centered on a grid line were investigated further by a second observer. Of the 15 responses that required IOA, there were 3 disagreements (80% agreement). These disagreements were discussed by both of the observers until an agreement was met.

No errors were detected related to the survey software during the calibration tests.

Due to attrition, one participant was lost from the study. Therefore, only the results of the remaining 8 participants are analyzed. Furthermore, for any response that indicted 0 hours spent studying, related data on confidence and quality of studying was omitted. Prior to the study, we only sought out to assess three main variables: stress, number of hours spent studying, and quality of studying with and without access to a family study room. The rest of the analyses between the dependent variables were merely exploratory after the fact (i.e., relation between rating of day and access to the study room). Based on the data gathered, multiple comparisons are able to be drawn between the variables.

Overall, there was both between and within-subject variability throughout the study. The most prominent differences were seen between weekends versus weekdays and spring break versus when school was in session. Generally, participants reported being less stressed and rating the day higher during the weekends (see Figures 7 and 8). When analyzing our variables of greatest interest for this study: number of hours spent studying, rating of day, stress, and schoolwork difficulty, 22 out of the 32 graphs have at least one phase showing a U or inverted

U-shaped trend due to responses on the weekends (see example Appendix I Figure 26 participant G1P4). To eliminate this potential confound we presented weekend data as probes for these four dependent variables (see Figure 8 participant G1P4). The full 7-day data for each of these variables is presented in Appendix I. Other differences were reported during spring break. Two participants reported feeling less stressed (G1P3, G2P1; see Figure 8) and three reported that their schoolwork was less difficult over spring break (G1P3, G2P1, G2P2; see Figure 9). Four out of the five participants that were participating during spring break reported studying for less hours (G1P2, G1P3, G1P4, G2P1; see Figure 10), and when they did study, it was of lesser quality for two participants (G2P1, G2P2; see Figure 11). Others reported working more hours in outside employment during the break (G1P2, G1P3, G1P4; see Figure 12). Finally, the momentary time sample data show that participants were on-task while in the study room most of the time (M = 88.65%, SD = 14.85%; see Figure 13).

Visual Analyses

Rating of day. A majority of participants reported little difference in rating of their day throughout the study (G1P4, G2P2, G3P2, G3P4; see Figures 7 and 14). For one participant (G2P1), she reported consistent ratings of her day for all phases except for the first baseline which had a lower average of day rating (see Figures 7 and 14). G1P2 reported a steady decrease in rating of her day as the study progressed (see Figures 7 and 14). G1P3, on the other hand, reported having a higher rated day only after the treatment phase (see Figures 7 and 14). The actual and predicted trend line data show that for G3P2 the rating of her day was predicted to continue to increase after treatment but actually declined in the second baseline (see Figure 15). Two other participants show the exact opposite effect, the rating of their days was predicted to

decrease after the treatment phase but actually show a stable trend in the second baseline phase (G1P2, G3P4; see Figure 15).

Stress level. Two participants reported a gradual decrease of stress levels across phases (i.e., more stressed; G1P2, G1P4; see Figures 8 and 16). G3P1 reported feeling less stressed during the treatment phase and G1P3 after the treatment phase (see Figures 8 and 16). Seven out of the eight participants reported at least one of the study session days as less stressful compared to their average stress rating for the treatment phase (G1P2, G1P3, G1P4, G2P1, G2P2, G3P2, G3P4; see Figure 8). Finally, G2P2 and G3P4 reported steady levels of stress throughout the study (see Figures 8 and 16). As shown in the trend line data, G1P4 and G3P4 were predicted to have a decreasing trend after treatment (i.e., more stressed); however, in the second baseline their stress ratings actually stabilized (see Figure 17). Finally, G2P2's only increasing trend in stress ratings was after treatment in the second baseline phase (see Figure 17).

Schoolwork difficulty. Participants G1P4, G2P1, G3P2, and G3P4, reported schoolwork as most difficult during the treatment phases (see Figures 9 and 18). Two other participants reported stable levels of schoolwork difficulty throughout the study (G2P2, G3P1; see Figures 9 and 18). The trend line analysis shows schoolwork being predicted to become more difficult after treatment for G2P1; however, the actual trend line in the second baseline phase shows schoolwork becoming less difficult (see Figure 19). One other participant shows a increasing trend line in each phase for schoolwork difficulty (i.e., becoming less difficult) except for the second baseline phase where the data show a trend in schoolwork becoming more difficult (G1P4; see Figure 19).

Study hours. The number of hours spent studying varied across participants throughout the study. Three participants reported an average of about 3 hours of studying per day across all

phases (G1P2, G1P3, G2P1; see Figures 10 and 20). Other participants reported an average of about 1 hour of studying per day across all phases (G1P4, G2P2, G3P1; see Figures 10 and 20). Four out of the five participants who completed the surveys over spring break reported a decrease in the number of hours spent studying during this time (G1P2, G1P3, G1P4, G2P1; see Figure 10). The average number of hours spent studying for all participants over spring break was 0.93 hours, compared to the overall average of 2.07 hours for the first baseline phase, 2.39 hours for the second baseline phase, and 2.79 hours during the treatment phase (see Table 6). Four participants reported an increase in the number of hours spent studying during the treatment phase which continued in the second baseline phase (G1P2, G1P4, G2P1, G3P2; see Figures 10 and 20). All but one participant reported studying more during the nights of the actual study session compared to their average for the treatment phase (G1P2, G1P3, G1P4, G2P1, G2P2, G3P, G3P4; see Figure 10). Participants also rated how confident they were about the number of hours spent studying they entered. Confidence ratings seemed to vary across phases, though were generally high (G1P2 *M* = 8.36, *SD* = 2.53; G1P3 *M* = 9.91, *SD* = 0.29; G1P4 *M* = 7.67, *SD* = 4.22; G3P1 *M* = 7.75, *SD* = 2.26; G3P2 *M* = 8.50, *SD* = 0.89; G3P4 *M* = 7.07, *SD* = 2.20; see Table 5). G2P1 and G2P2 had low confidence ratings throughout the study (G2P1 *M*= 4.6, *SD* = 1.79; G2P2 *M*= 2.75, *SD* = 0.96; see Table 5).

The trend line data show that both G1P2 and G3P2 had decreasing trend lines in the number of hours spent studying during the first baseline phase. These trends were predicted to continue; however, when treatment was implemented there was a large increase in the number of hours spent studying for both participants (see Figure 21).

Outliers of our secondary dependent variables can be analyzed to determine the impact on the primary dependent variable, number of hours spent studying. The results show that for

two participants (G1P3, G3P4) when more hours spent working were reported, less hours spent studying were also reported (see Figures 10 and 12). For G3P4, when their child's day was rated lower, they also typically reported less hours spent studying that day (see Figures 10 and 14). Additionally, the relation between quality of studying and the number of hours spent studying shared a relationship with some participants. For example, G2P1 showed almost a mirror image for the number of hours spent studying and the quality of the studying. In other words, when the number of hours spent studying increased, the quality of studying also increased (see Figures 10 and 11). For G2P2 a similar pattern was shown, when there was a small increase in the number of hours spent studying there was also a small increase in the quality of that studying (see Figures 10 and 11).

Quality of studying. The quality of studying was reported to have the highest quality in both the treatment (M = 5.20, SD = 2.70) and the second baseline phase (M = 5.63, SD = 2.47), compared to spring break (M = 4.75, SD = 2.95) and the first baseline phase (M = 5.19, SD = 2.20; see Table 6). Almost all participants reported at least one of the days with study sessions scored as above their average satisfaction of studying for that phase (G1P2, G1P3, G1P4, G2P1, G3P1, G3P2, G3P4; see Figure 11). Specifically, G3P1 reported an increase in satisfaction of studying during the two study session days (see Figure 11). G1P3 reported an increase in satisfaction of studying across all phases (see Figure 11). Conversely, G1P4 reported a decrease in the quality of studying across all phases (see Figure 11).

Other variables were analyzed such as number of hours in outside employment (see Figure 12), hours of sleep (see Figure 22), and the rating of the participants' child's/children's day(s) (see Figure 23). These variables did not seem to have an influence over our primary

dependent variable, number of hours spent studying. Further, there were no significant differences in these variables across phases.

Statistical Analyses

Number of hours spent studying. Unstandardized regression coefficients were computed to analyze the expected change in raw score units of number of hours spent studying when rating of day, difficulty of schoolwork, number of hours in outside employment, stress level, hours of sleep, and rating of child's day was changed by one unit. The following are the results: rating of day (b_1 = 0.19, *t* [149] 1.22, *ns*), number of hours spent working in outside employment (b_1 = -0.04, *t* [149] -0.77, *ns*), and stress level (b_1 = -0.15, *t* [149] -1.85, *ns*). These results do not allow us to assume any predictive relation. The regression weight was also computed to analyze the expected change in number of hours spent studying when schoolwork difficulty is changed by one unit, b_2 = -0.17, *t* (149) -0.23, $p < .05$. This allows us to predict that for every one unit of increase for schoolwork difficulty (schoolwork gets less difficult), we can assume that number of hours spent studying will decrease by 0.17 hours. The regression weight was also calculated to analyze the expected change in number of hours spent studying when hours of sleep is changed by one unit, b_1 = -0.25, *t* (149) -2.21, $p < .05$. These results allow us to predict that for every one unit of decrease increase in hours of sleep, we can assume that the number of hours spent studying will decrease by 0.25 hours. The regression weight was also calculated to analyze the expected change in number of hours spent studying when rating of the child's day is changed by one unit, b_1 = 0.20, *t* (149) 2.29, $p < .05$. This allows us to predict that for every one unit of increase in rating of the child's day, we can assume that the number of hours spent studying will also increase by 0.20 hours.

The standardized regression coefficients were computed to analyze the change in standardized, unit-free scores of number of hours spent studying when rating of day, hours of outside employment, stress level, hours of sleep, and rating of child's day is changed by one unit. The following are the results: hours of outside employment ($\beta_1 = -0.06$, t [149] = -0.77, *ns*) and stress level ($\beta_1 = -0.17$, t [149] = -1.85, *ns*), were not found to be significant. Rating of day ($\beta_1 = 0.13$, t [149] = 1.22, $p < .05$), hours of sleep ($\beta_1 = -0.17$, t [149] = -2.21, $p < .05$), and rating of child's day ($\beta_1 = 0.18$, t [149] = 2.28, $p < .05$), however, were found to be significant. It is important to note that unlike the unstandardized regression coefficient, the standardized regression coefficient address which variable has more of an effect on the dependent variable. In this case, schoolwork difficulty has more of an effect on the number of hours spent studying than rating of day, hours of outside employment, stress level, hours of sleep, and rating of child's day. In other words, as schoolwork gets more difficult the number of hours spent studying increases.

Quality of studying. The unstandardized regression coefficients were computed to analyze the expected change in raw score units of quality of studying when rating of day, difficulty of schoolwork, number of hours in outside employment, stress level, hours of sleep, and rating of child's day was changed by one unit. The following are the results for the rating of day, $b_1 = -0.02$, t (120) -0.12, *ns*. The following are the results for the difficulty of schoolwork, $b_1 = 0.09$, t (120) 1.23, *ns*. The following are the results for the number of hours spent working in outside employment, $b_1 = -0.13$, t (120) -1.80, *ns*. The following are the results for stress level, $b_1 = 0.12$, t (120) 1.12, *ns*. The following are the results for hours of sleep, $b_1 = -0.01$, t (120) -0.08, *ns*. This does not allow us to assume any predictive relations for every one unit of increase in rating of the day, difficulty of schoolwork, hours in outside employment, or stress level on the quality of studying. The regression weight was also computed to analyze the

expected change in the quality of studying when rating of the child's day is changed by one unit, $b_2 = 0.38$, t (120) 3.25, $p < .05$. This allows us to predict that for every one unit of increase for rating of the child's day, we can assume that quality of studying will increase by 0.38 units.

The standardized regression coefficients were computed to analyze the change in standardized, unit-free scores of the quality of studying when rating of day, schoolwork difficulty, hours of outside employment, stress level, hours of sleep, and rating of child's day is changed by one unit. The following are the results: rating of day ($\beta_1 = -0.01$, t [120] = -0.12, *ns*), schoolwork difficulty ($\beta_1 = 0.11$, t [120] = 1.23, *ns*), hours of outside employment ($\beta_1 = -0.15$, t [120] = -1.80, *ns*), stress level ($\beta_1 = 0.18$, t [120] = 1.12, *ns*), and hours of sleep ($\beta_1 = -0.01$, t [120] = -0.08, *ns*) were not found to be significant. Whereas, rating of child's day ($\beta_1 = 0.29$, t [120] = 3.25, $p < .05$) was found to be significant. It is important to note that unlike the unstandardized regression coefficient, the standardized regression coefficient address which variable has more of an effect on the dependent variable. In this case, rating of child's day has more of an effect on the quality of studying than rating of day, difficulty of schoolwork, hours of outside employment, stress level, and hours of sleep.

Social Validity

The results from the social validity exit survey show both positive and supportive opinions regarding the family study room (see Table 7 and Appendix J for results). Participants reported enjoying the extra time and quiet environment to get homework done and not having to worry about their children and dinner on study nights. Also participants stated that the study sessions made the rest of their week much better and even led to doing well on exams. Some common complaints about the study room were the lack of windows and computers. Additionally, participants did not like how they had to walk down a hall to see their children.

One participants only complaint was that she wished she could have had more study sessions in the family study room. When participants were asked how likely they would be to use a family study room if the university were to build one, the vast majority of participants said very likely (M = 9.38, SD = 0.86). Additionally, all participants rated the addition of a family study room as very beneficial for both their family (M = 8.75, SD = 1.39) and other student parents at this university (M = 9.63, SD = 0.70).

Follow-up interviews. Follow-up interviews were conducted with three of the eight participants after terminiation of the study. These interviews were a post hoc addition to study and data should not be misinterpreted as being anything other than opinion. During these interviews participants were asked various questions in a focus group format. First, participants were asked what studying looks like for them currently. Participants commonly reported studying to be impossible at home due to the constant distractions of kids and other responsibilities. Two participants explained that they often wait until after their children are asleep to do homework. The third participant said she did homework before her children woke up, typically starting homework at 4:00 am each morning.

Participants were also asked if they thought the addition of a family study room would alter the perceptions of the university. All of them agreed that a family study room would change the current party school perception that the university has to a family-friendly school perception. Also, they stated the study room would show that the university goes above and beyond to support nontraditional students, not just traditional students. Further, it was mentioned that building a family study room would lead to more student parents seeking this school out when deciding which university to attend.

Next, participants were asked to nominate items they would like included in the family study room for the children. Common responses were toys, a couch for napping, a tablet, television, and a soundproof glass wall to separate the child's side from the parent's side. They thought the glass wall would lead to less distractions while they were studying and also less separation anxiety for the children. Some items participants stated they wanted on the studying side of the room were computers, printers, cubicles, a couch for napping, fridge, and a sink for washing breast pump parts. Through the interviews it became apparent that the participants wanted the family study room as both a study space and also a social space for student parents.

Finally, participants were asked what issues they thought may arise with the addition of a family study room. Parking, liability for child injuries, and management of the study room were all proposed as potential problems. Also, one parent suggested a written policy to be hung on the wall of the family study room to explain the rules and regulations. These follow-up interviews provided a clear idea of what student parents at this university would like from a family study room and also some potential problems that need to be addressed.

Chapter IV: Discussion

The availability of a family study room did not have a large effect on any of our dependent variables other than the relations mentioned above. Overall, access to this room only slightly increased the number of hours spent studying for student parents. However, while in the study room most participants were on-task (M = 88.65%, see Figure 13). Further, the social validity portion of the results show that the participants enjoyed having an opportunity to study away from the chaos of their home life. More importantly, not only did the participants enjoy being in the study room but the momentary time sample data show that they were actually studying. All participants also perceived the addition of a family study room on this campus as very beneficial for both their family and other student parents attending this university.

Our hypothesis that access to a family study room would increase the number of hours spent studying for student parents was somewhat supported. There were slight increases in the number of hours spent studying during the treatment phase, but given the limited opportunities for access to the study room trends were not developed. This population in particular has a number of responsibilities and scheduling two sessions of studying either (1) wasn't enough time or (2) did not have the power to compete with these other responsibilities. While in the study room, anecdotal observation concluded that participants tended to get on task when the lead investigator entered the study room. Therefore, this notion was investigated further using a cumulative record of on-task behavior during the study sessions, no reactivity effect was found (see Figure 24).

Within this study, there are a few limitations that should be noted. First, only 8 of the intended 12 participants completed the study. However, for this population it is often difficult to make commitments that will take time away from being a parent, student, significant other,

employee, and/or friend. This lowered number of participants led to the small group sizes. For example, group 2 only had two participants and each of these participants only attended one study session. In one session, the participant's child did not want to be separated from his father, and therefore the child remained in the study room for the majority of the session (G2P2). One participant's data were occasionally late, citing personal issues. These instances are noted in Figure 7 G2P2.

Second, study sessions never lasted the entire two hours, as expected. Study time was regularly lost to tardiness and time to drop off children at the child care center or playroom.

Third, participants would often select 0 for the number of hours spent studying. Reporting 0 hours studying was problematic as they would then add an additional comment at the end stating that they studied for 30 minutes. These responses were recorded as 0 hours.

Finally, another potential limitation is we did not conduct IOA procedures with the survey responses that were touching a grid line. Our rationale behind this decision was that it was very clear which grid line the arrow was touching.

In sum, even though access to a family study room did not greatly affect academically-related outcomes, the room gave student parents an opportunity to focus solely on their role as a student and put aside their other responsibilities. In addition, the social validity results and the follow-up interviews showed that not only would student parents support the installation of a family study room but it would also change the current perspective of the university. The study room could be used as a recruitment and retention tool to encourage nontraditional students to attend this university. Overall, this study demonstrated the importance of gathering social validity. Though study room access did not greatly alter academically-related variables, the

social validty portion and follow-up interviews highlighted the social support and positive reviews of the study room.

References

Bamber, J. & Tett, L. (2000). Transforming the learning experiences of non-traditional students: A perspective from higher education. *Studies in Continuing Education, 22,* 57–75.

Brooks, R. (2012a). Negotiating time and space for study: Student-parents and familial relationships. *Sociology, 47*, 443–459.

Brooks, R. (2012b). Student-parents and higher education: A cross-national comparison. *Journal of Education Policy*, *27*, 423–439.

Gasser, H. S. & Gasser, R. F. (2010). Facing the baby blues? Serving student parents on campus. Retrieved from http://nccp.nsuok.edu/

Harris, F. N. & Jenson, W. R. (1985a). AB designs with replication: A reply to Hayes. *Behavioral Assessment, 7*, 133–135.

Harris, F. N. & Jenson, W. R. (1985b). Comparisons of multiple-baseline across persons designs and AB designs with replication: Issues and confusions. *Behavioral Assessment, 7*, 121–127.

Hayes, S. C. (1985). Natural multiple baselines across persons: A reply to Harris and Jenson. *Behavioral Assessment, 7*, 129–132.

Institute for Women's Policy Research (2010a). Child care at college campuses: A critical resource for student parents.

Institute for Women's Policy Research (2010b). Student parents face significant challenges to post-secondary success.

Institute for Women's Policy Research (2011). Improving child care access to promote post-secondary success among low-income parents.

Institute for Women's Policy Research (2013). College students with children are common and face many challenges in completing higher education.

Institute for Women's Policy Research (2016). Student parents' access to child care continued to decline in 2015.

Kochan, B., Janssens, D., Bellemans, T., & Wets, G. (2007). Collecting activity-travel diary data by means of a hand-held computer-assisted data collection tool. *Advanced OR and AI methods in Transportation,* 511–516.

Mays, D., Cremeens, J., Usdan, S., Martin, R. J., Arriola, K. J., & Bernhardt, J.M. (2010). The feasibility of assessing alcohol use among college students using wireless mobile devices: Implication for health education and behavioral research. *Health Education Journal, 69,* 311–320.

Munro, L. (2011). 'Go boldly, dream large!': The challenges confronting non-traditional students at university. *Australian Journal of Education, 55,* 115–131.

Nicholl, H. (2010). Diaries as a method of data collection in research. *Pediatric Nursing, 22*, 16–20.

Query, J. L., Parry, D., & Flint, L. J. (1992). The relationship among social support, communication competence, and cognitive depression for nontraditional students. *Journal of Applied Communication Research,* 78–94.

Appendix A

Table 1

Groups	1	2	3	4	5	6
1	**A**	**A (Spring Break)**	**B**	**A**		
2		**A (Spring Break)**	**A**	**B**	**A**	
3				**A**	**B**	**A**

Weeks

Table 1. This table shows a visual depiction of the replicated AB design schedule across groups for each week of the study. The red blocks labeled "A" represent baseline and the blue blocks labeled "B" are intervention phases. The "A Spring Break" phase represents an extended baseline for groups 1 and 2 into the week of spring break.

Table 2

		Study Session 1			Study Session 2		
Group	Participant	Arrival Time	Start Time	Brought __ children/ total children at home	Arrival Time	Start Time	Brought __ children/ total children at home
1	2	5:07		1/1	5:12		1/1
	3	5:11	5:20	1/2	5:02	5:26	2/2
	4	5:18		0/1	5:07		1/1
2	1	5:00	5:27	1/1*	---	5:15	---
	2	---		---	5:05		1/1
3	1	5:25		3/3	5:25		3/3
	2	5:30	5:35	1/1	5:30	5:36	1/1
	4	5:33		2/2	5:33		2/2

* Child stayed in study room and left halfway through study session

--- did not attend study session

Table 2. This table shows the specifics of each study session across participants and groups. It depicts the arrival time, group start time, and number of children they brought with them.

Table 3

Study Session Duration

Group	Study Session 1	Study Session 2
1	100 min (1 hr, 40 min)	94 min (1 hr, 34 min)
2	93 min (1 hr, 33 min)	105 (1 hr, 45 min)
3	95 min (1 hr, 35 min)	94 min (1 hr, 36 min)

Table 3. This table describes the duration of each study session. The maximum time for a study session was 120 minutes, or 2 hours.

Table 4

Calibration Test Responses

Question	Response
Please create a unique 4-digit code number and use this same code each time you complete the survey. Try to select a number that you can easily remember. Note: do not select the code 1234 or 0123 as it is very common	9999
How was your day?	8
Compared to a typical day, today's classes, assignments, and exams were:	5
If employed, how many hours did you work today?	4
How stressed were you today?	2
How many hours did you sleep last night?	8
How was your child's/children's day today?	3
How many hours did you spend studying/doing homework today?	3.5
How sure are you that the entered duration of studying is correct?	10
How satisfied are you with the QUALITY of studying?	0
Do you want to provide any additional comments regarding your answers?	No

Table 4. This table shows the questions and corresponding answers entered into the survey during the calibration test.

Table 5

Confidence Ratings

	Group 1			Group 2		Group 3		
Trial	G1P2	G1P3	G1P4	G2P1	G2P2	G3P1	G3P2	G3P4
1	8	10	--	--	--	10	--	--
2	9	10	--	0	--	--	8	8
3	10	9	10	--	--	--	--	--
4	10	10	--	--	2	10	10	7
5	10	10	--	4	--	7	--	9
6	10	9	10	--	--	--	9	7
7	--	--	--	--	4	--	8	--
8	--	10	--	6	--	--	9	7
9	10	10	--	4	--	10	9	8
10	9	10	--	4	--	10	9	8
11	10	10	--	5	--	6	9	0
12	10	10	--	--	--	7	8	7
13	10	--	0	--	--	--	10	6
14	--	--	--	6	--	10	8	7
15	--	10	--	5	2	--	7	8
16	10	10	10	5	--	7	8	8
17	9	10	10	4	3	3	9	9
18	8	10	10	6	--	6	8	--
19	10	10	--	6	--	7	7	--
20	10	--	10	4	10	--	--	--
21	--	--	--	6	10	--	--	--
22	4	10	--	5	--	--	--	--
23	7	10	10	6	9	--	--	--
24	7	10	1	4	10	--	--	--
25	--	10	10	6	9	--	--	--
26	5	10	1	6	10	--	--	--
27	8	10	--	0	--	--	--	--
28	0	10	10	--	--	--	--	--

Table 5. This table depicts the confidence ratings of how sure participants were that the number of hours they entered was accurate. The light shaded regions represent baseline phases. The dark shaded regions are baseline phases extended into spring break. The unshaded regions are days within the treatment phase. The dashes show when either data was not provided, no studying was done that day, or the participants did not take part in that phase.

Table 6

Condition		Number of Hours Spent Studying	Quality Studying
BSL	Mean	2.07	5.19
	N	46	36
	Std. Deviation	2.33	2.20
BSL Spring Break	Mean	0.93	4.75
	N	33	28
	Std. Deviation	1.21	2.95
BSL 2	Mean	2.39	5.63
	N	41	35
	Std. Deviation	1.92	2.47
TX	Mean	2.79	5.20
	N	52	40
	Std. Deviation	2.44	2.70

Table 6. This table shows the mean, number of responses, and standard deviation for each phase for both the number of hours spent studying and the quality of studying.

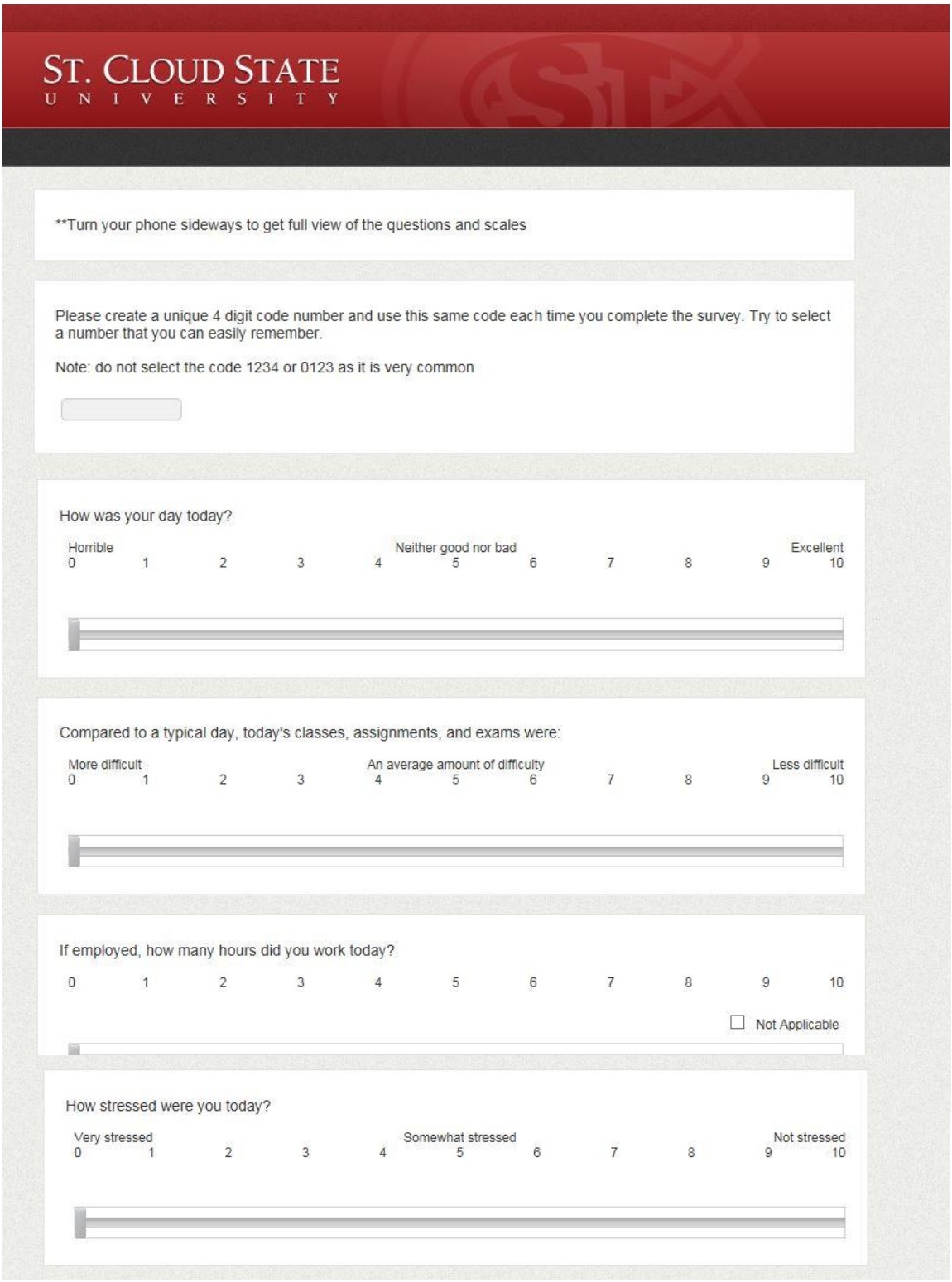
Table 7

	Scale	Mean	Standard Deviation
St. Cloud State University is considering building a Family Study Room where you could bring your children to play while you have a chance to study and supervise them on the other side of a sound proof glass wall. If this was built how likely would you be to use it?	0 (Very Unlikely)-10 (Very Likely)	9.38	0.86
If the Family Study Room described above was built, how beneficial would this be to you and your family?	0 (Not Beneficial)-10 (Very Beneficial)	8.75	1.39
If the Family Study Room described above was built, how beneficial do you think it would be for all student parents at SCSU?	0 (Not Beneficial)-10 (Very Beneficial)	9.63	0.70

Table 7. This table shows the responses to the social validity portion of the study. The far left column lists the questions that were asked in the survey along with their scales. The right side of the table shows the mean and standard deviation of responses for each item.

Appendix B

Figure 1



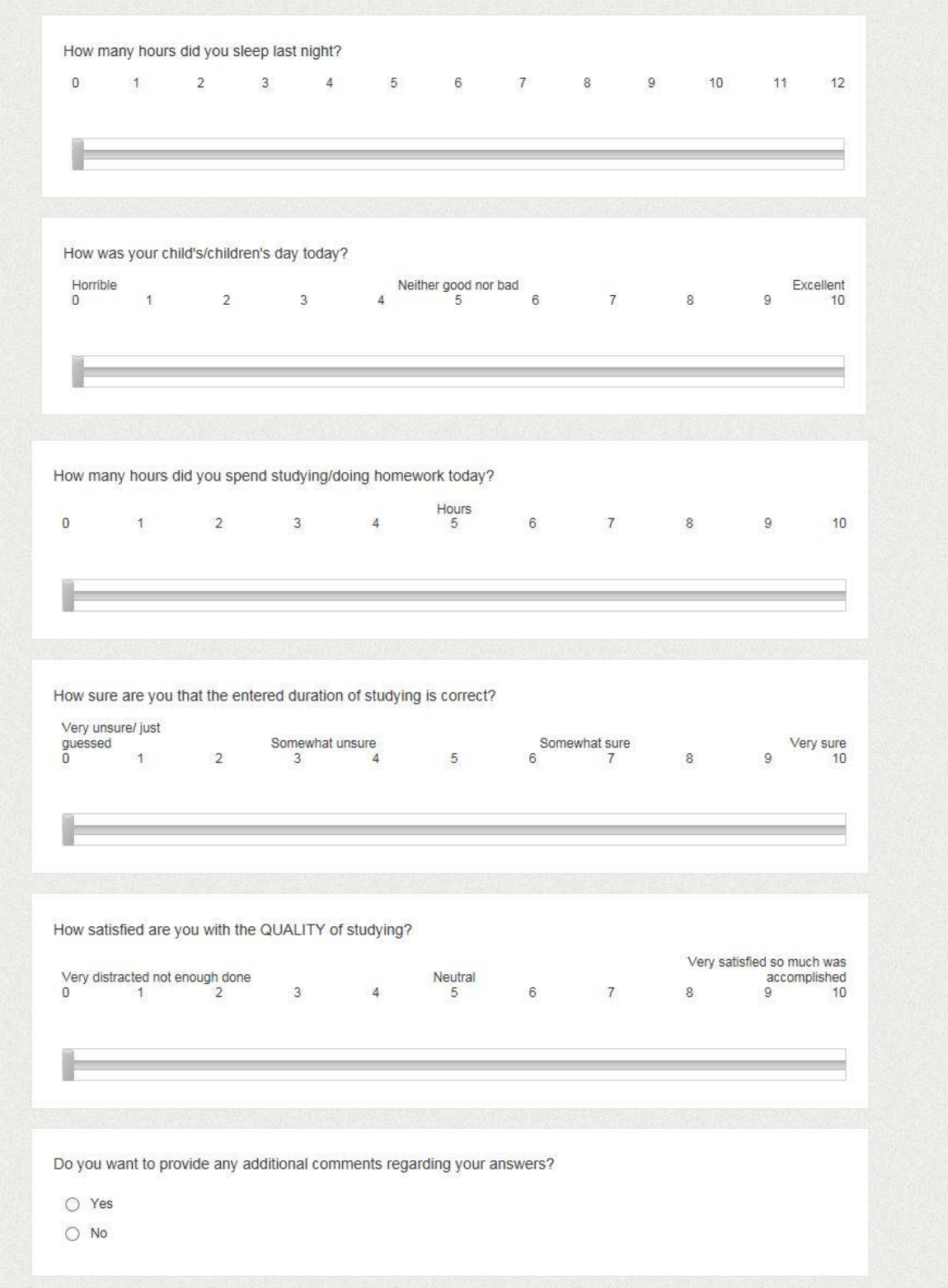


Figure 1. This figure is a screenshot of the daily diary survey, including all questions and scales.

Figure 2

Date: _____ Start Time: ___:____
Initials: _____ Group #: _____
Y= Yes, On Task

N= No, Not On Task

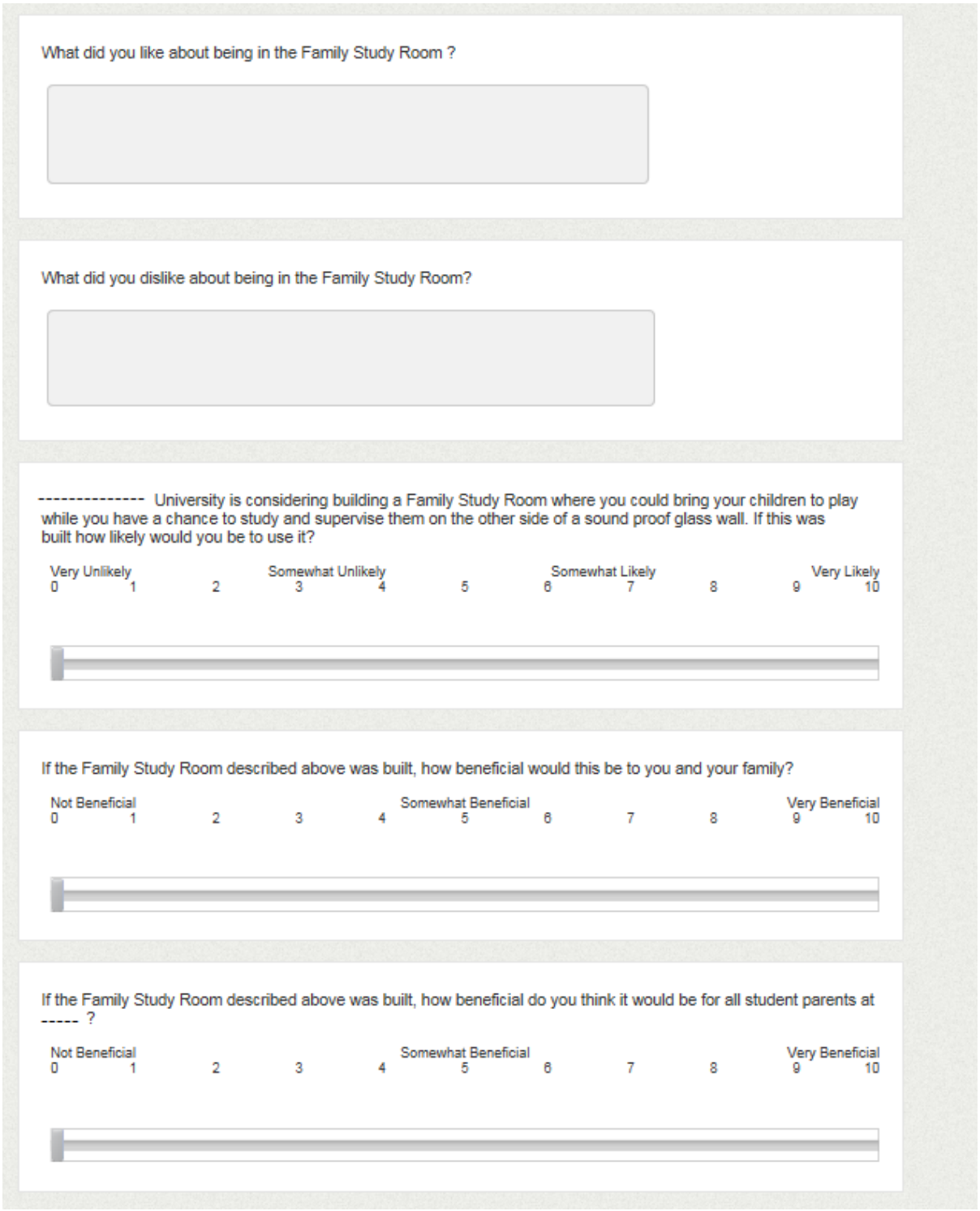
I= Impartial Trial (in bathroom, playroom, up getting pizza)

VT Interval	Participant 1's code			Participant 2's code			Participant 3's code			Participant 4's code		
1	Y	N	I	Y	N	I	Y	N	I	Y	N	I
2	Y	N	I	Y	N	I	Y	N	I	Y	N	I
3	Y	N	I	Y	N	I	Y	N	I	Y	N	I
4	Y	N	I	Y	N	I	Y	N	I	Y	N	I
5	Y	N	I	Y	N	I	Y	N	I	Y	N	I
6	Y	N	I	Y	N	I	Y	N	I	Y	N	I
7	Y	N	I	Y	N	I	Y	N	I	Y	N	I
8	Y	N	I	Y	N	I	Y	N	I	Y	N	I
9	Y	N	I	Y	N	I	Y	N	I	Y	N	I
10	Y	N	I	Y	N	I	Y	N	I	Y	N	I
11	Y	N	I	Y	N	I	Y	N	I	Y	N	I
12	Y	N	I	Y	N	I	Y	N	I	Y	N	I
13	Y	N	I	Y	N	I	Y	N	I	Y	N	I
14	Y	N	I	Y	N	I	Y	N	I	Y	N	I
15	Y	N	I	Y	N	I	Y	N	I	Y	N	I
16	Y	N	I	Y	N	I	Y	N	I	Y	N	I
17	Y	N	I	Y	N	I	Y	N	I	Y	N	I
18	Y	N	I	Y	N	I	Y	N	I	Y	N	I
19	Y	N	I	Y	N	I	Y	N	I	Y	N	I
20	Y	N	I	Y	N	I	Y	N	I	Y	N	I
21	Y	N	I	Y	N	I	Y	N	I	Y	N	I
22	Y	N	I	Y	N	I	Y	N	I	Y	N	I
23	Y	N	I	Y	N	I	Y	N	I	Y	N	I
24	Y	N	I	Y	N	I	Y	N	I	Y	N	I
25	Y	N	I	Y	N	I	Y	N	I	Y	N	I

Figure 2. This is the data sheet that will be used for the momentary time sample data during the intervention in the study room

Figure 3

Exit Survey



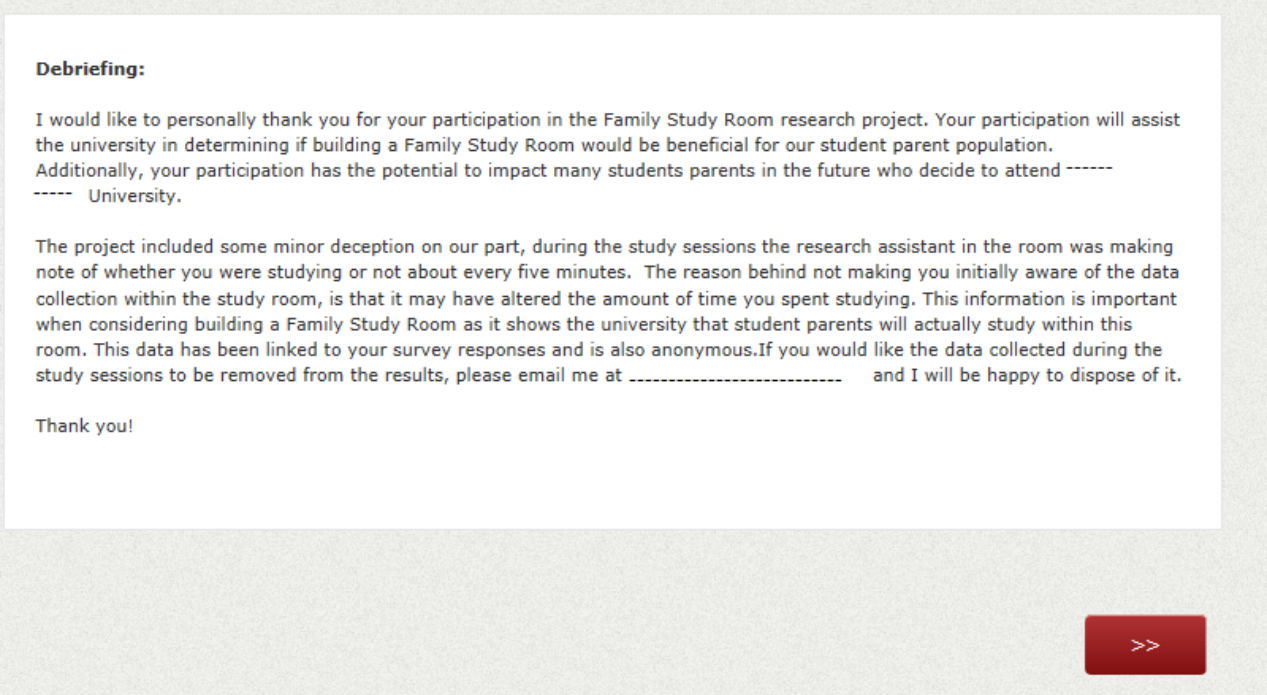


Figure 3. This figure shows the exit survey section that was added to the final daily survey that participants took. Additionally, the debriefing statement was located at the end of this exit survey to make participants aware of the deception used during the course of this study.

Figure 4

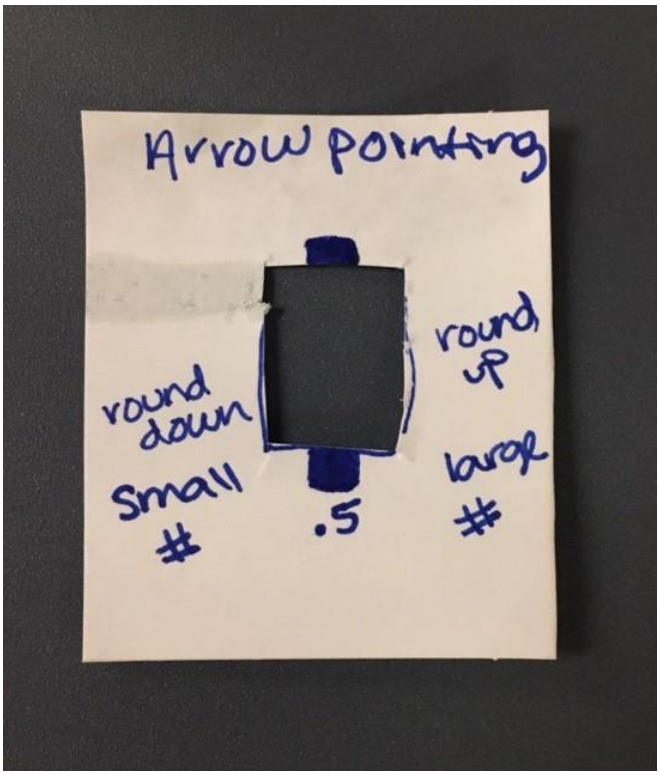
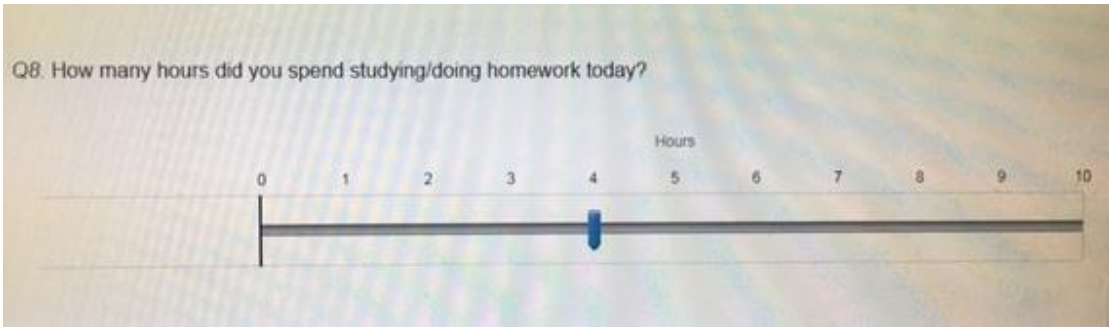


Figure 4. This is an image of the viewer that was created for scoring responses during the interobserver agreement portion of the study.

Figure 5



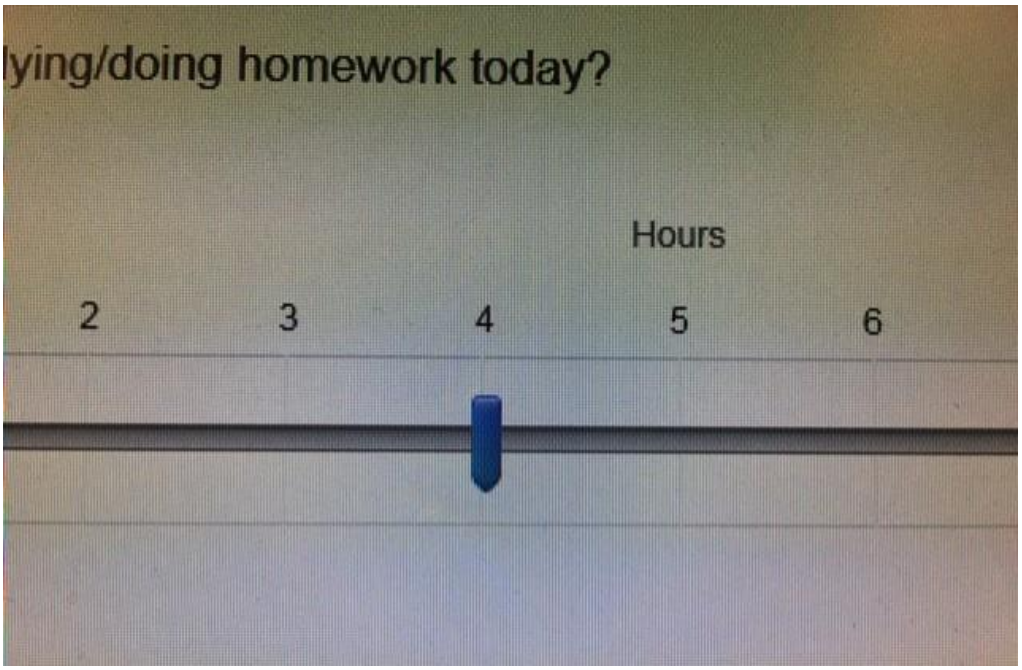


Figure 5. This figure shows a screenshot of a survey response that did not require interobserver agreement or the use of the viewer. As you can see, the bottom of the arrow is touching a grid line, therefore the response is recorded as a 4.

Figure 6

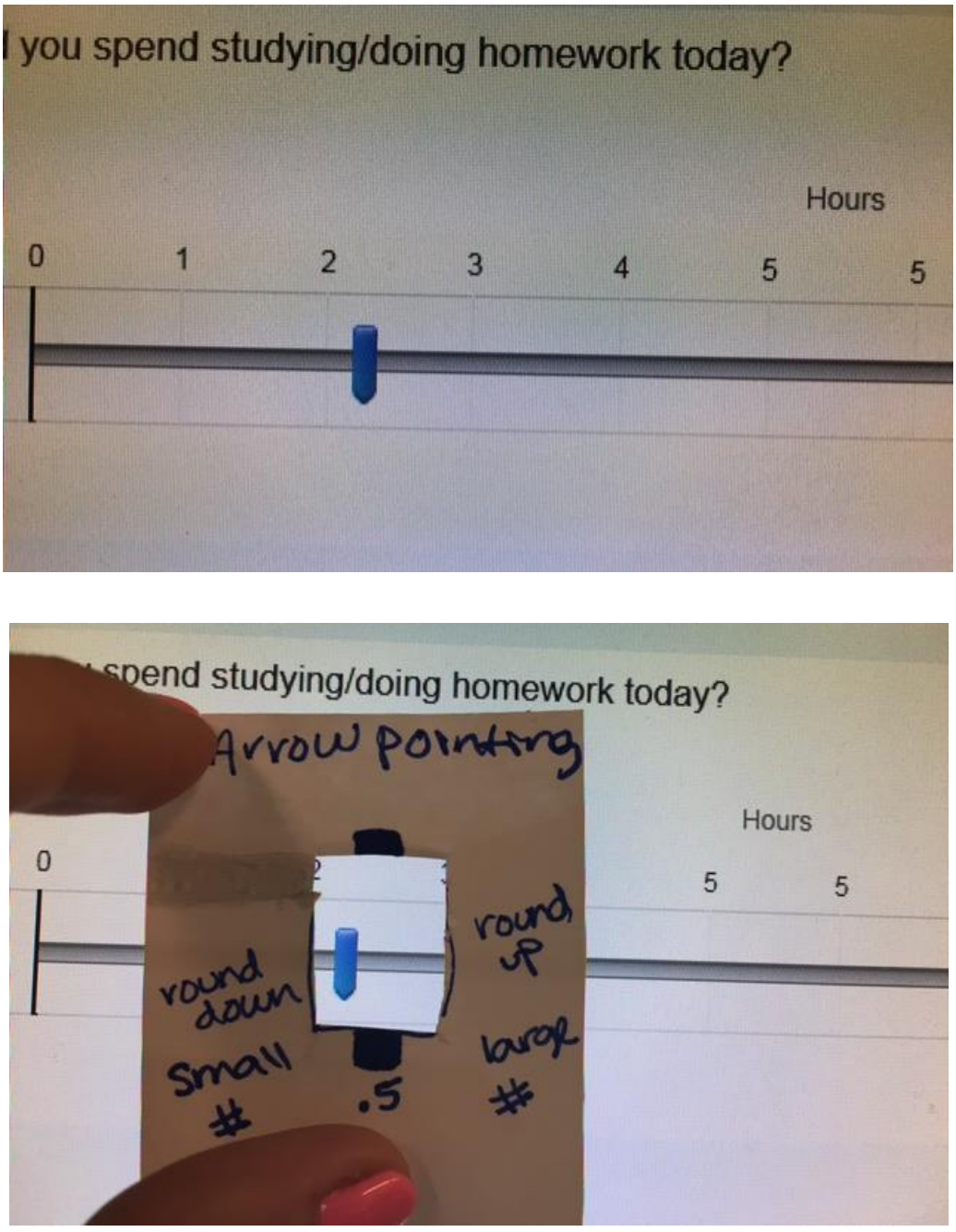
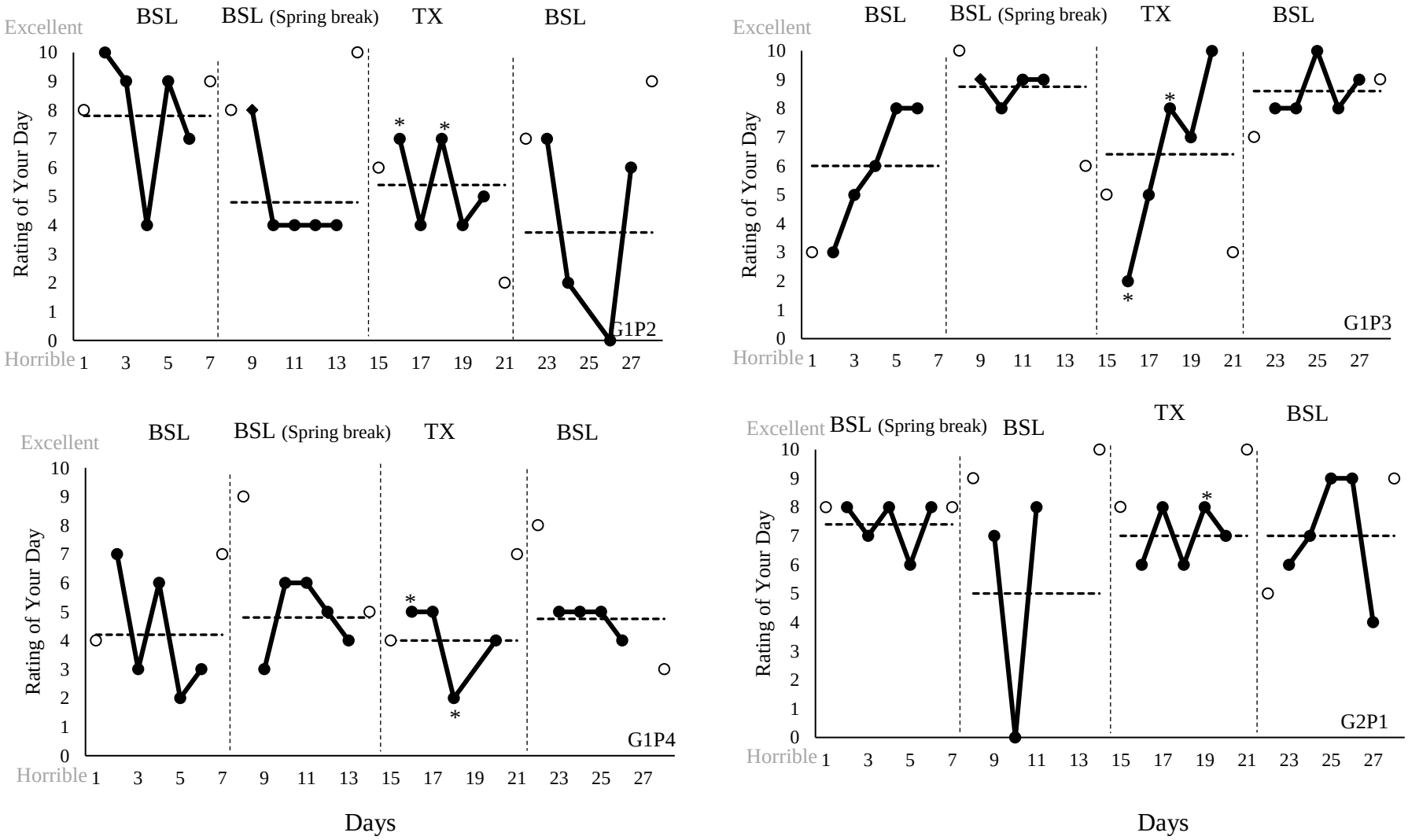
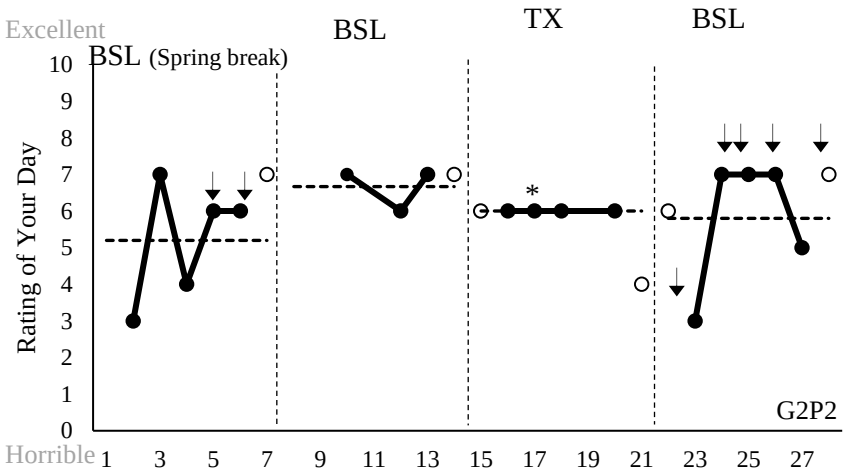


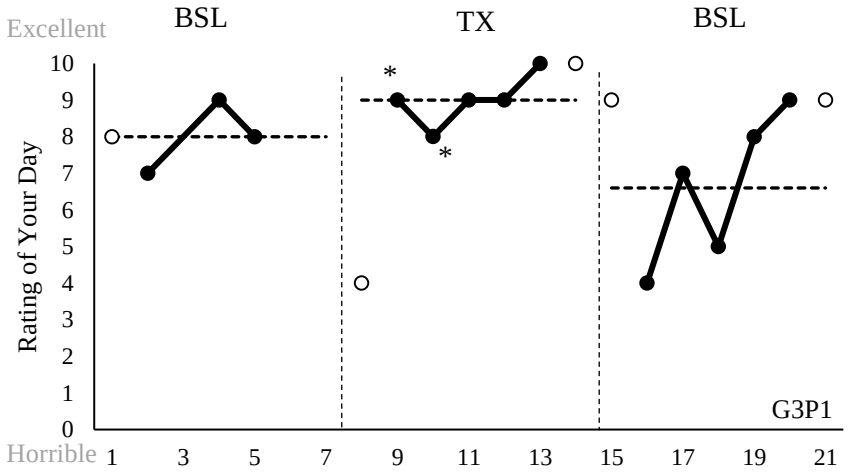
Figure 6. This figure shows a survey response that was deemed questionable and subjected to further analysis. The top image shows the arrow not touching a grid line. The bottom image shows how the viewer was used to judge this response and other questionable responses. This response was scored as 2 since it is in the first portion of the viewer.

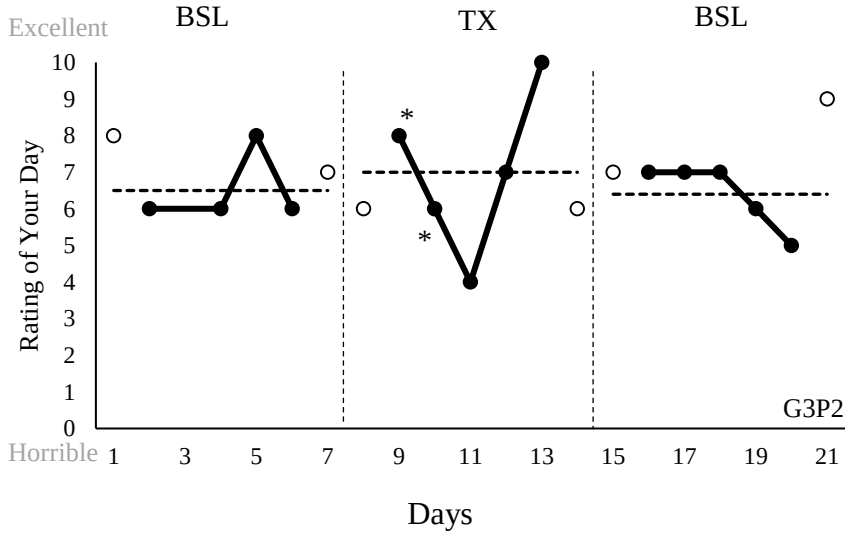
Figure 7

Rating of Your Day




Excellent
BSL (Spring break)
BSL
TX
BSL
Rating of Your Day
10
9
8
7
6
5
4
3
2
1
0
Horrible
1 3 5 7 9 11 13 15 17 19 21 23 25 27
G2P2


Excellent
BSL
TX
BSL
Rating of Your Day
10
9
8
7
6
5
4
3
2
1
0
Horrible
1 3 5 7 9 11 13 15 17 19 21
G3P1


Excellent
BSL
TX
BSL
Rating of Your Day
10
9
8
7
6
5
4
3
2
1
0
Horrible
1 3 5 7 9 11 13 15 17 19 21
G3P2
Days

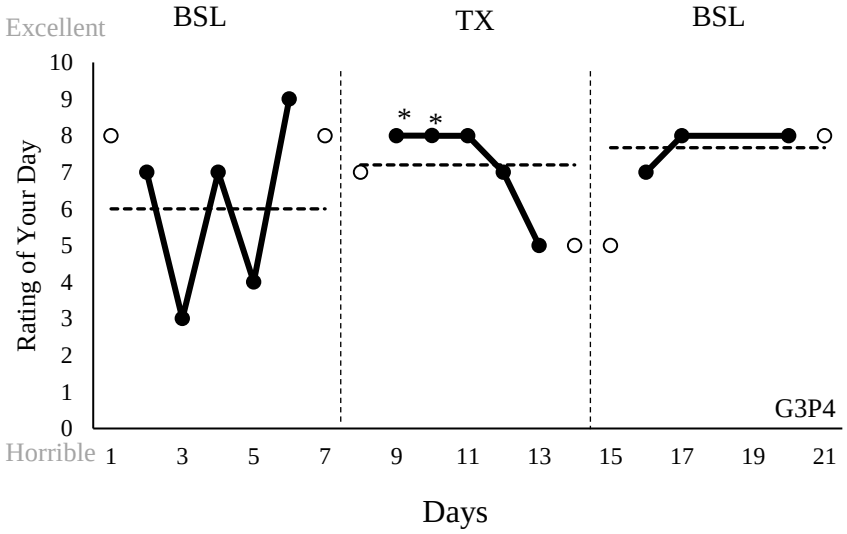
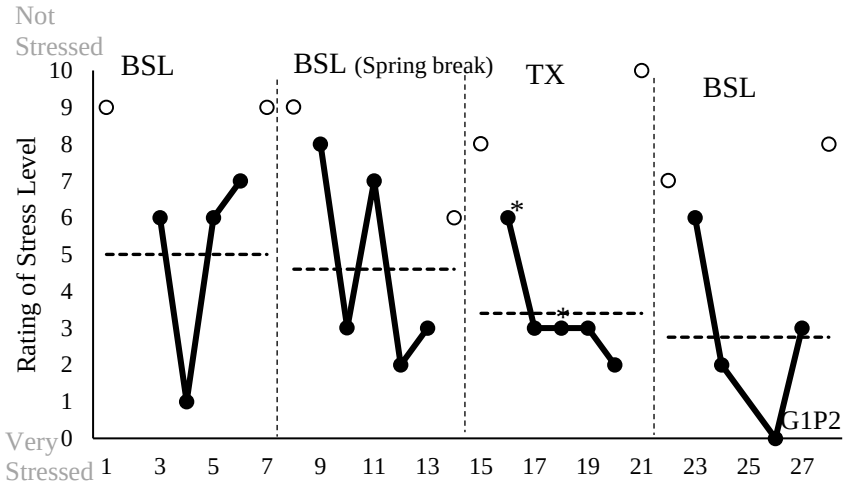
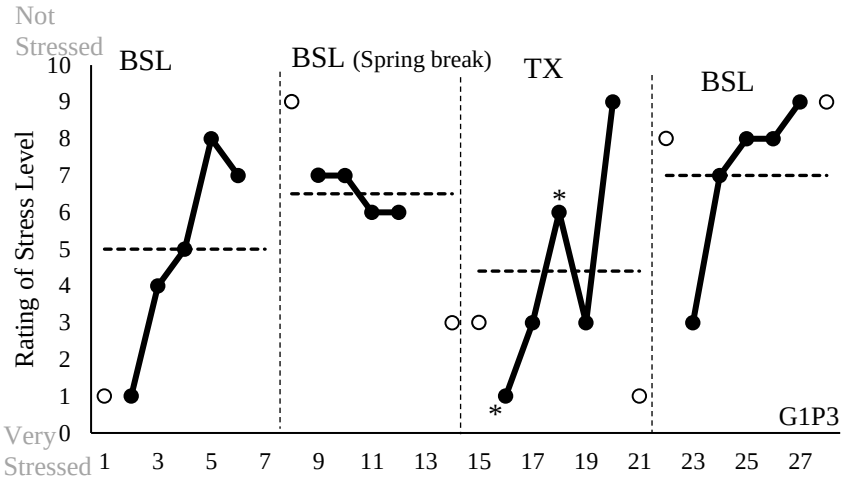
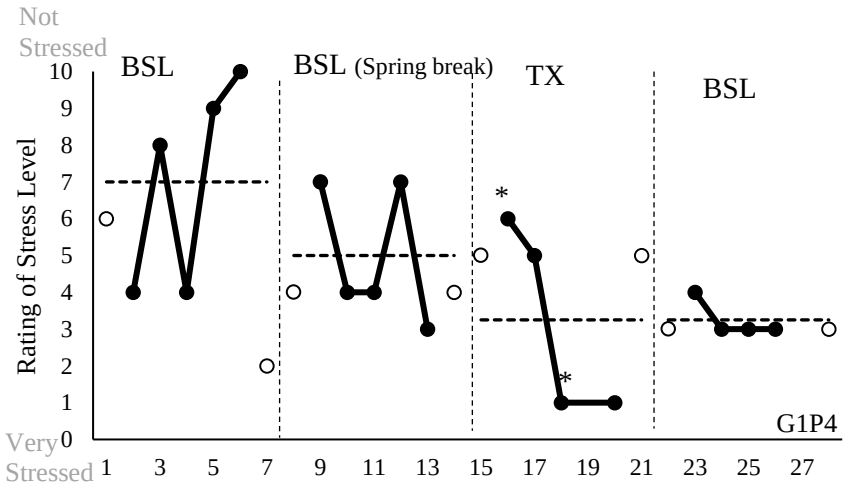

Excellent
BSL
TX
BSL
Rating of Your Day
10
9
8
7
6
5
4
3
2
1
0
Horrible
1 3 5 7 9 11 13 15 17 19 21
G3P4
Days

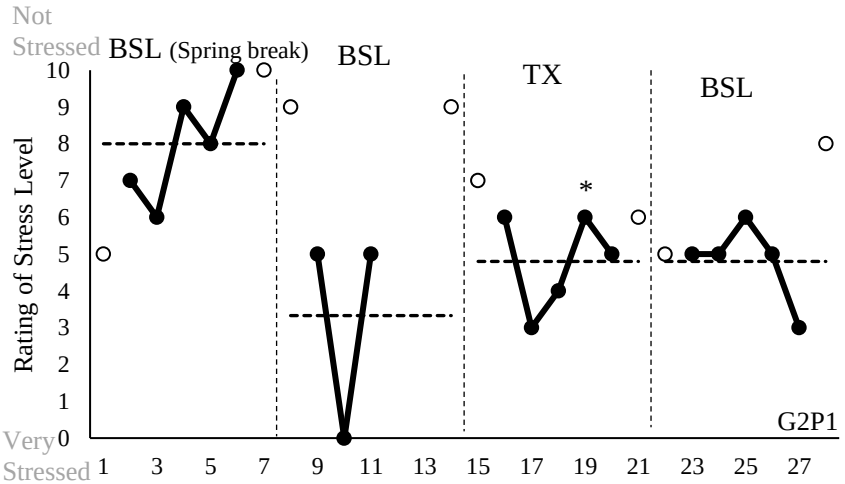
Figure 8

Stress Ratings









Days

Days

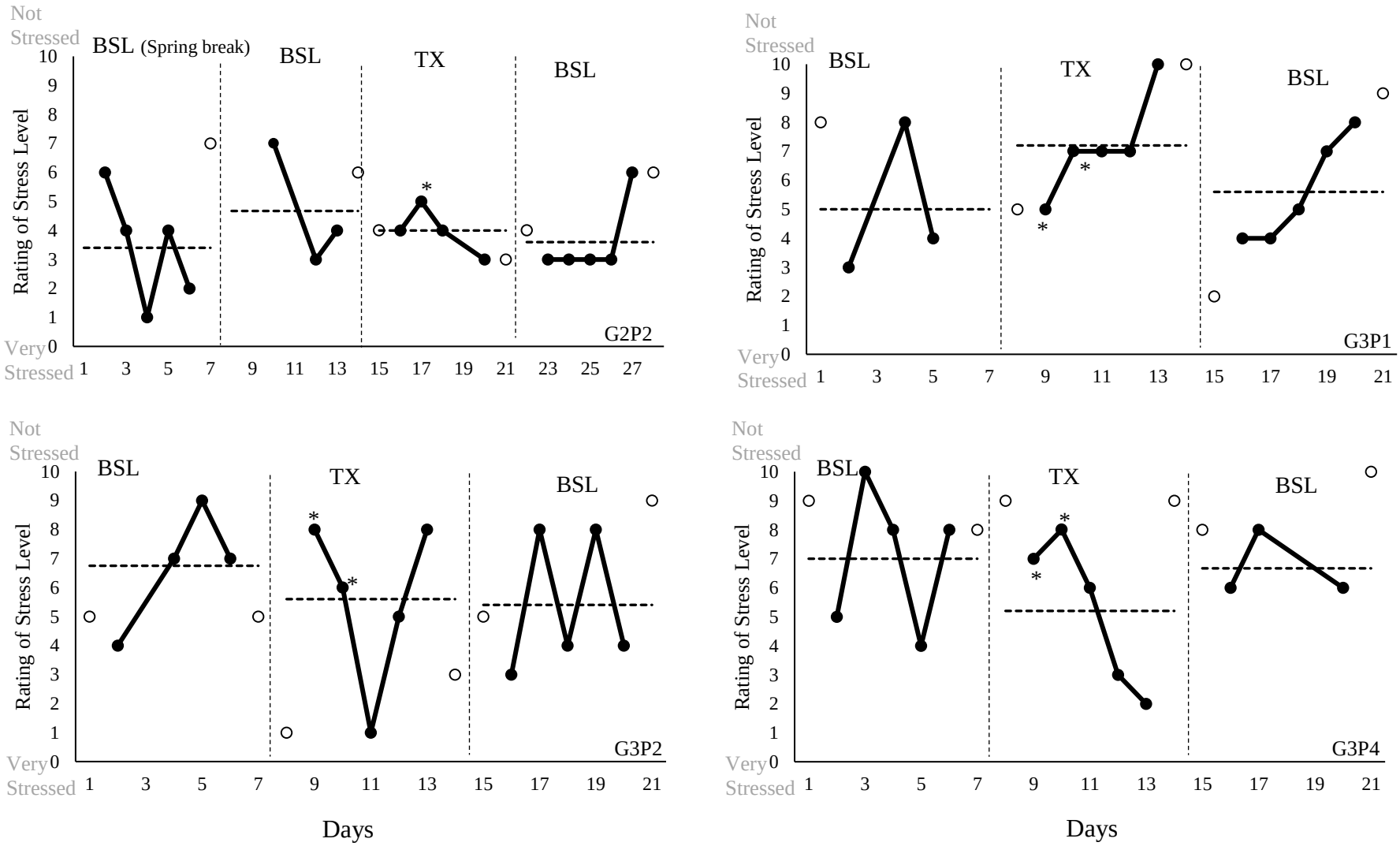
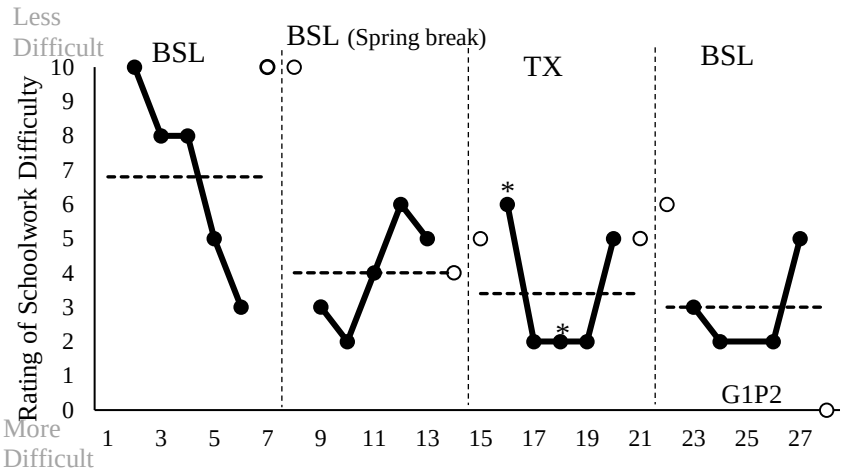
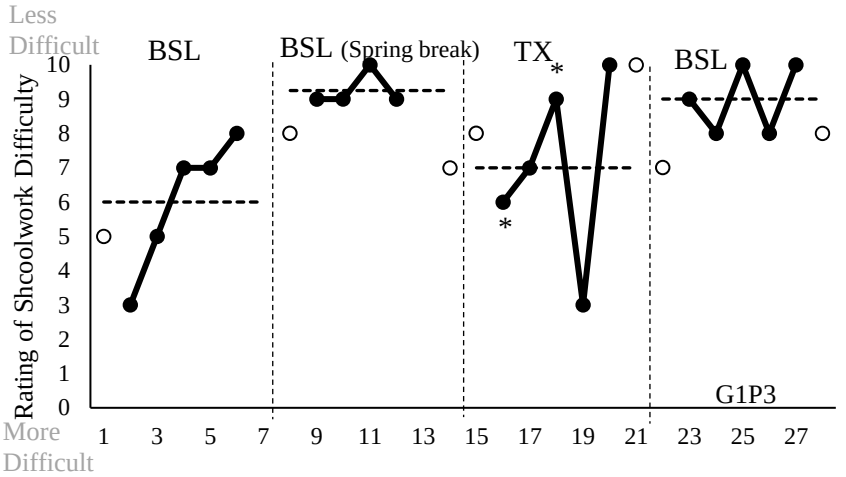


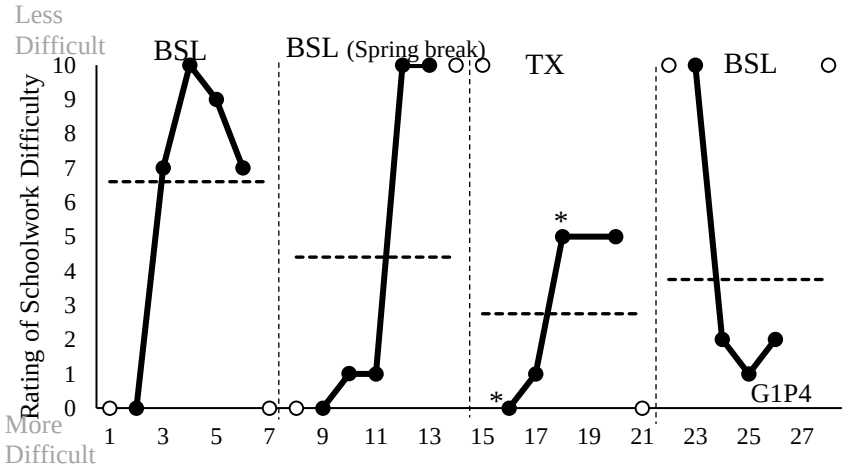
Figure 8. These figures depict the stress level ratings on a 0 (very stressed)- 10 (not stressed) scale across days. The closed circles are the weekday responses and the open circles are the weekend probes. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

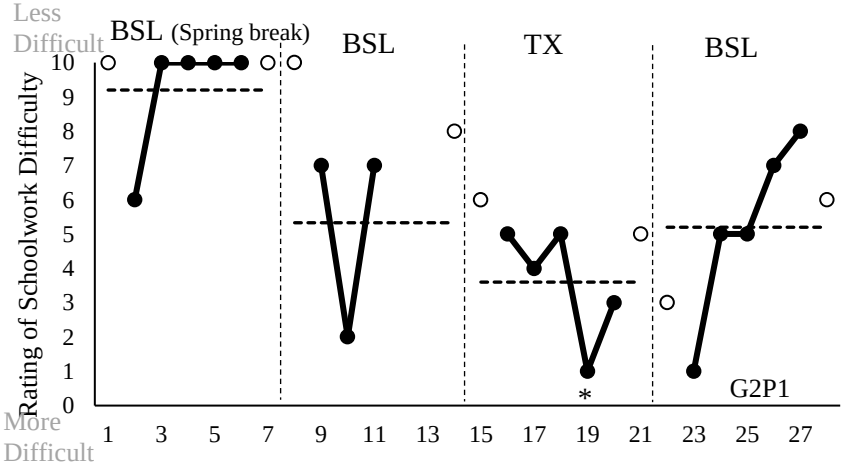
Figure 9

Difficulty of Schoolwork









Days

Days

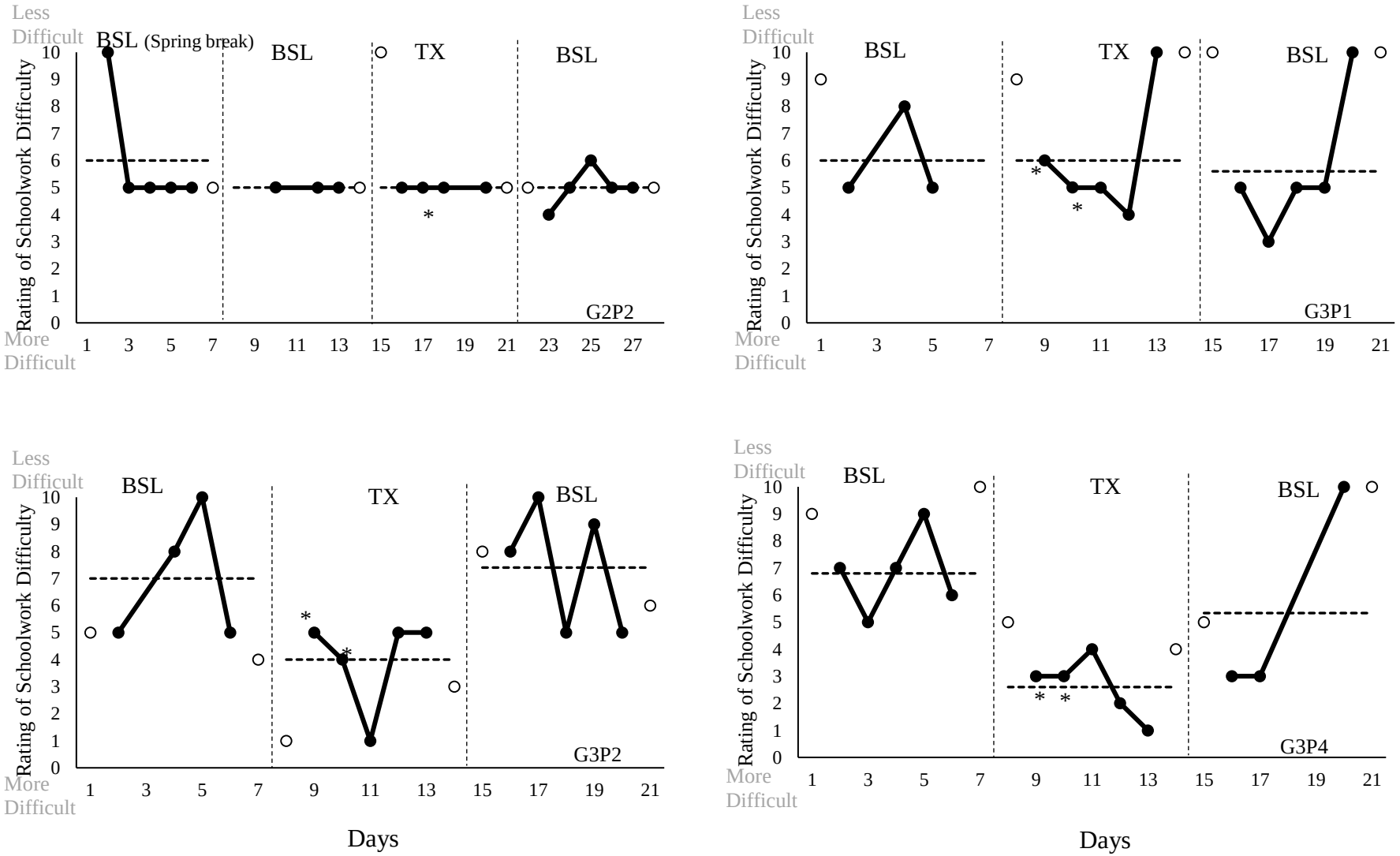
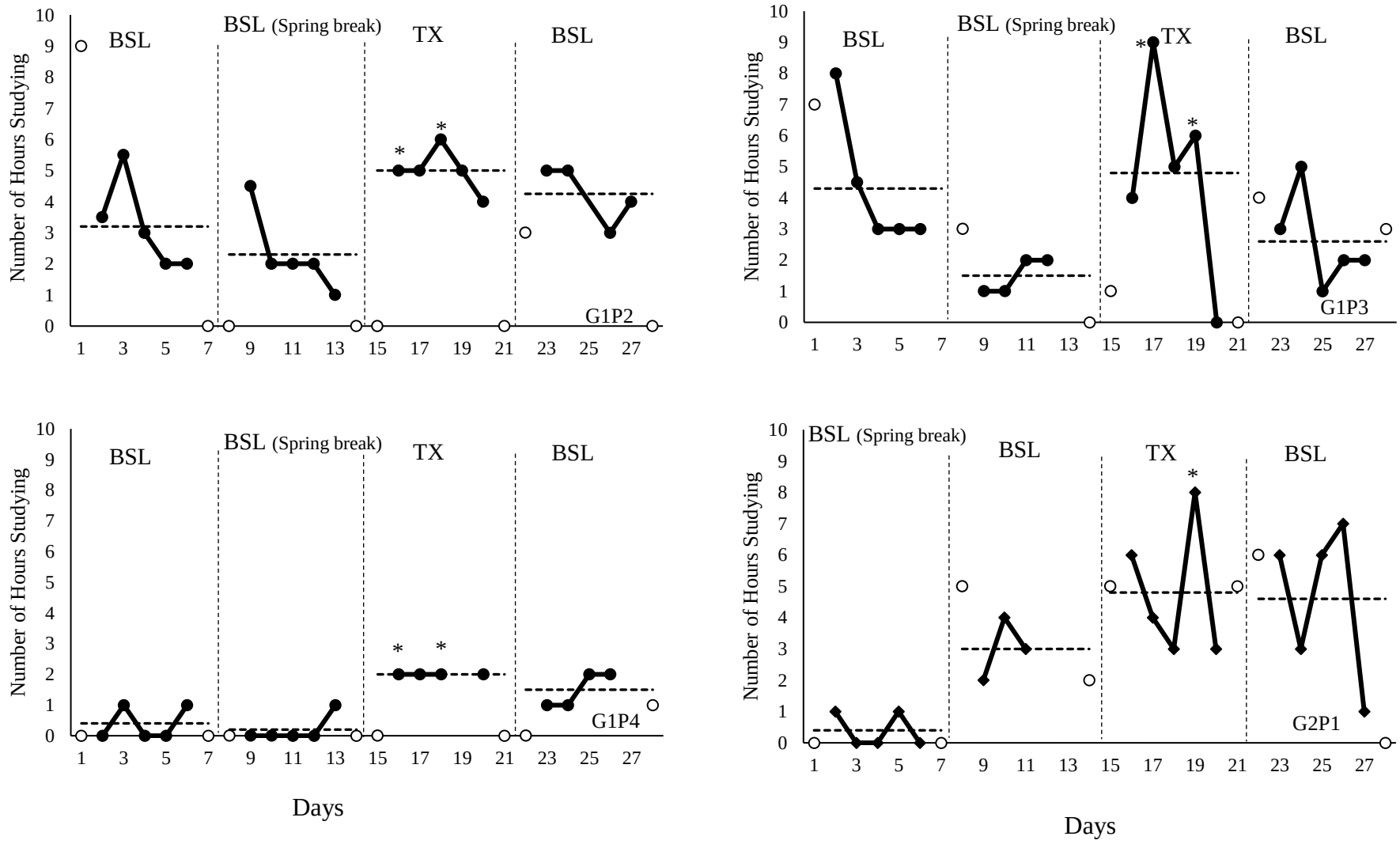


Figure 9. These figures depict the rating of schoolwork difficulty on a 0 (more difficult)- 10 (less difficult) scale across days. The closed circles are the weekday responses and the open circles are the weekend probes. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

Figure 10

Number of Hours Studying



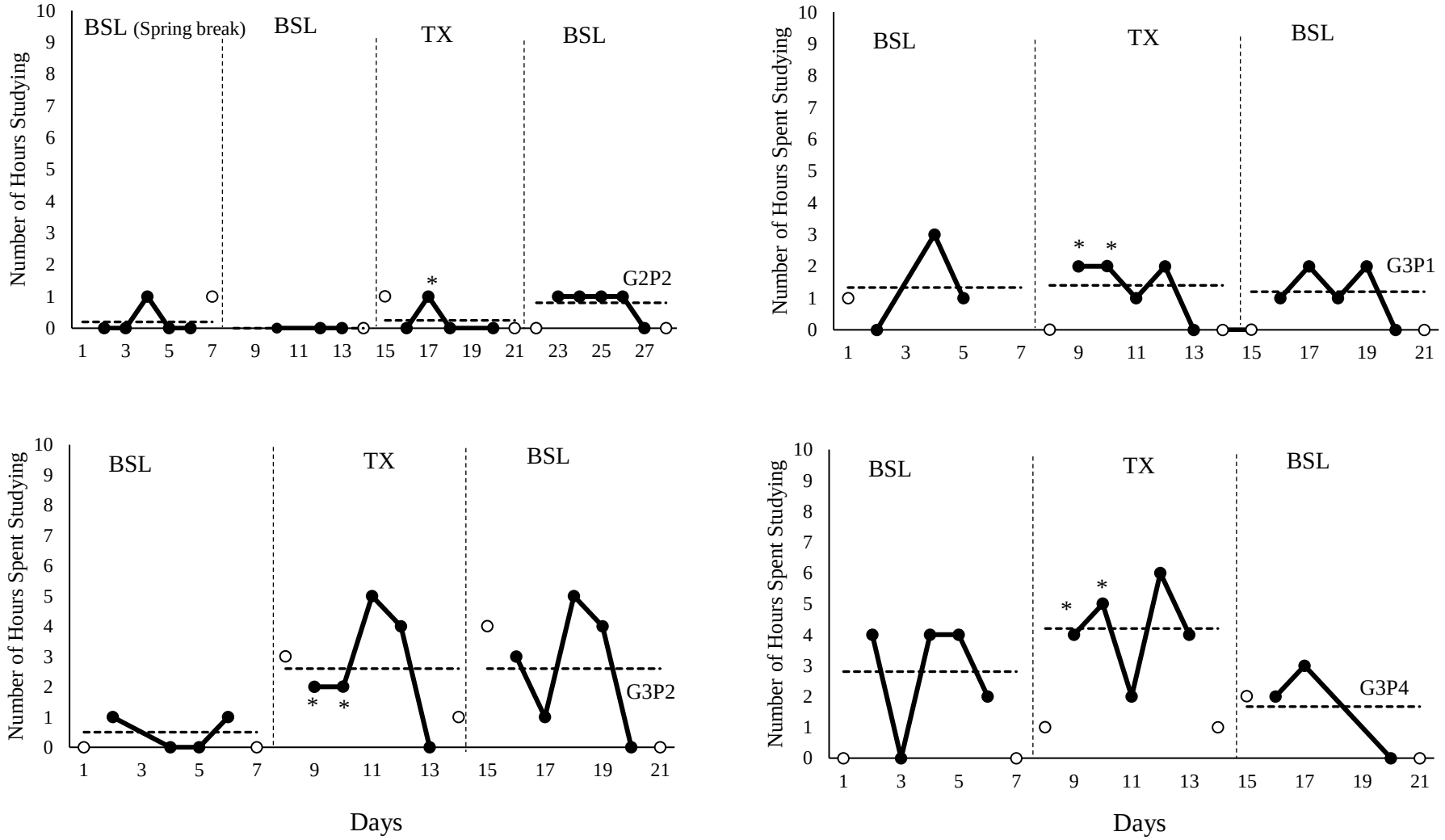
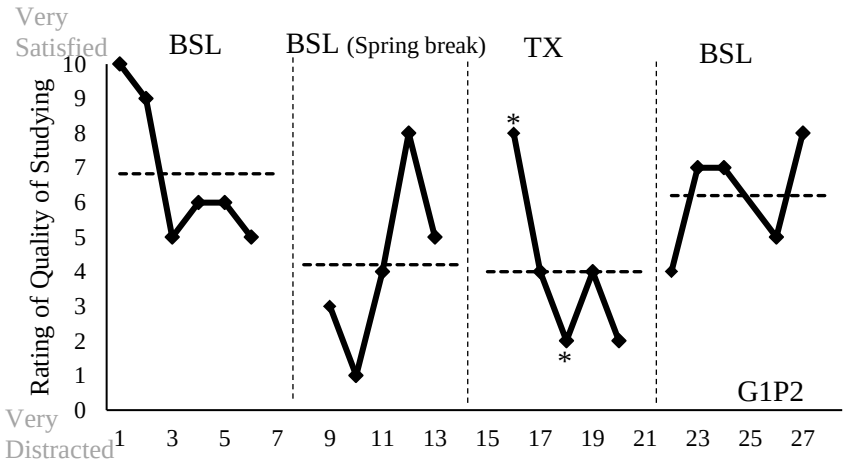
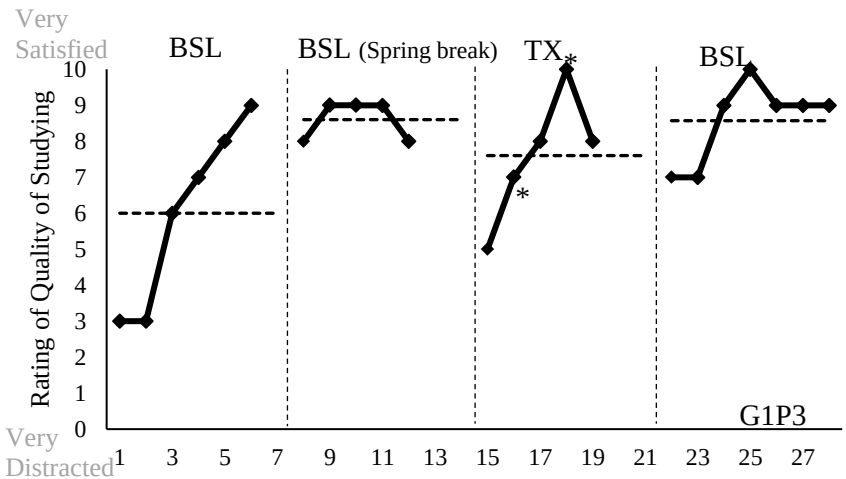


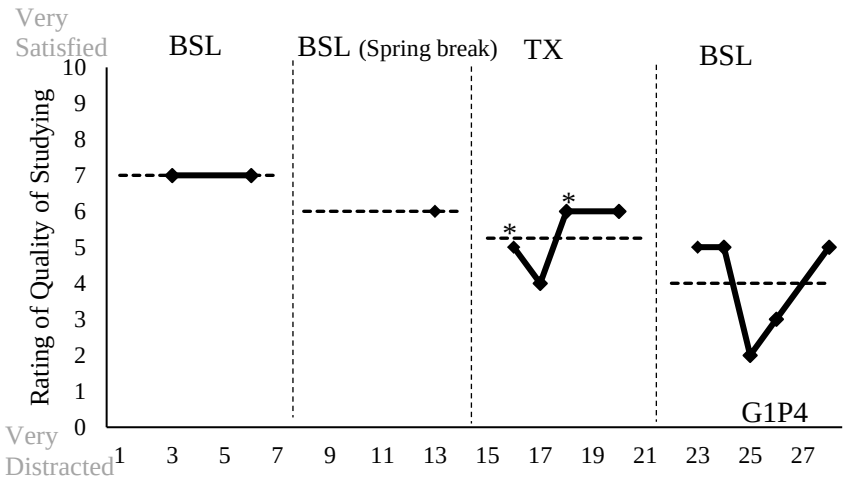
Figure 10. These figures depict the number of hours spent studying reported across days. The closed circles are the weekday responses and the open circles are the weekend probes. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

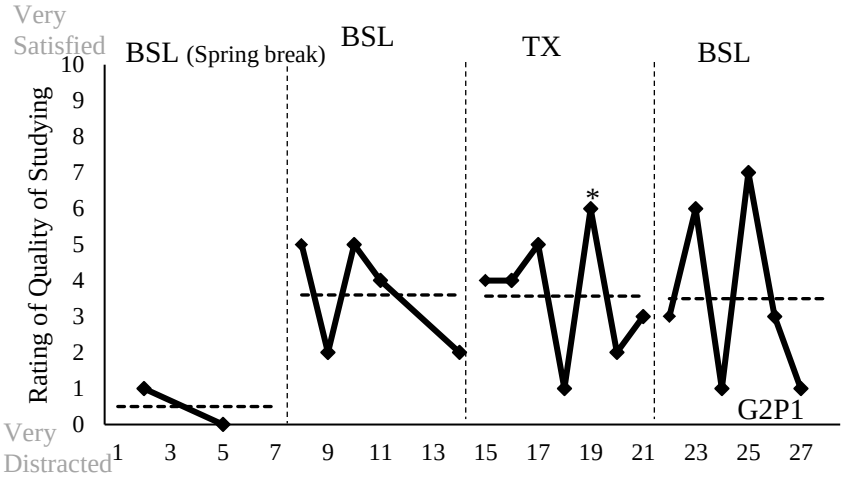
Figure 11

Quality of Studying









Days

Days

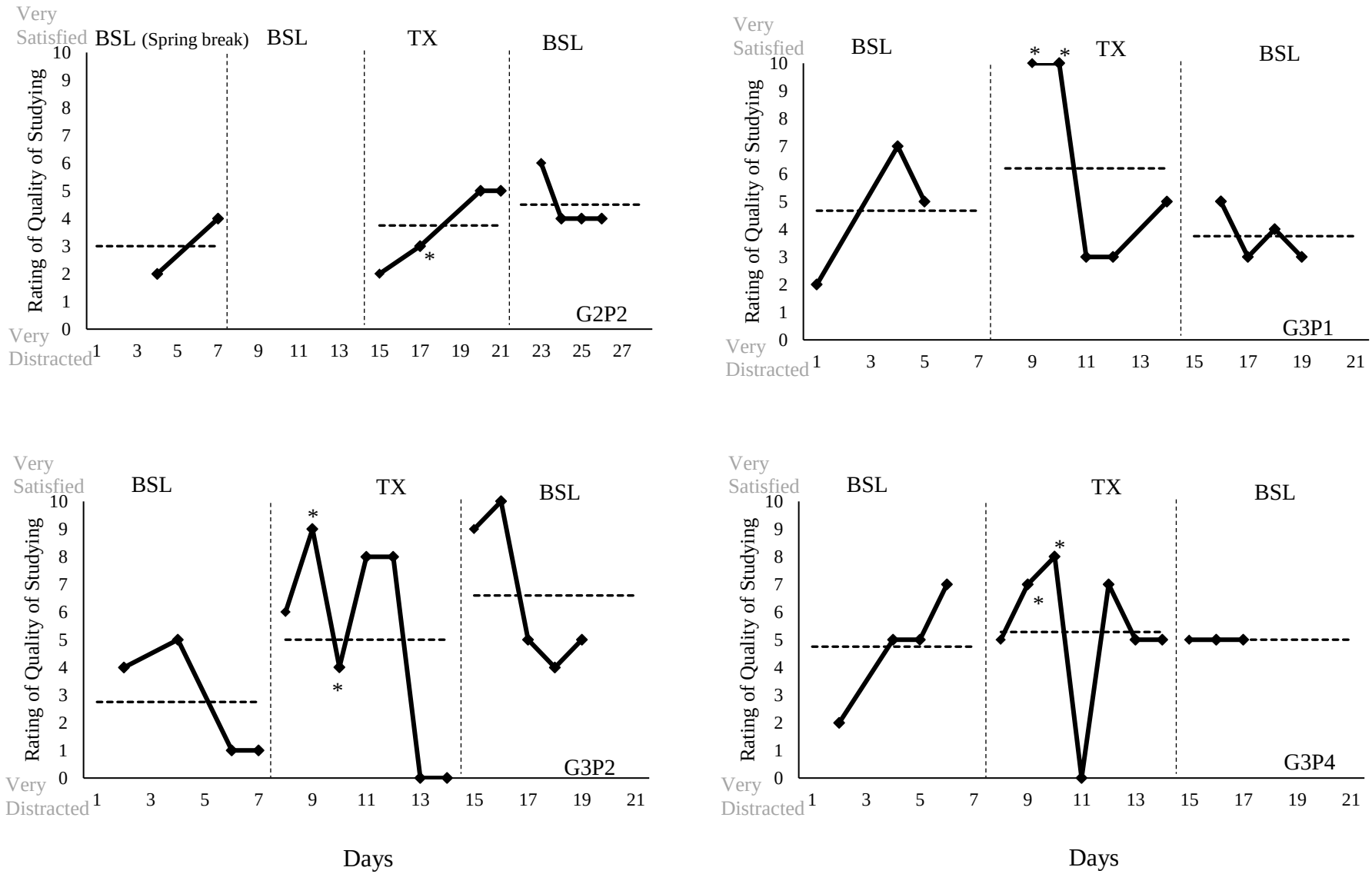
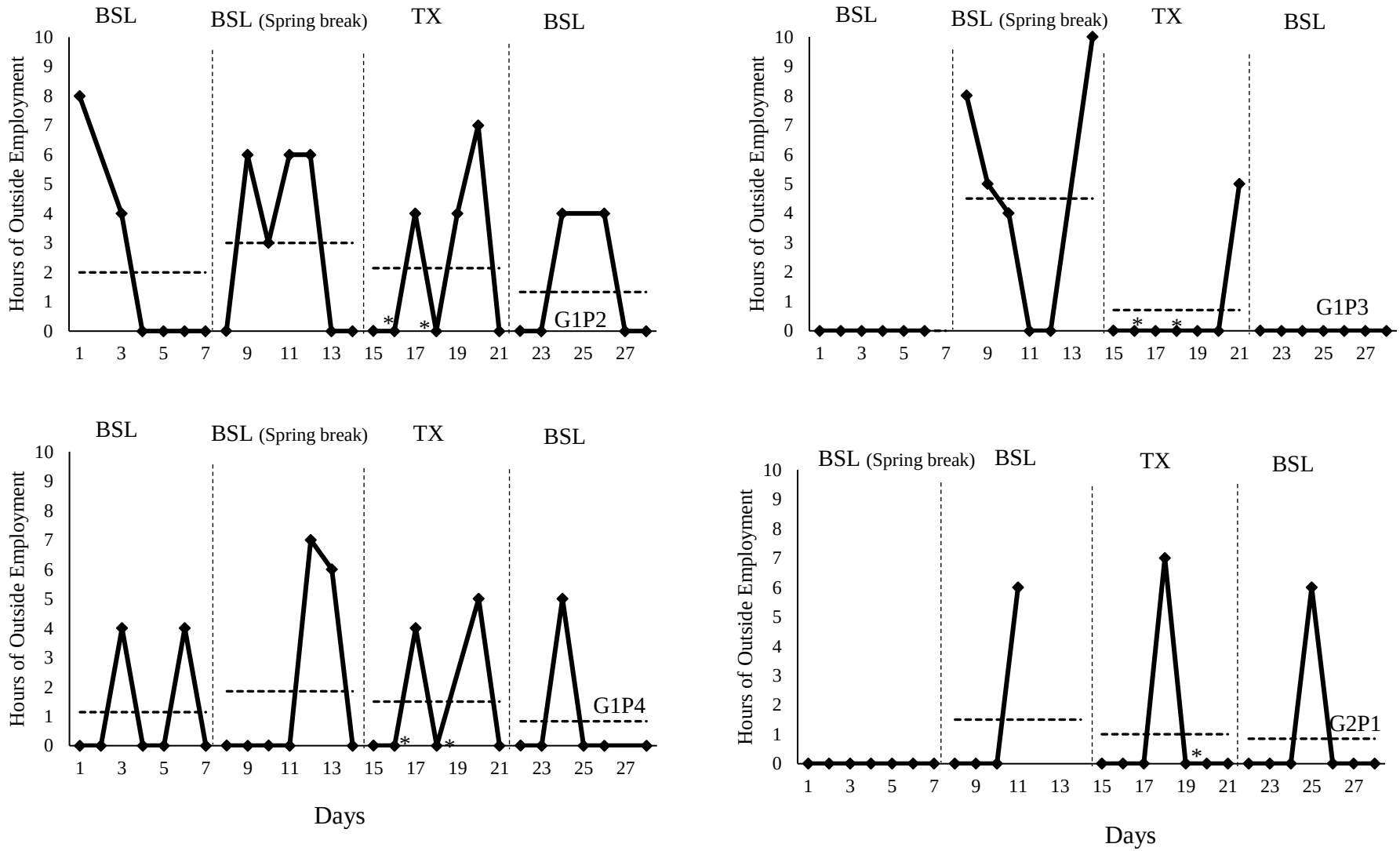


Figure 11. These figures depict the rating of quality of studying on a 0 (very distracted)- 10 (very satisfied) scale across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

Figure 12

Hours of Outside Employment



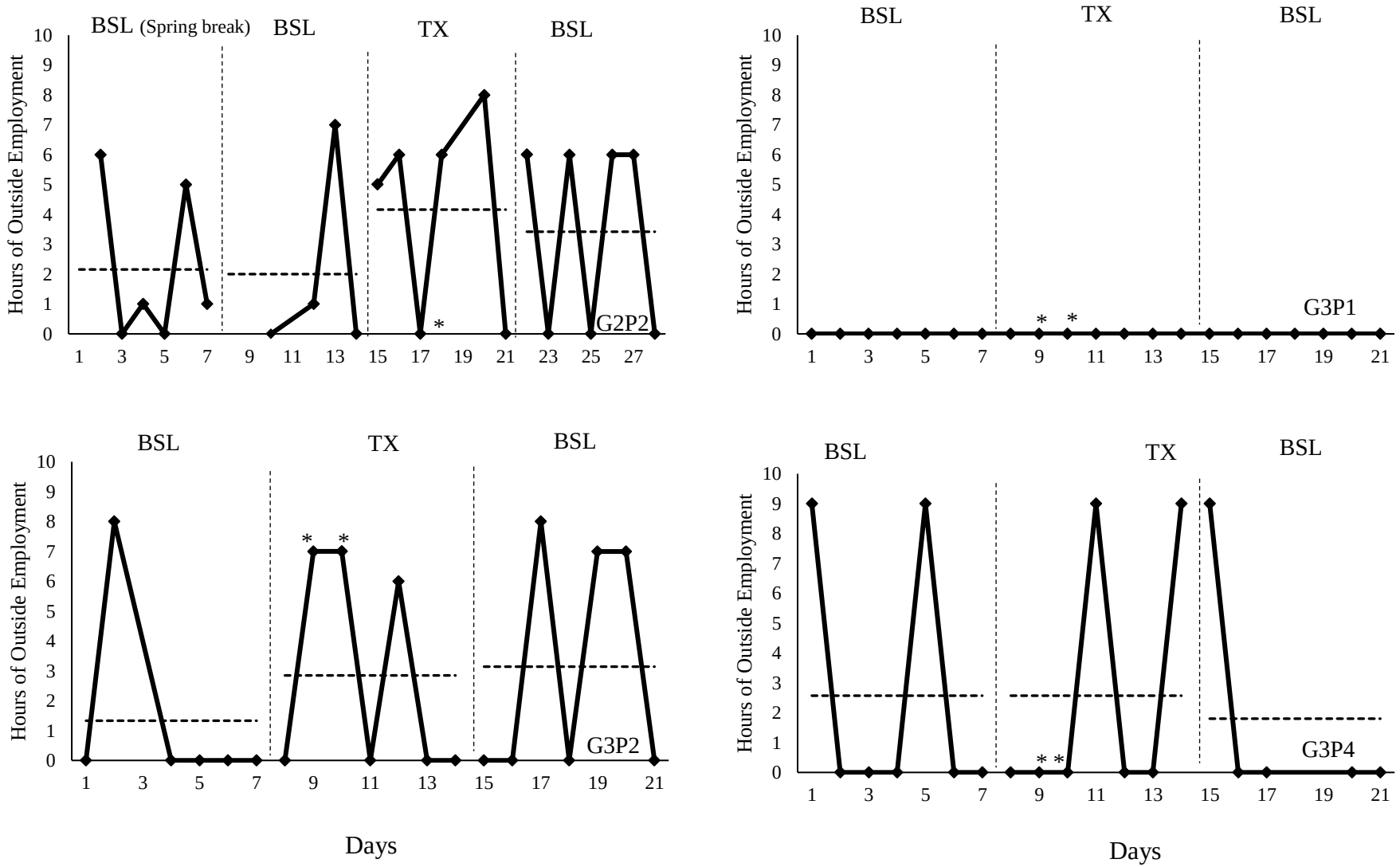


Figure 12. These figures depict the number of hours worked in outside employment across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

Figure 13

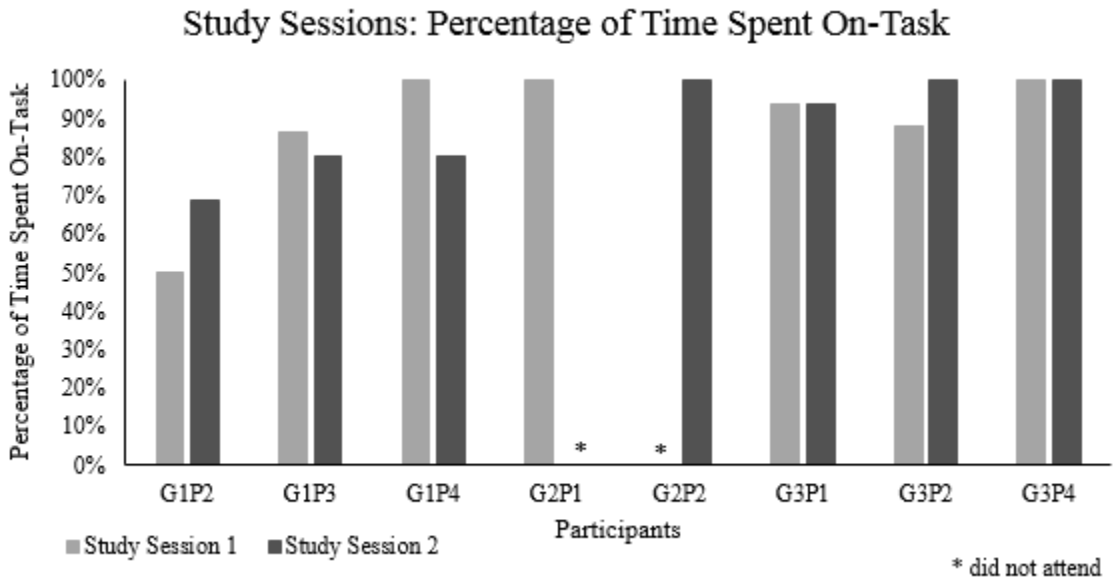
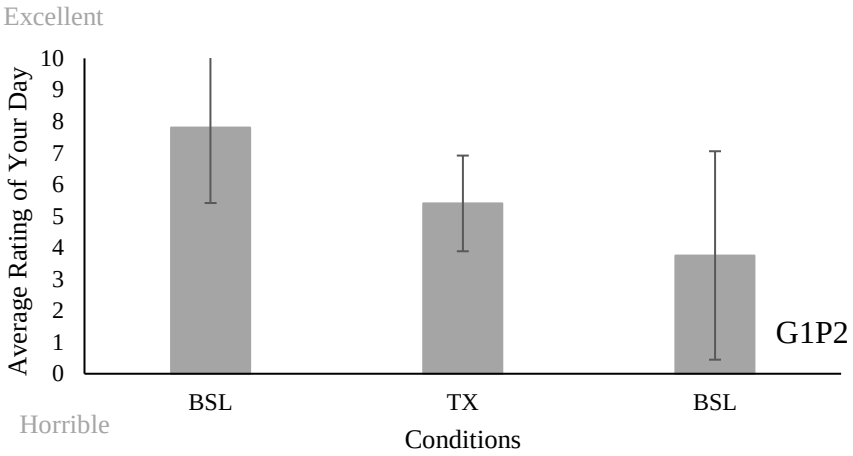
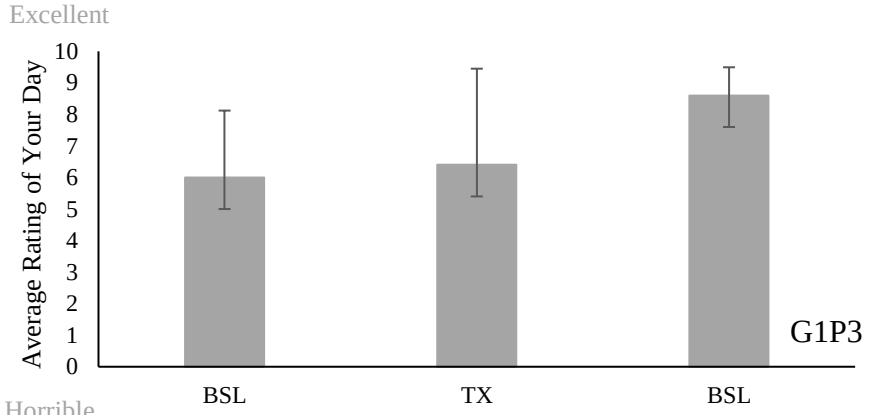


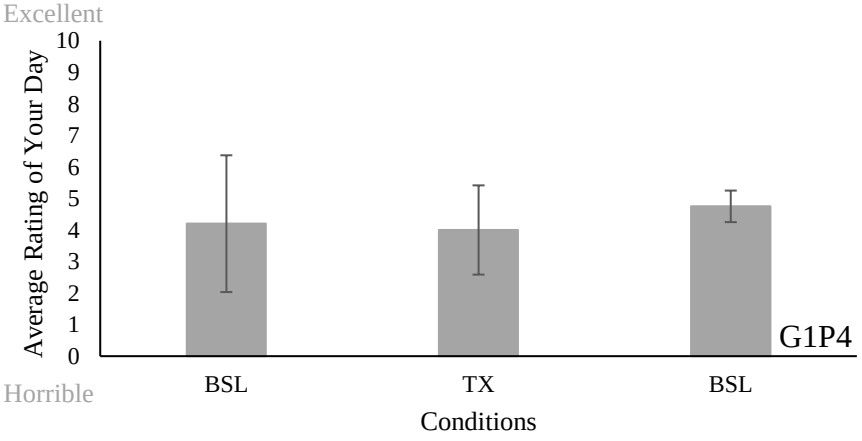
Figure 13. This figure shows the percentage of time spent on task during each study session for all participants of all three groups. The asterisks represents students who did not attend that study session.

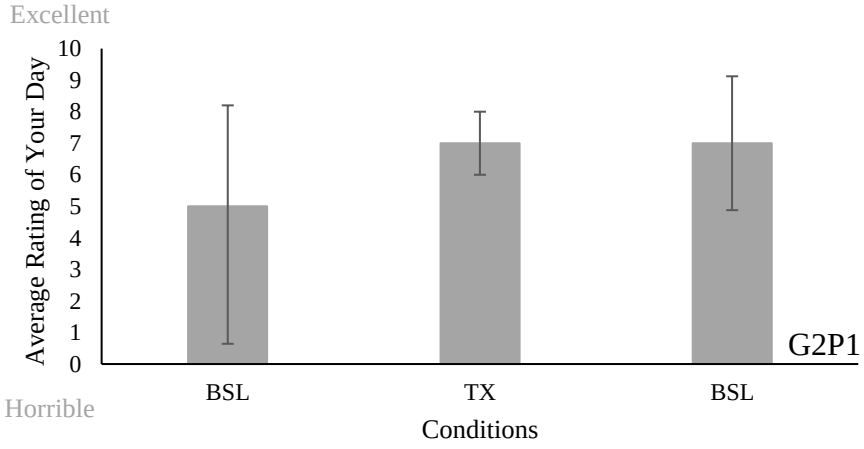
Figure 14

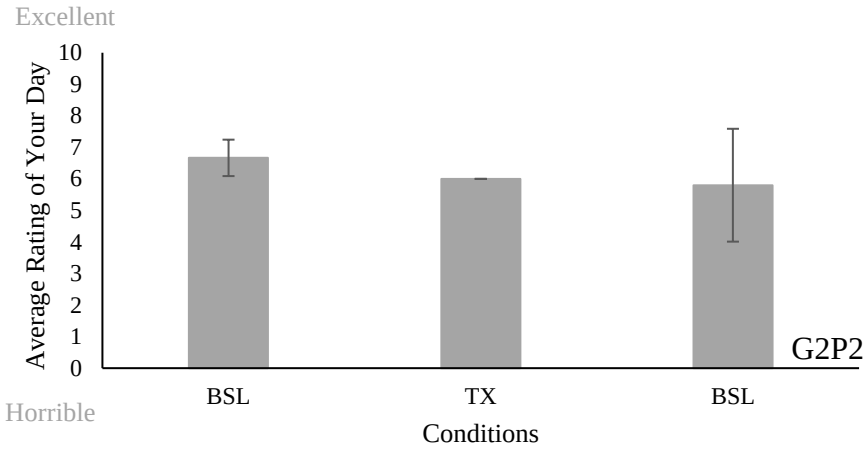
Rating of Day

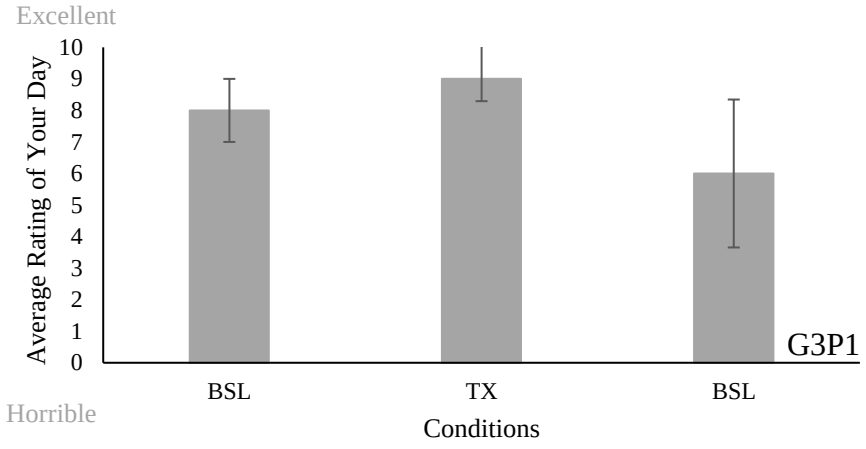


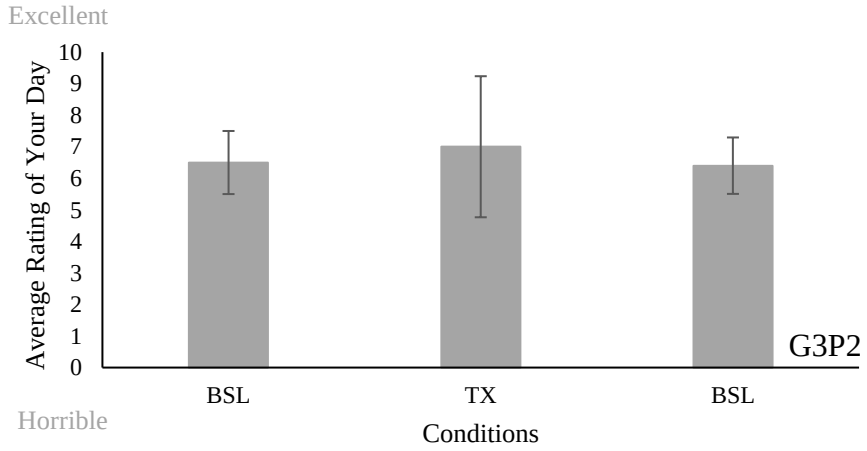












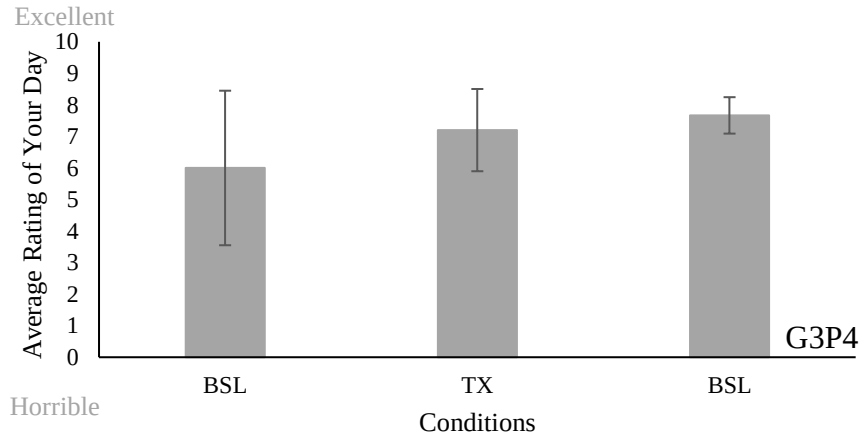
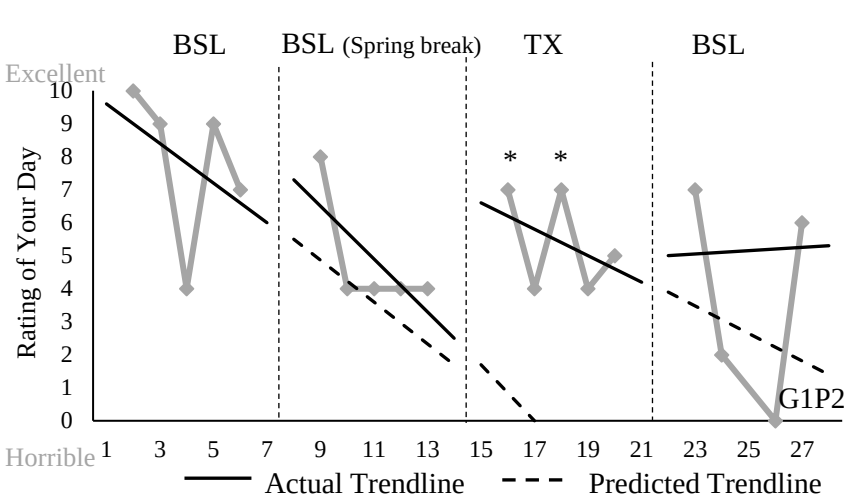
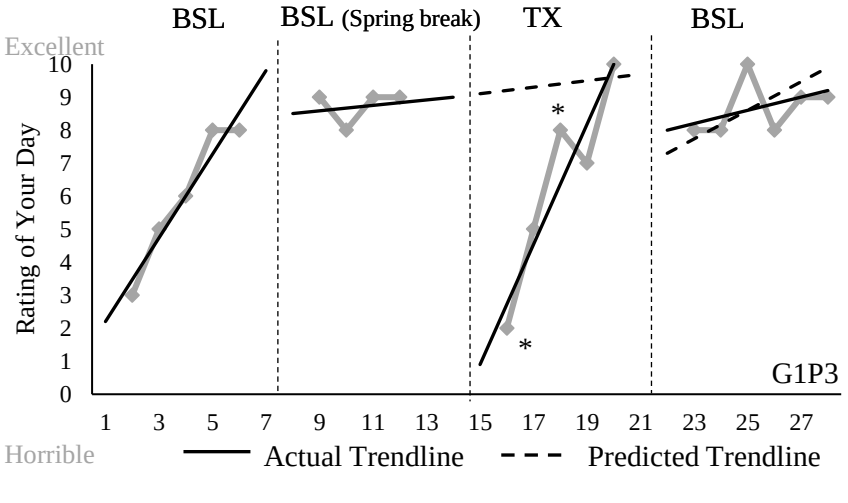


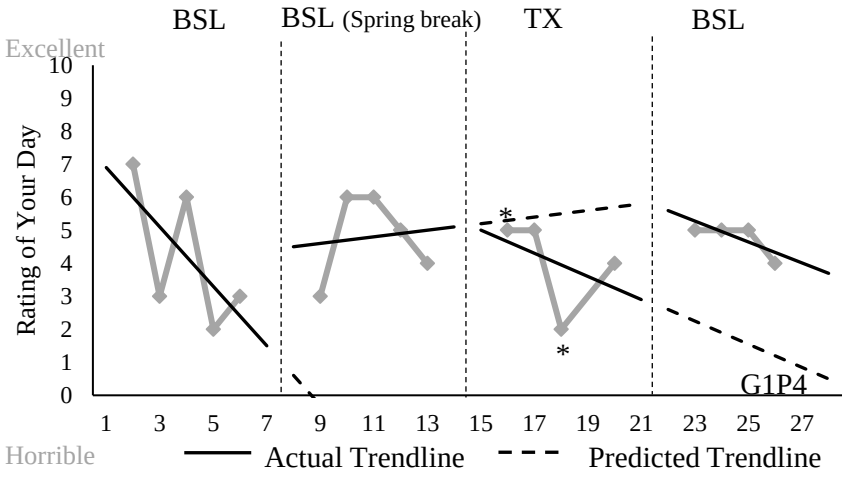
Figure 14. These figures depict the participants' average rating of their day across phases. Spring break is not included within these graphs. The error bars show one standard deviation for each phase both positive and negative. The code on the lower right of each graph explains the group number and participant number within that group.

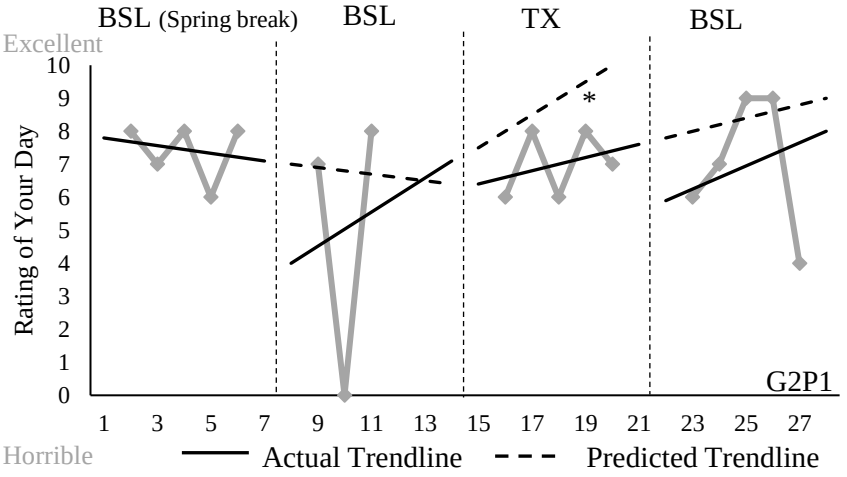
Figure 15

Rating of Day









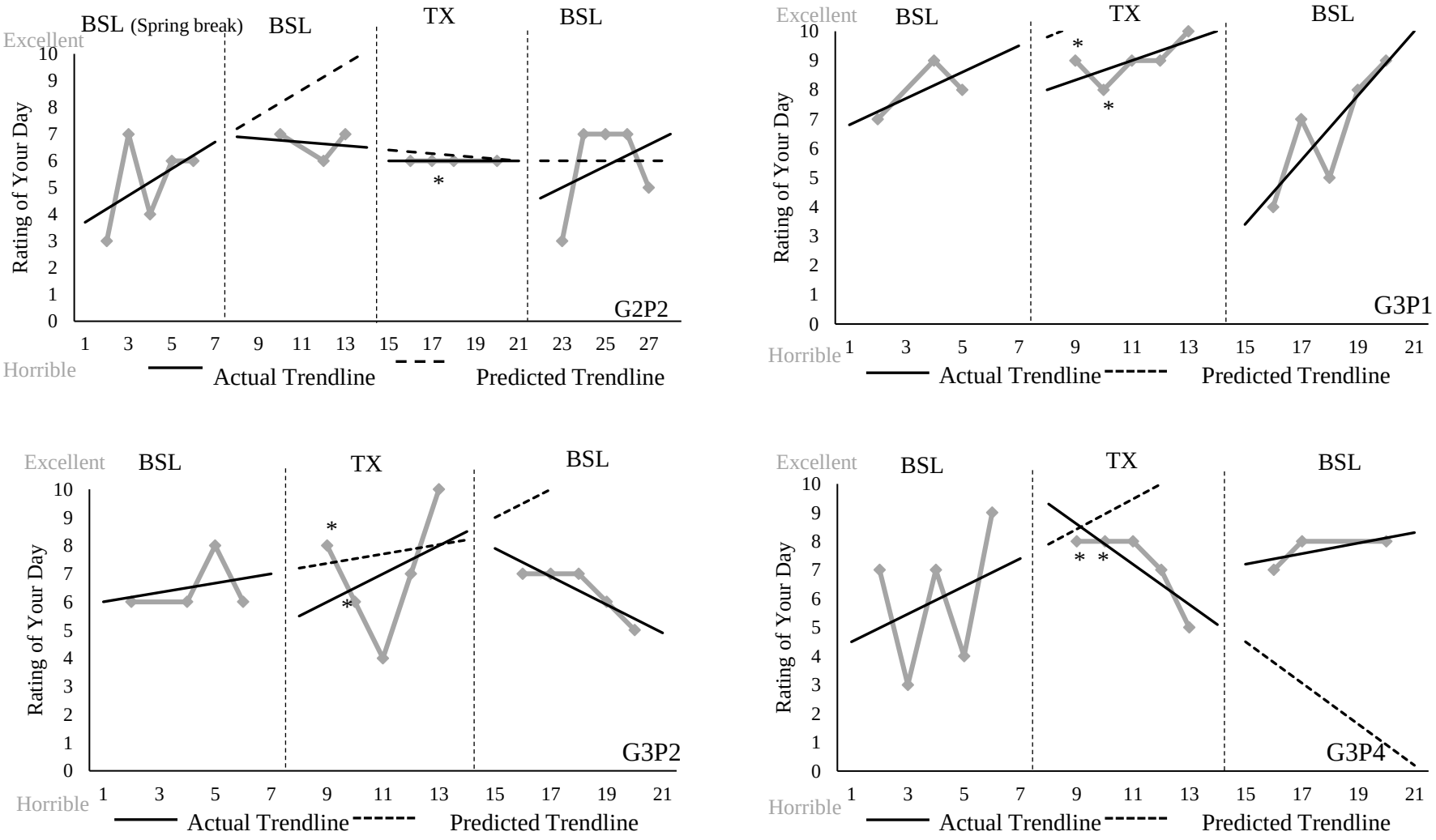
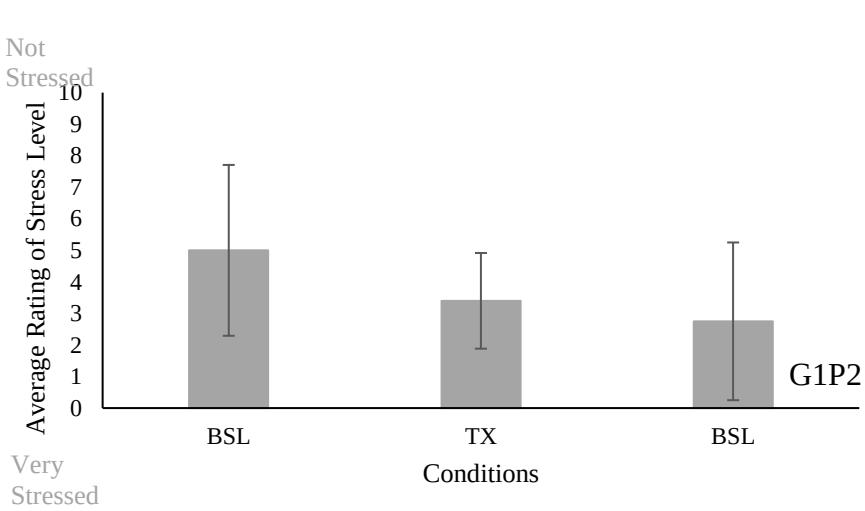
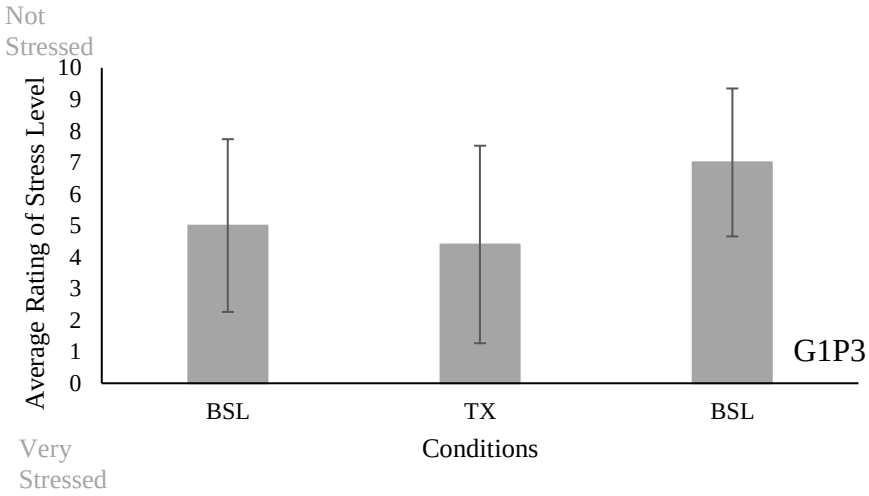


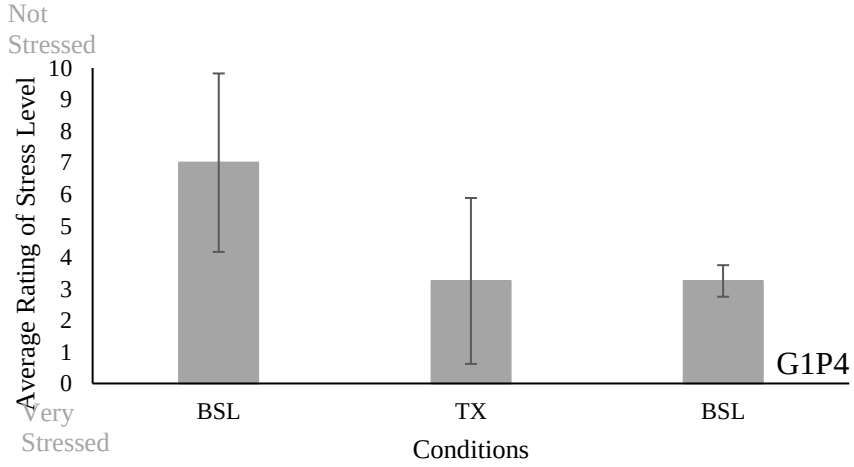
Figure 15. These figures depict the actual (solid black line) and predicted trend lines (dashed black line) for participants' rating of their day. The grey line represents the week day responses only. The code on the lower right of each graph explains the group number and participant number within that group.

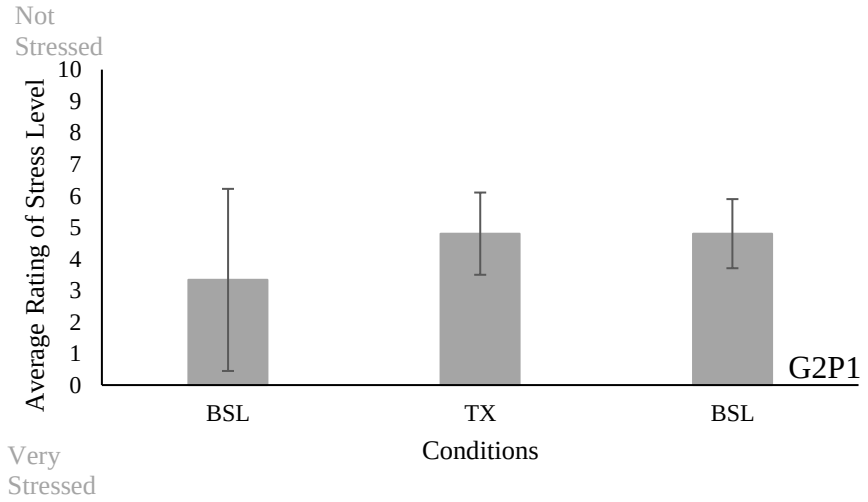
Figure 16

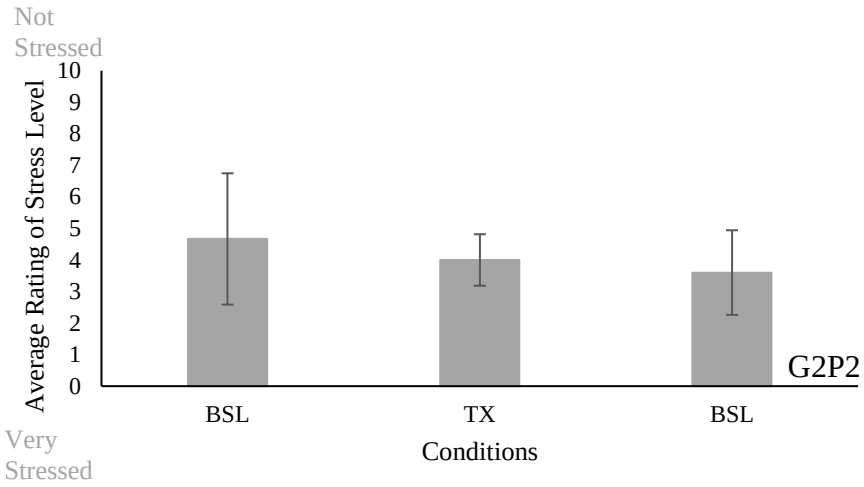
Stress Rating

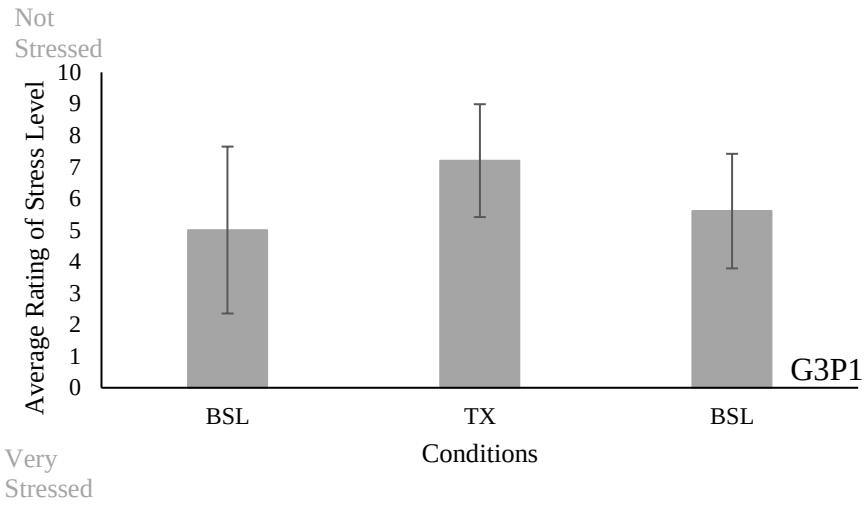


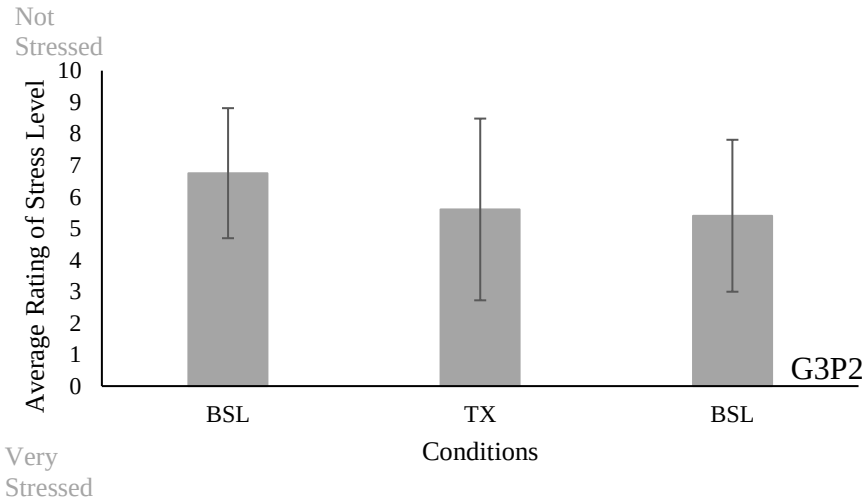







Not Stressed
Average Rating of Stress Level
10
9
8
7
6
5
4
3
2
1
0
BSL
TX
BSL
Conditions
Very Stressed
G2P2


Not Stressed
Average Rating of Stress Level
10
9
8
7
6
5
4
3
2
1
0
BSL
TX
BSL
Conditions
Very Stressed
G3P1


Not Stressed
Average Rating of Stress Level
10
9
8
7
6
5
4
3
2
1
0
BSL
TX
BSL
Conditions
Very Stressed
G3P2

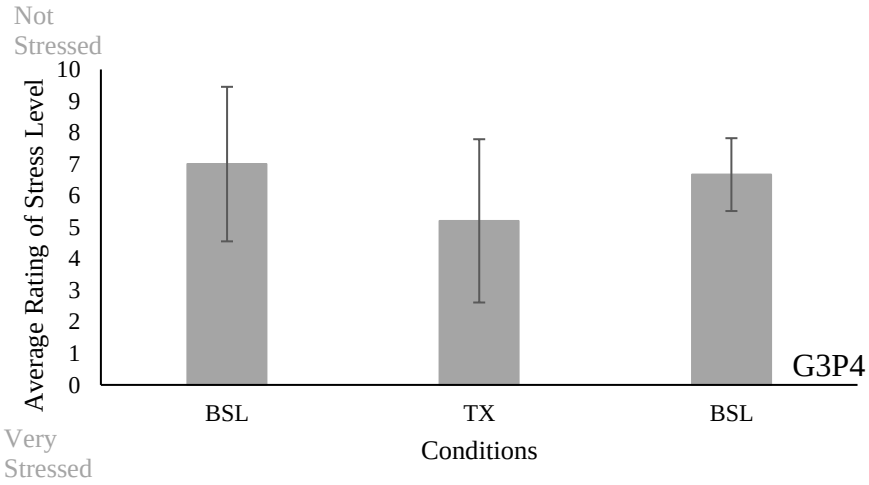
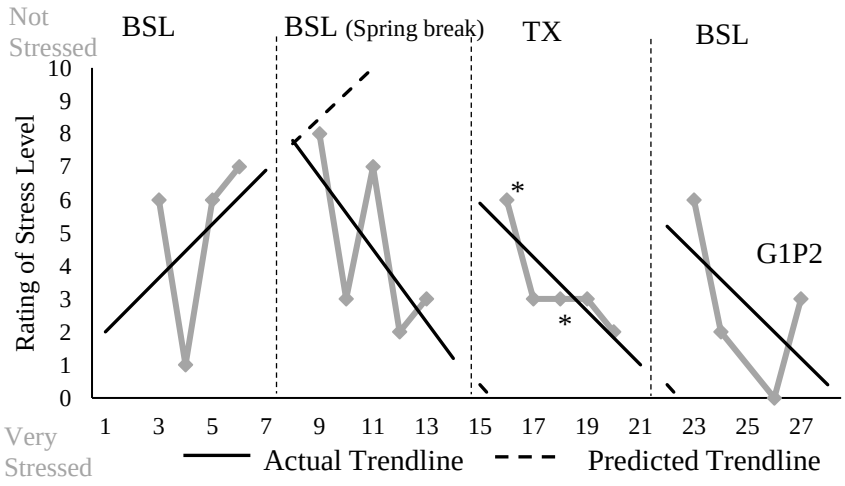
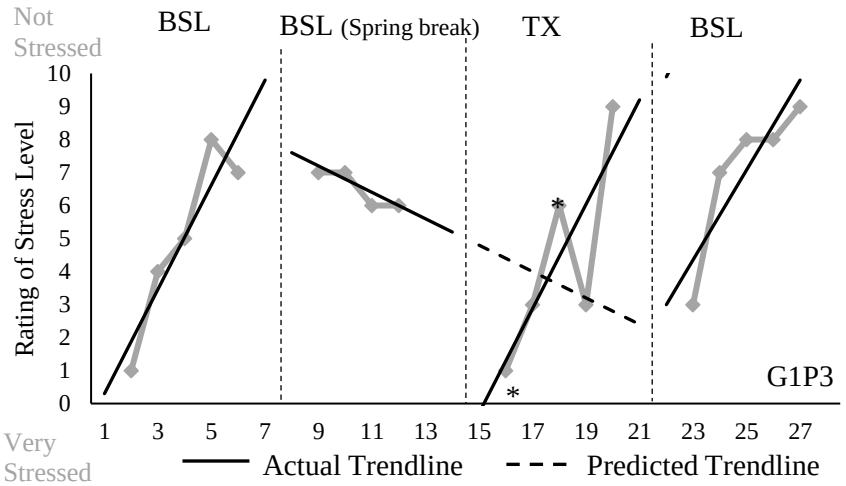
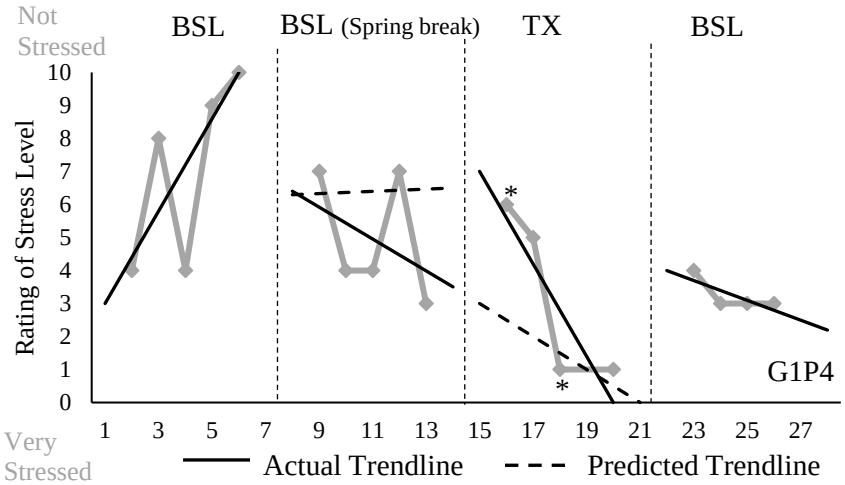

Not Stressed
Average Rating of Stress Level
10
9
8
7
6
5
4
3
2
1
0
BSL
TX
BSL
Conditions
Very Stressed
G3P4

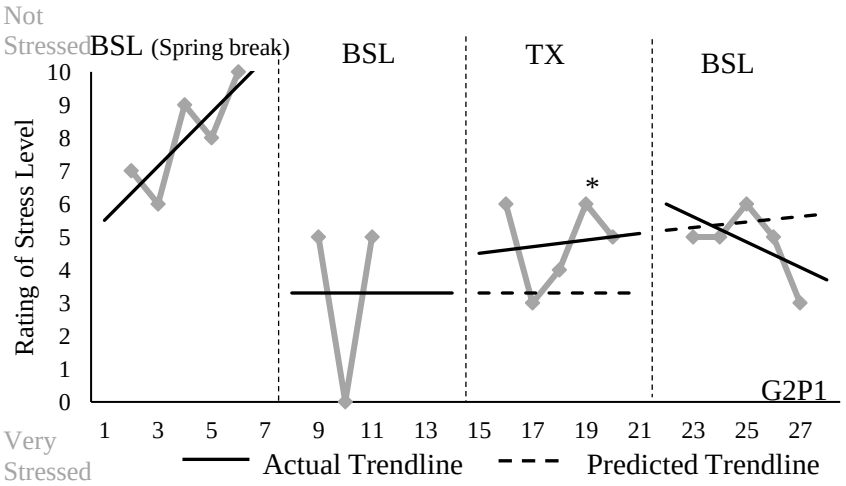
Figure 17

Stress Level









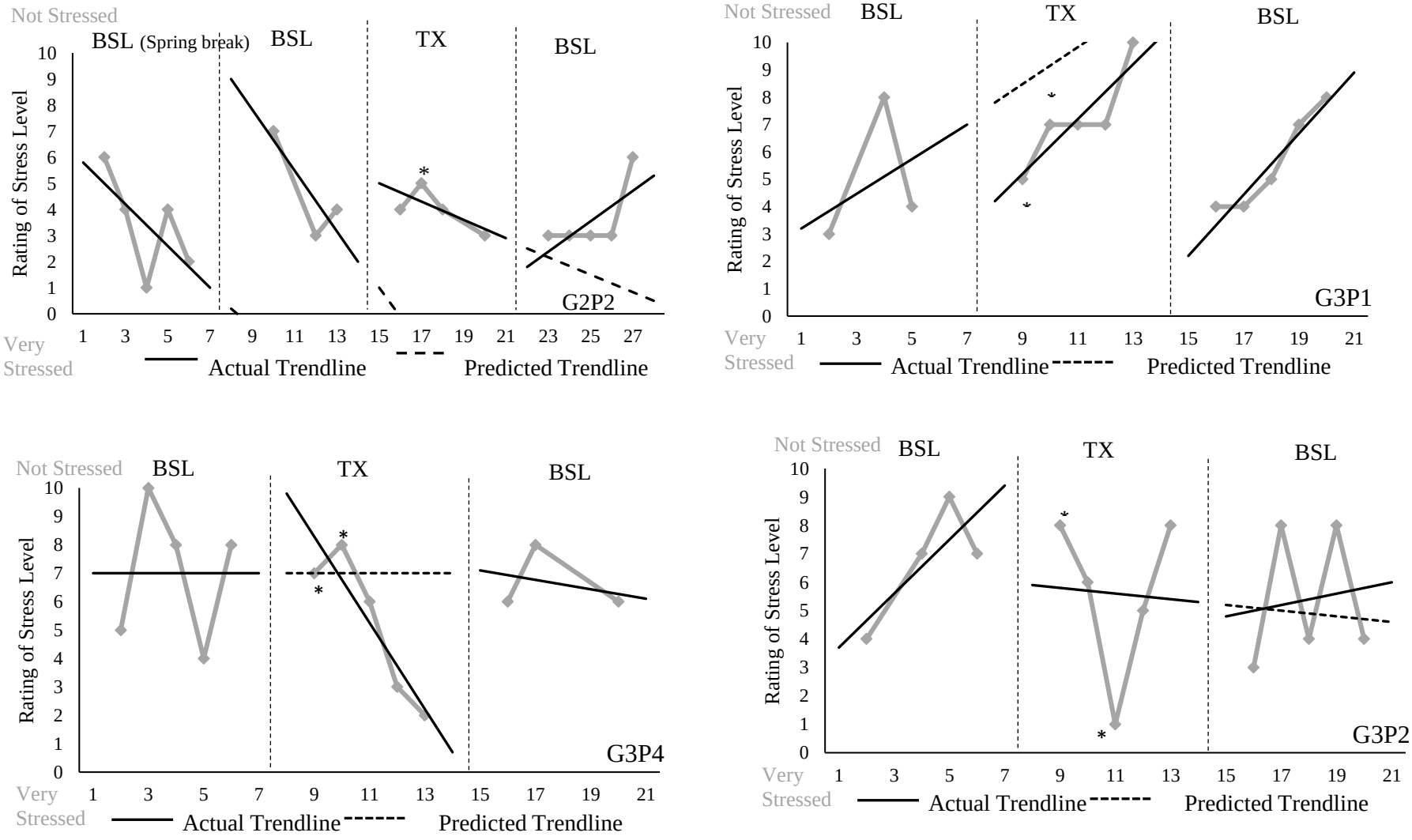
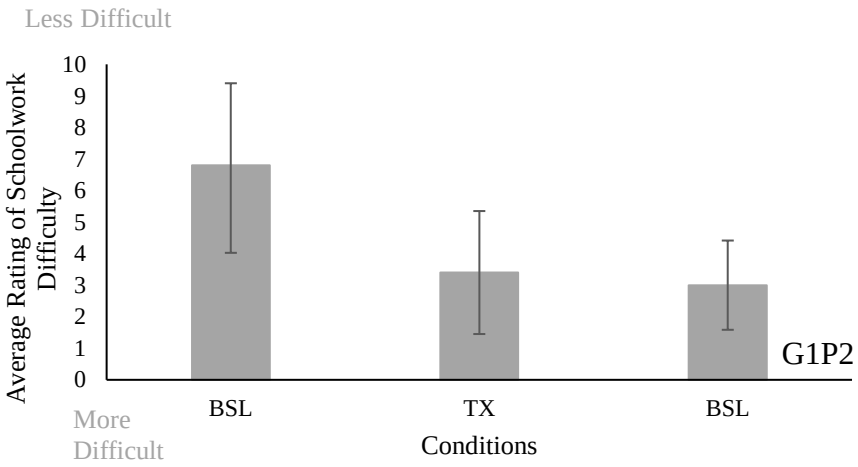
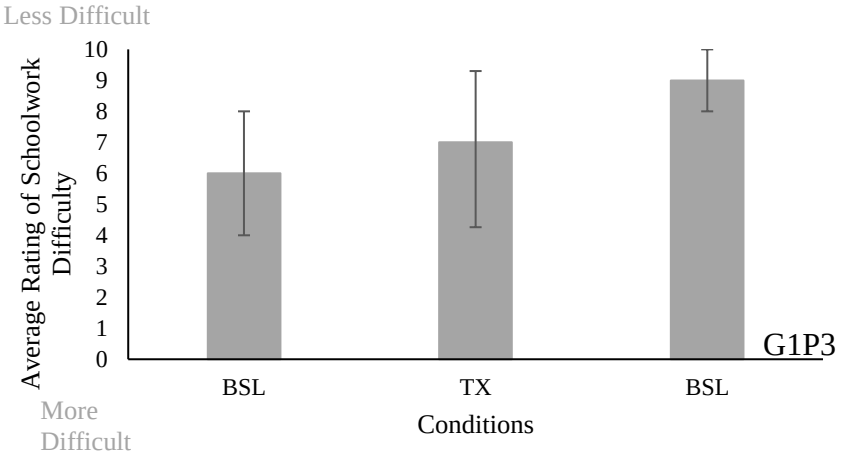


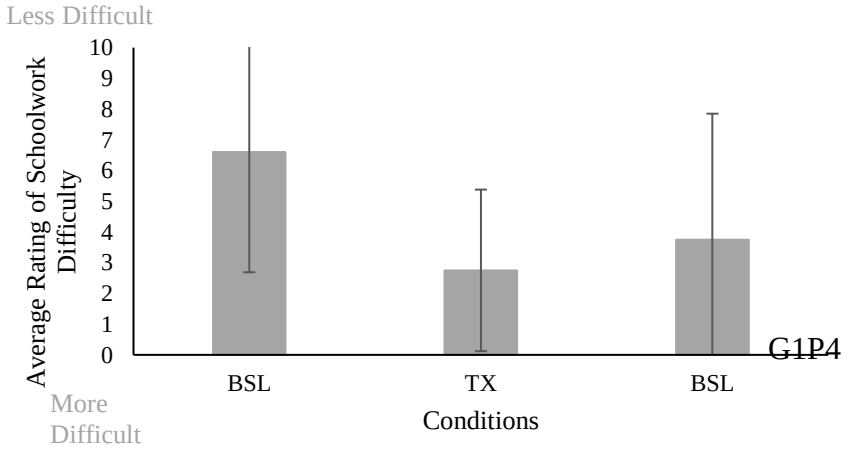
Figure 17. These figures depict the actual (solid black line) and predicted trend lines (dashed black line) for participants' rating of their stress level. The grey line represents the week day responses only. The code on the lower right of each graph explains the group number and participant number within that group.

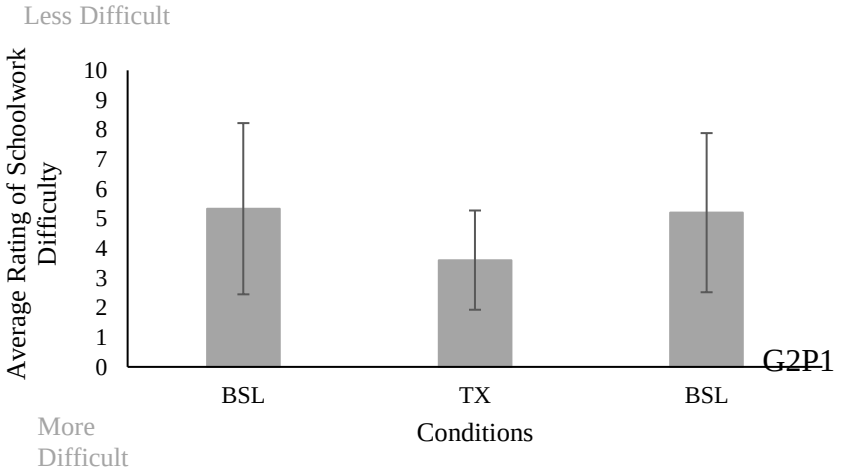
Figure 18

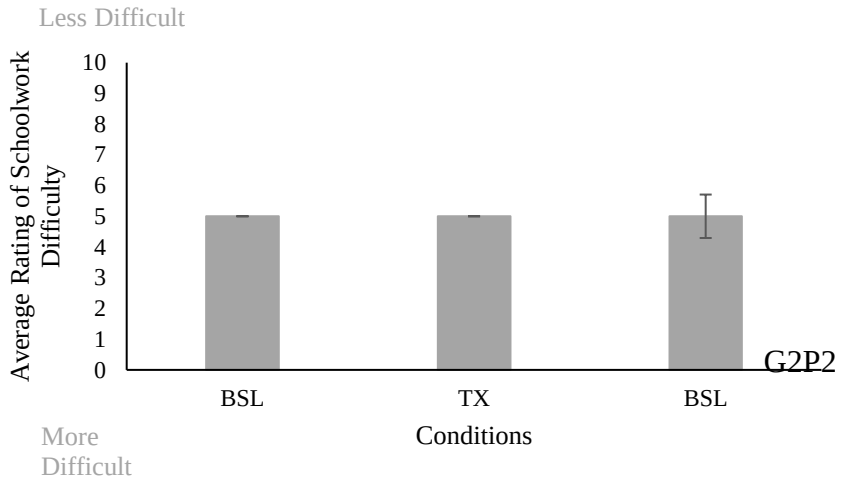
Schoolwork Difficulty

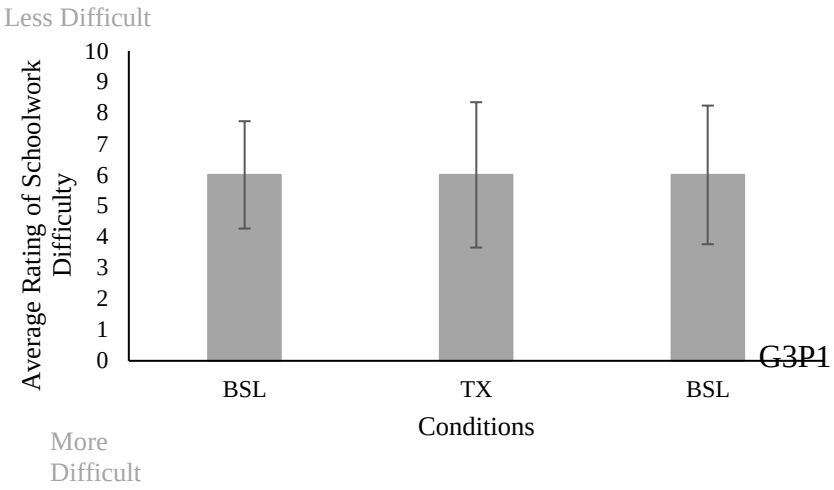


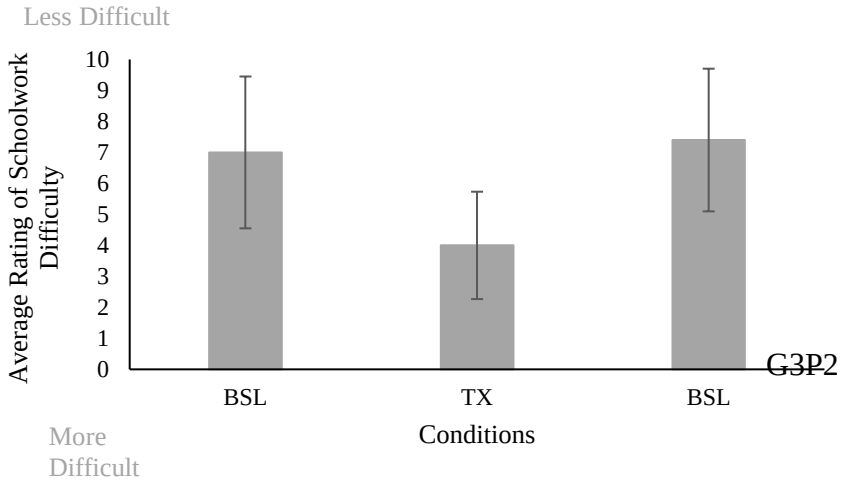












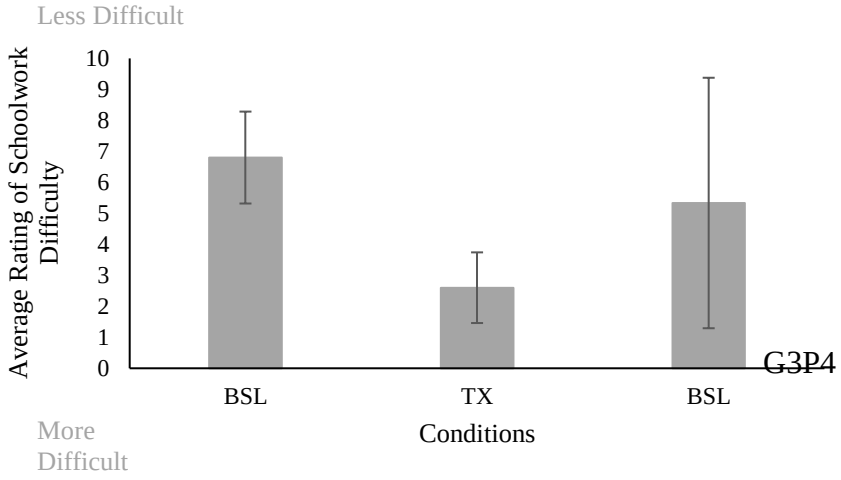
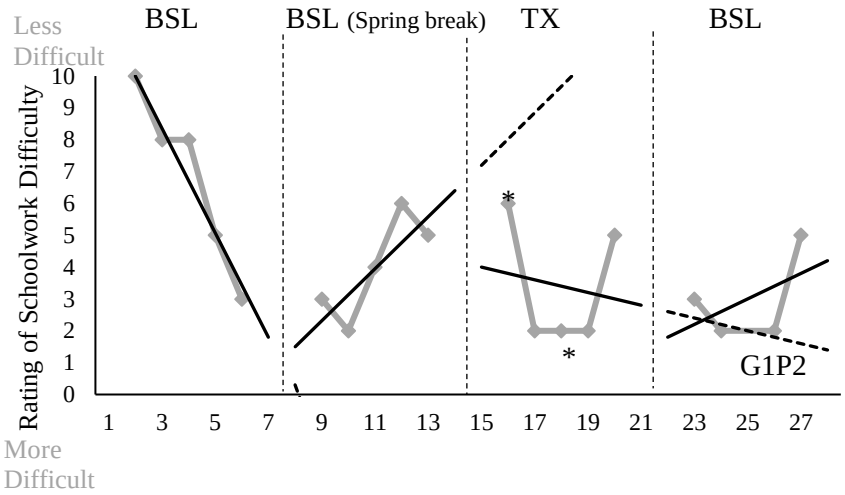
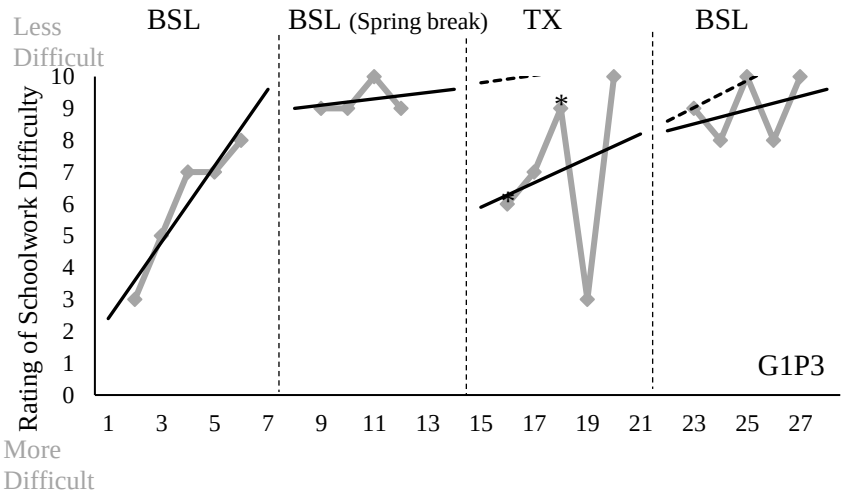


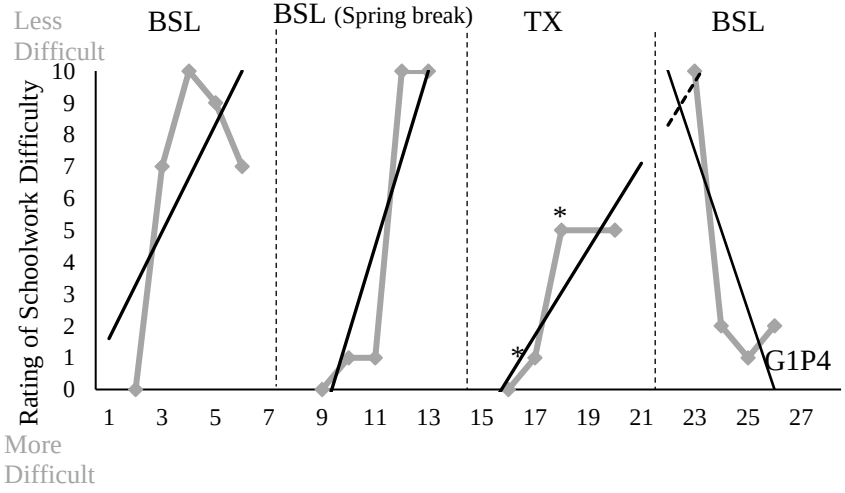
Figure 18. These figures depict the participants' average rating of difficulty of schoolwork across phases. Spring break is not included within these graphs. The error bars show one standard deviation for each phase both positive and negative. The code on the lower right of each graph explains the group number and participant number within that group.

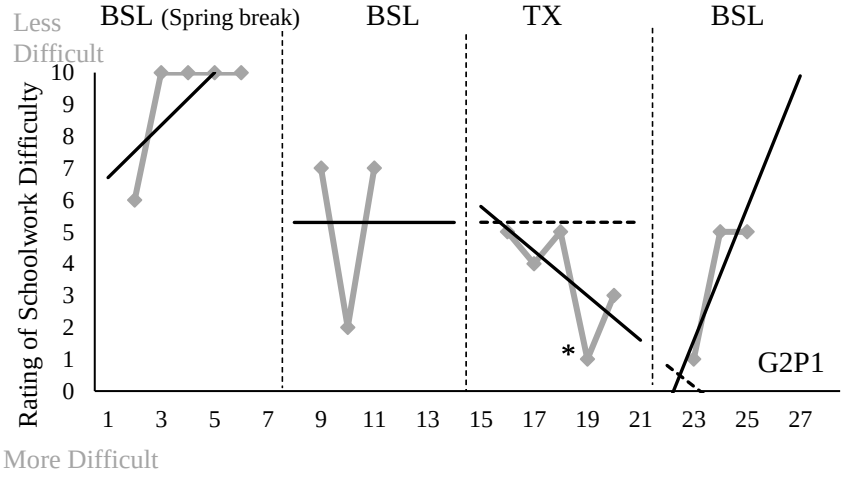
Figure 19

Schoolwork Difficulty









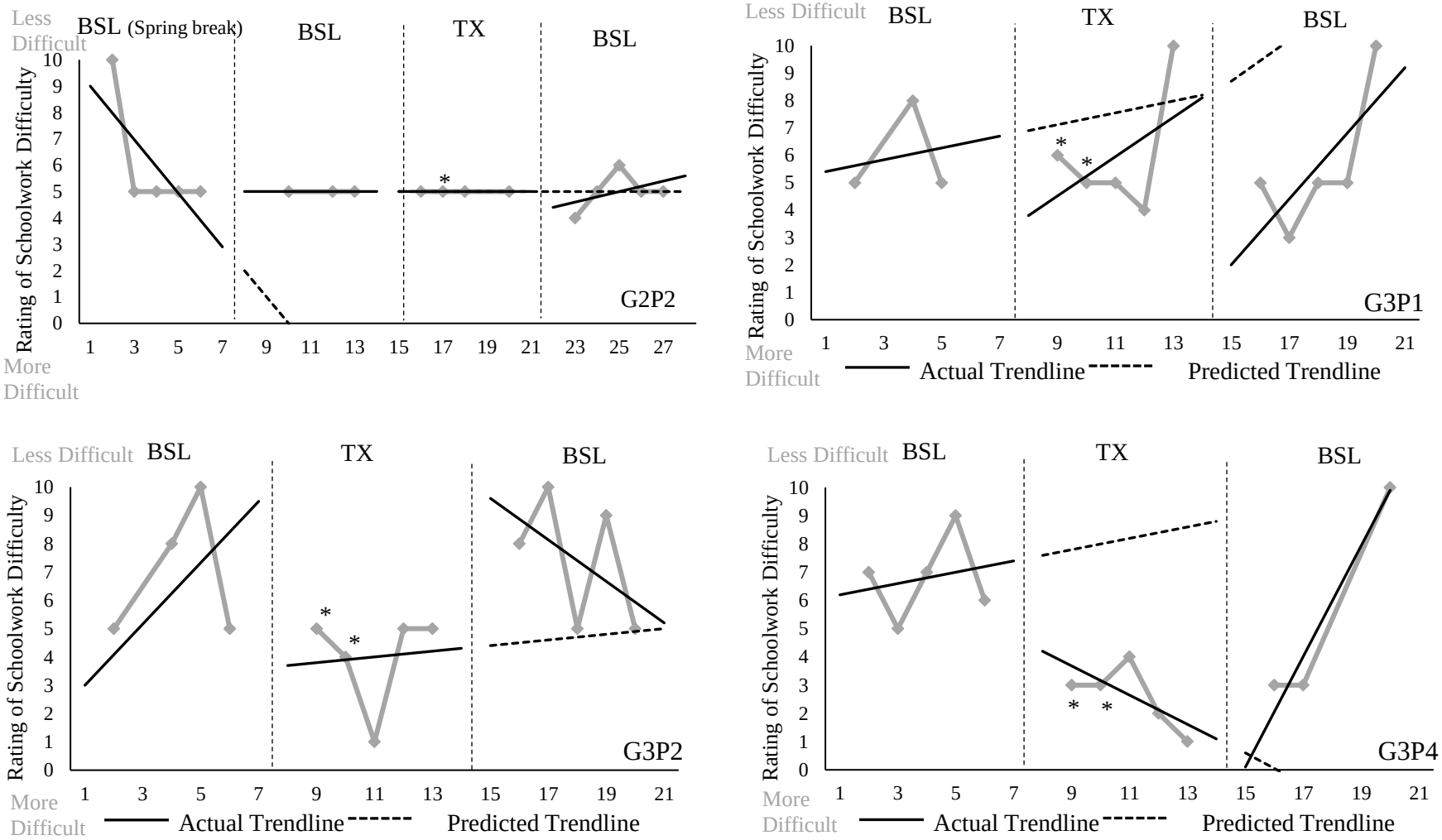
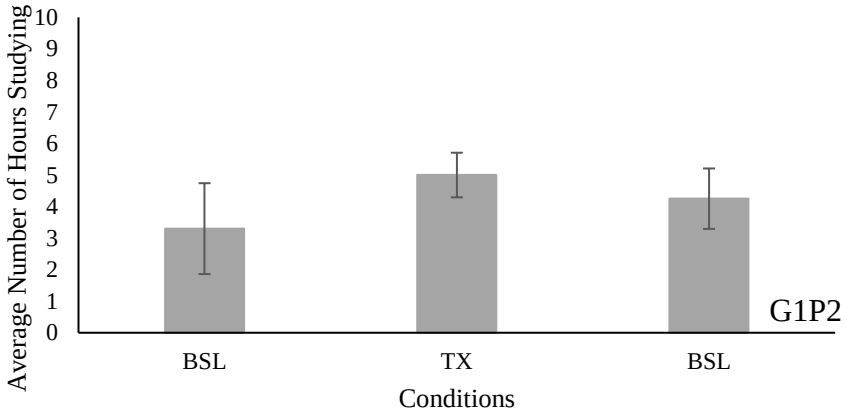
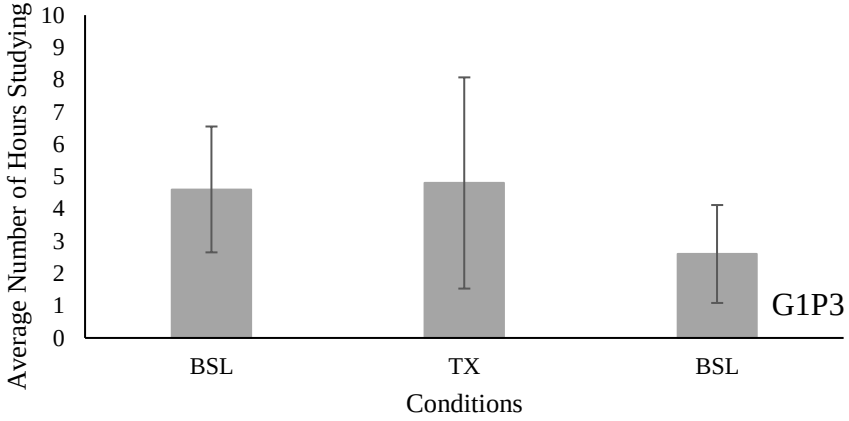


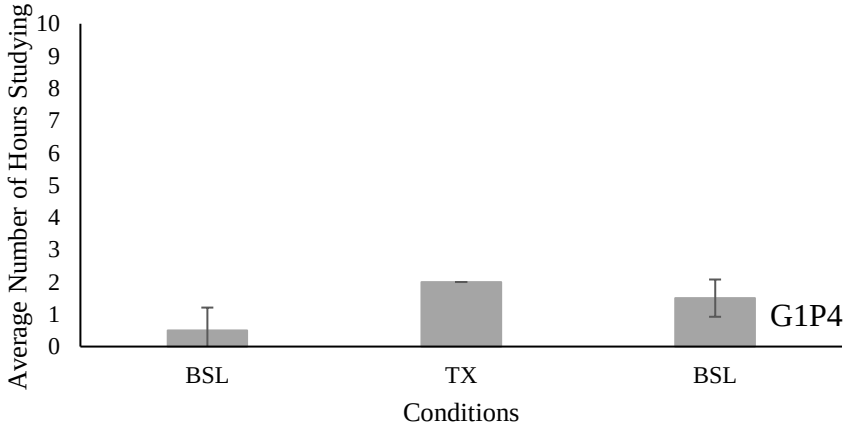
Figure 19. These figures depict the actual (solid black line) and predicted trend lines (dashed black line) for participants' rating of the difficulty of their schoolwork. The grey line represents the week day responses only. The code on the lower right of each graph explains the group number and participant number within that group.

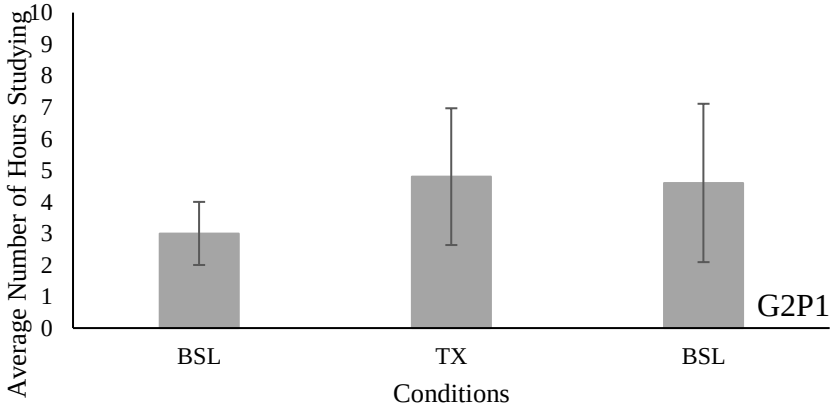
Figure 20

Hours Spent Studying









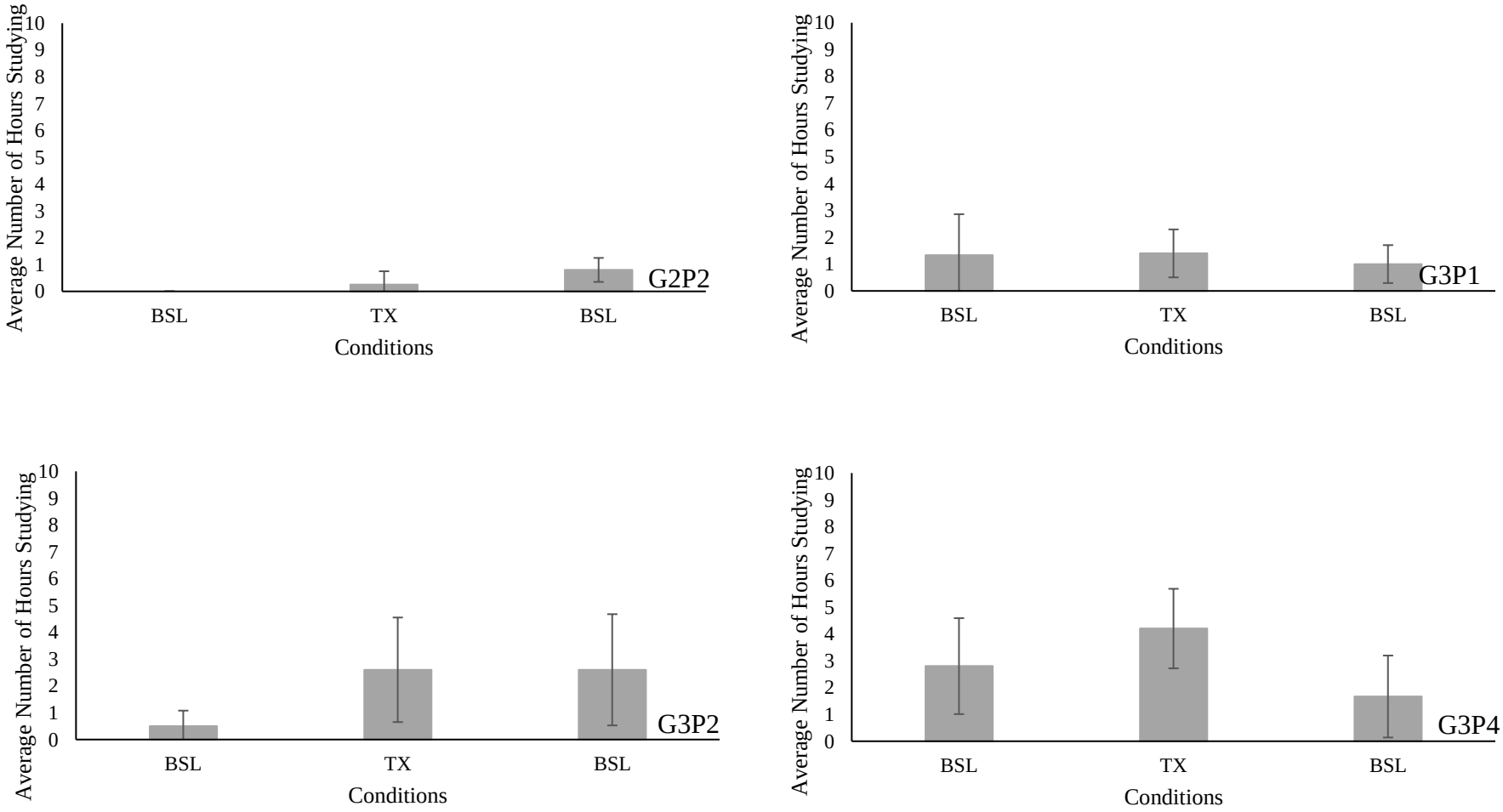
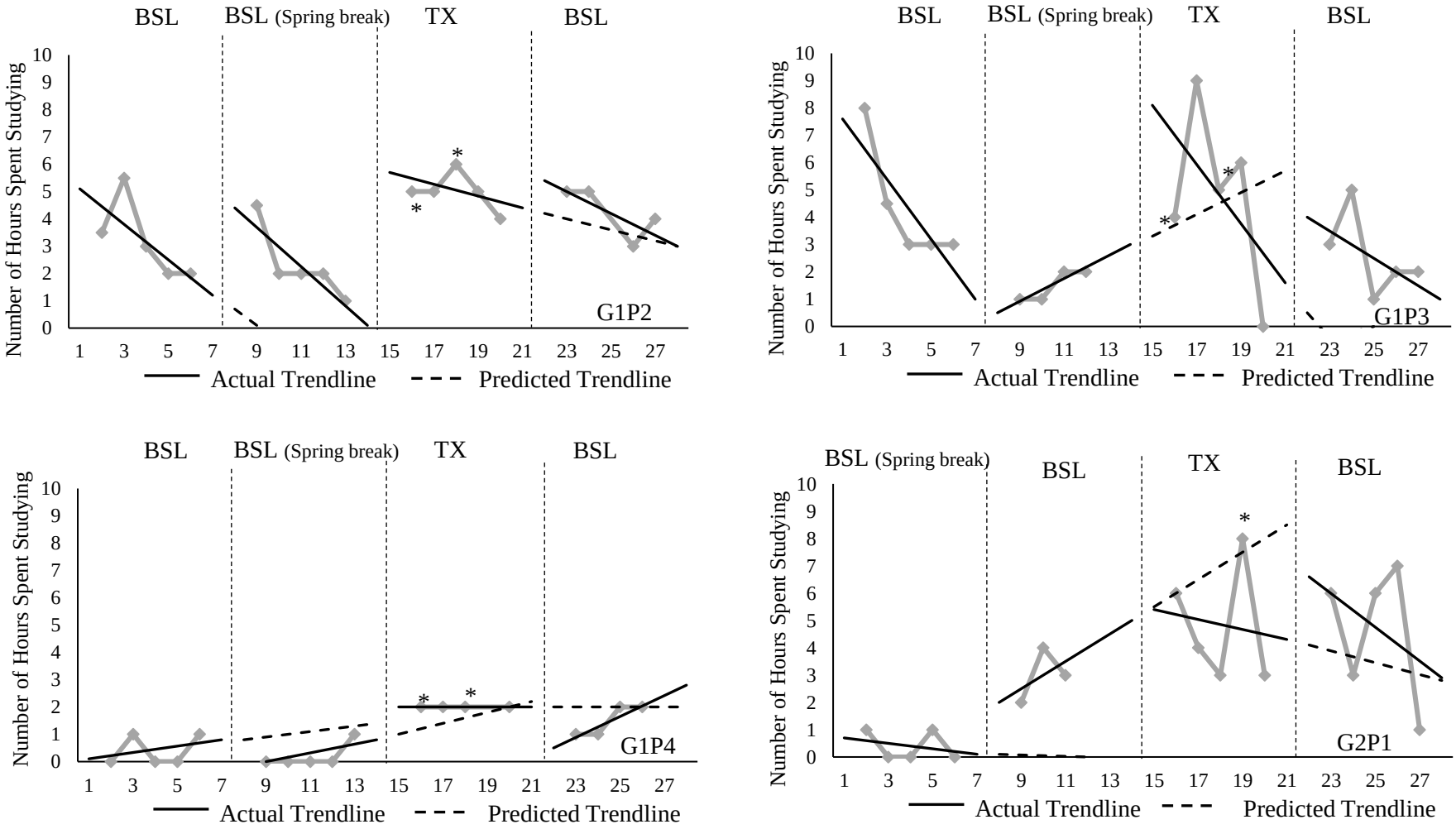


Figure 20. These figures depict the participants' average number of hours spent studying reported across phases. Spring break is not included within these graphs. The error bars show one standard deviation for each phase both positive and negative. The code on the lower right of each graph explains the group number and participant number within that group.

Figure 21

Hours Spent Studying



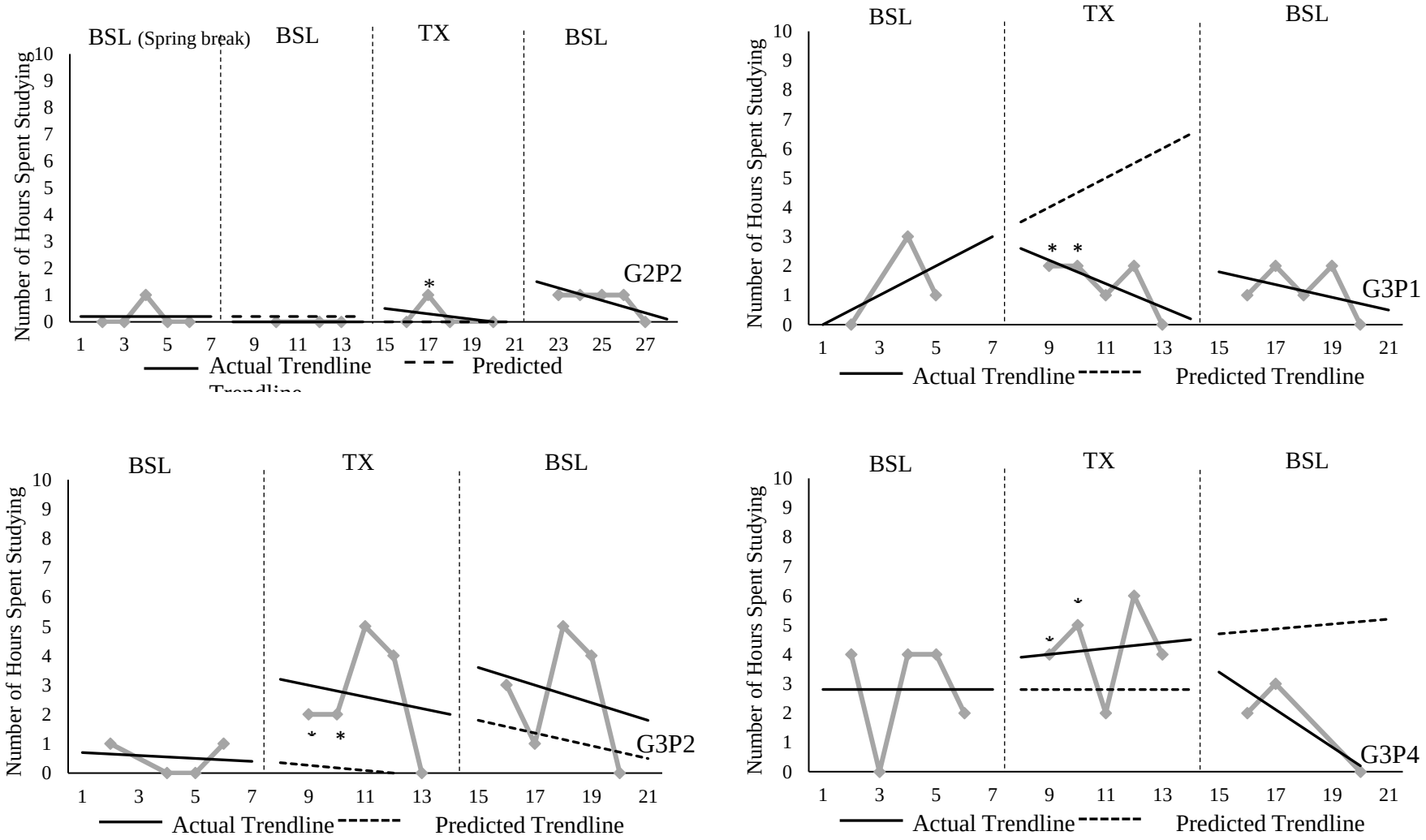
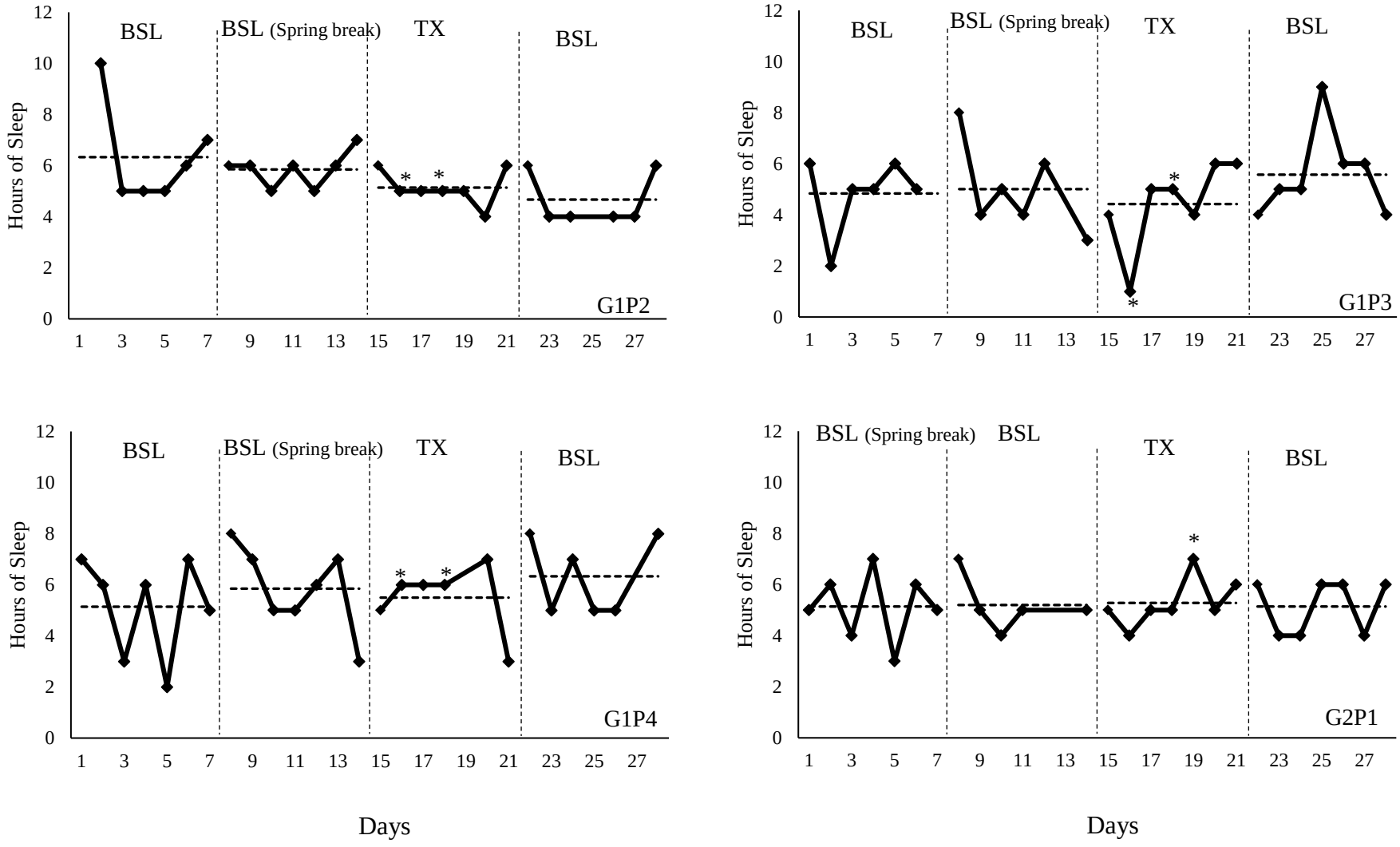


Figure 21. These figures depict the actual (solid black line) and predicted trend lines (dashed black line) for number of hours spent studying reported by participants. The grey line represents the week day responses only. The code on the lower right of each graph explains the group number and participant number within that group.

Figure 22

Hours of Sleep



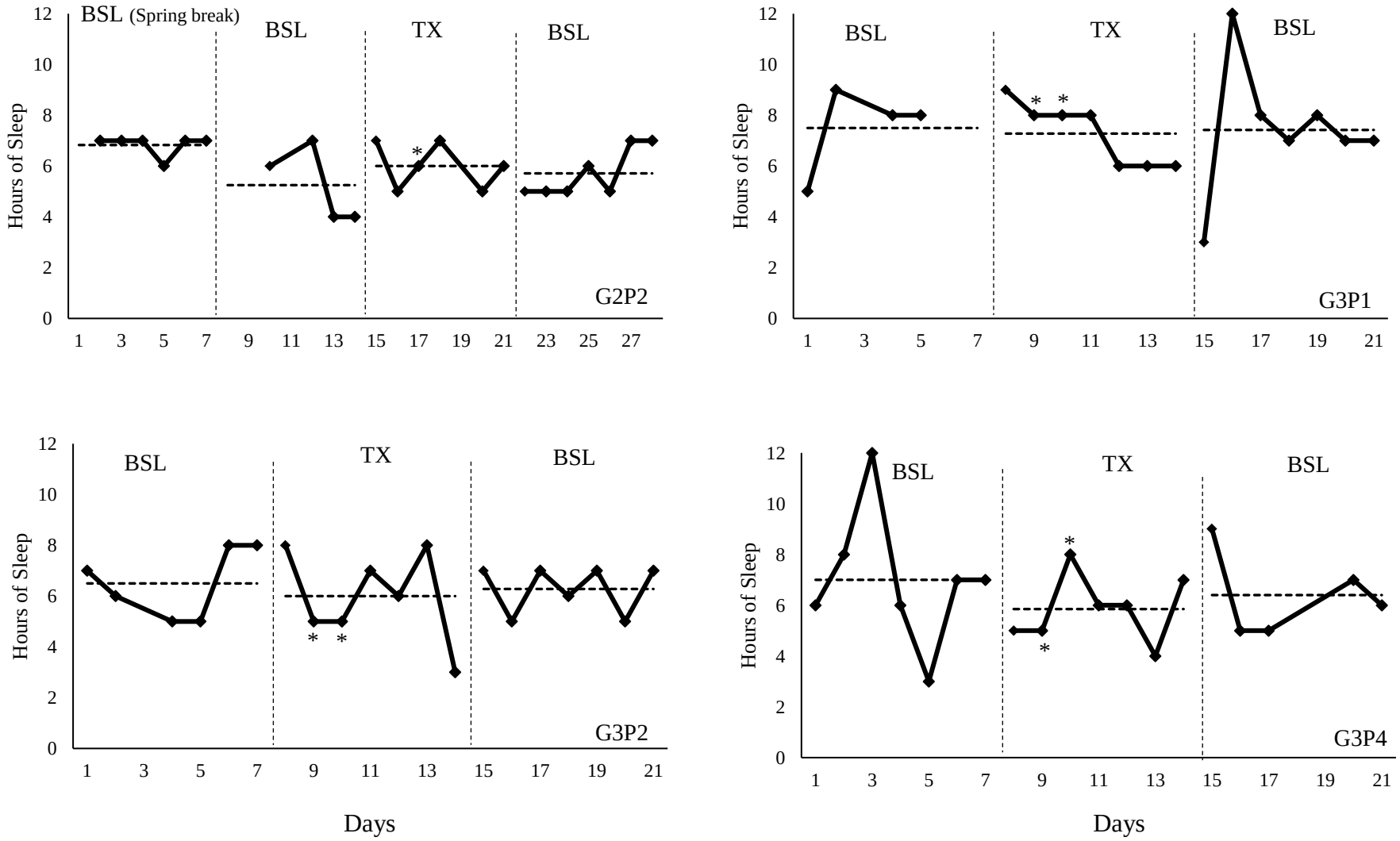
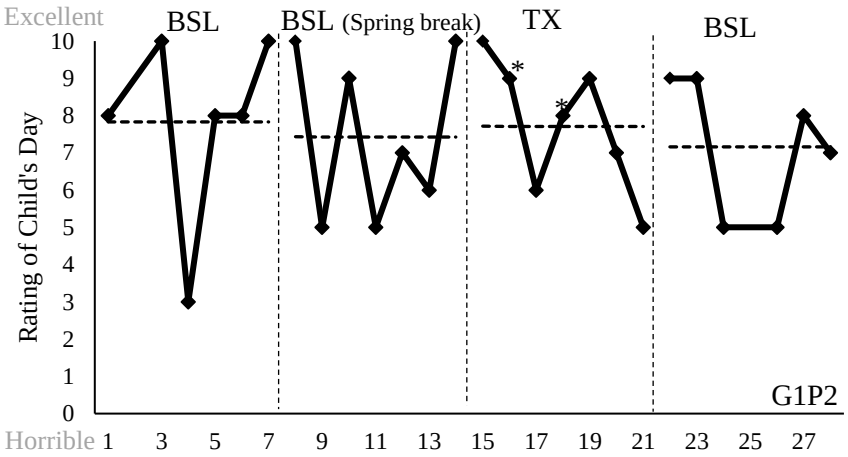
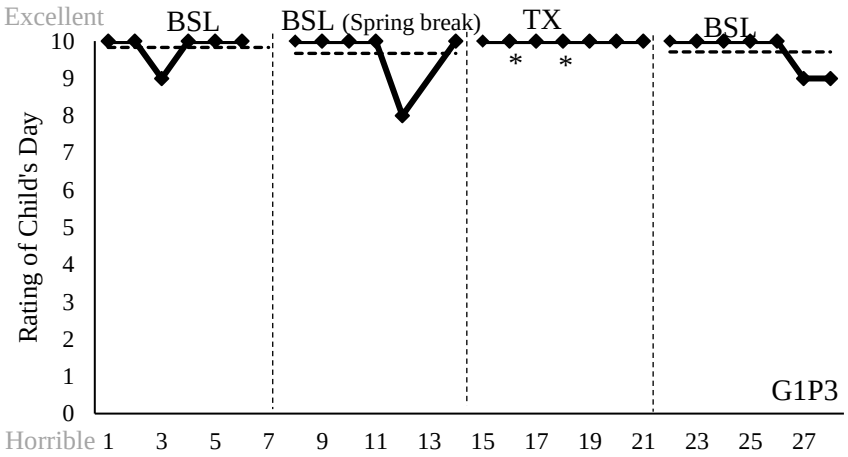


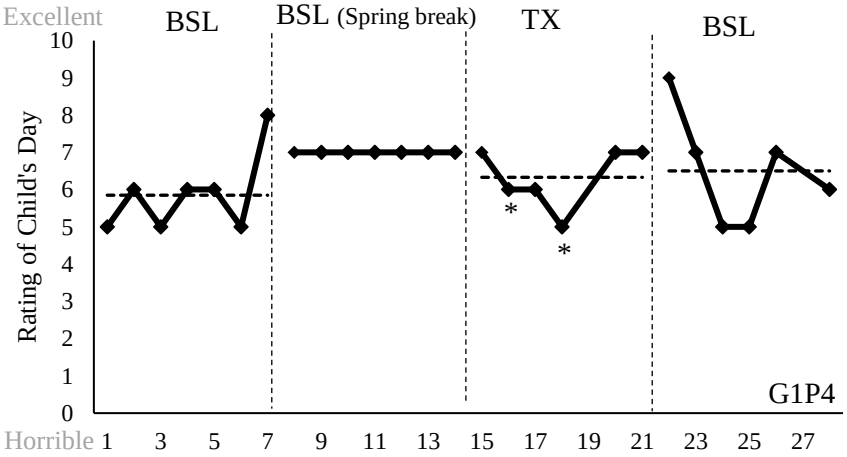
Figure 22. These figures depict the number of hours of sleep reported by participants across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

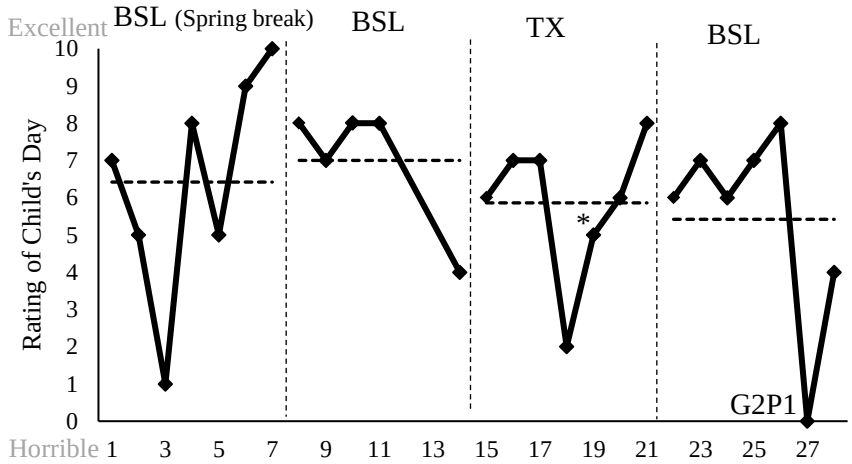
Figure 23

Rating of Child's/Children's Day









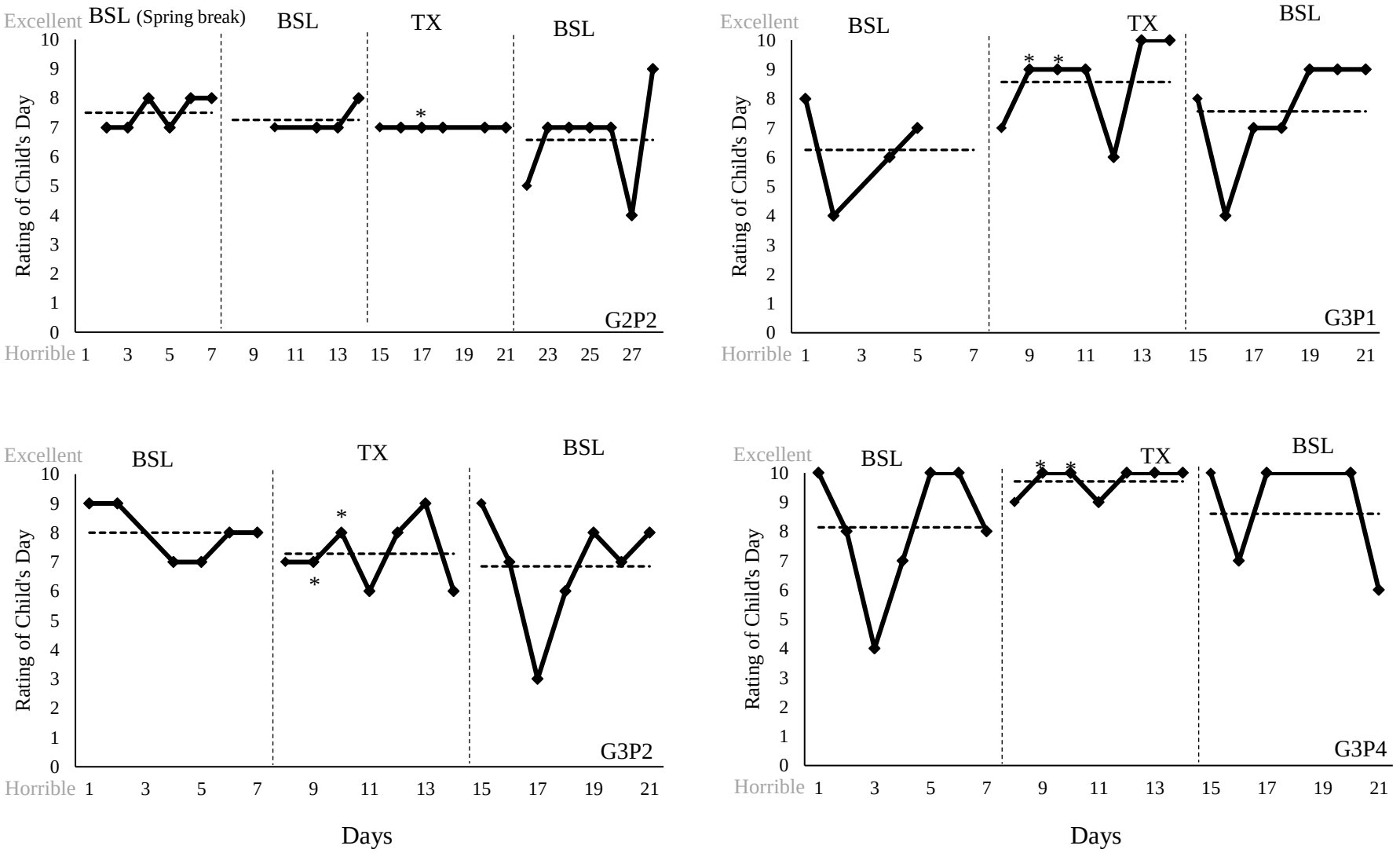


Figure 23. These figures depict the participants' rating of their child/children's day across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

Figure 24

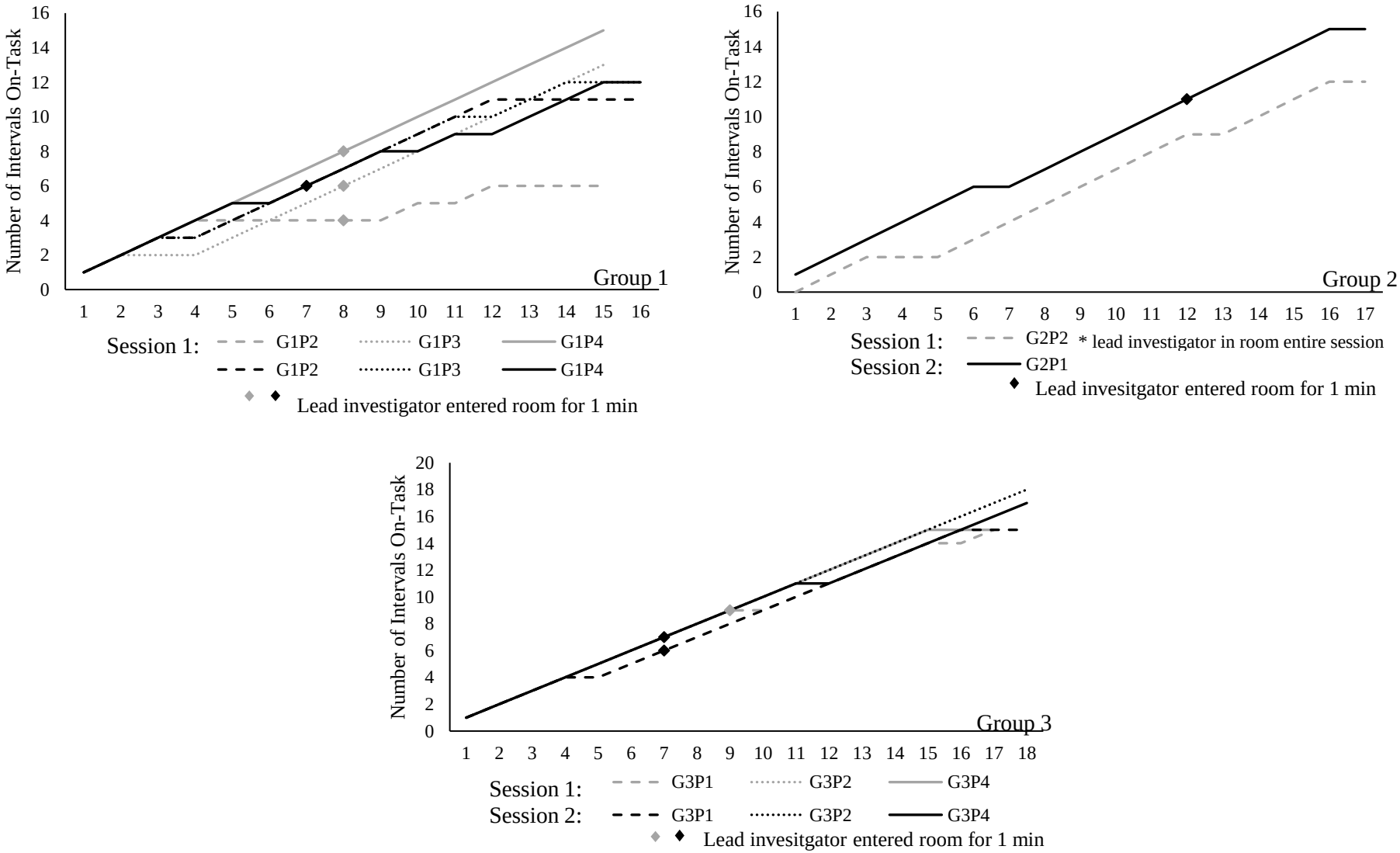


Figure 24. These figures show the number of intervals participants were on-task for each study session. The group number is listed on the bottom right of each graph. The grey lines represent the first study session and the black lines represent the second study session. The diamonds indicate the interval at which the lead investigator entered the study room.

Appendix C

Recruitment Email

Hello Student Parents,

The Student Parent Support Center is conducting a study to pilot the concept of a Family Study Room to determine if funding a room would be beneficial for ------- University.

Description

Those students who choose to participate will have access to a quiet, group study room for two, two hour sessions. The 3-4 student parents who attend will be encouraged to bring their children during this study session to be supervised in the playroom. All study sessions will be conducted on week nights sometime between 5:00 and 8:00 pm. Since this is around the typical dinner time, free pizza will be provided to both the students and their children.

Time Commitment

The total duration of the study is 3 weeks. Each night for 3 weeks (21 days) participants will be asked to complete a five-minute survey. The study sessions will take place during the second week and will be scheduled based on the group's availability. The participants will be required to attend to each study session. You will only be required to use the study room two times during the second week.

Criteria for Participation

- Must be current student enrolled at ---- (one or more credits)
- Must be parent
- Children must be between the ages of 2-10

If interested, please complete this brief intake survey to determine your eligibility (https://stcloudstate.co1.qualtrics.com/SE/?SID=SV_6rMKz6LqVL0hRo9)

Please email Nikki Takle at yspsiga1@stcloudstate.edu with any questions. Participants will be selected based on availability and number of children in the playroom.

Appendix D

Initial Meeting Script

Study Parameters:

Thank you for coming in today for an initial meeting to participate in the Family Study Room project. My name is Nikki Takle and I am the graduate intern at the Student Parent Support Center. As mentioned previously within the email, the aim of this project is to pilot the concept of a Family Study Room to determine if funding a room would be beneficial for ---- University. To do so, we are analyzing studying habits and other academically related factors of our student parent population. The total duration of your participation is 3 weeks. Each night for the 3 weeks you will be asked to complete a five-minute survey. The survey will be sent to you each night via a text message with a link to the survey. Two study sessions will take place during the second week and are scheduled based on your group's availability. Your group has selected _____ (days of week) at _____ (time range). So the dates are _____ and ____ at ____ pm to ____ pm (provide paper with reminder). You and your fellow group members will be required to attend both of these study sessions for the full two hours for each night. You are encouraged to bring your children along during these study sessions. They will be located in the nearby child care center equipped with toys, coloring materials, and a motion based video game system. Within this room there will be the other student parents' children who are in your same group. All children will be supervised by a minimum of two trained playroom monitors.

Daily Text Message:

You will receive a text message each night containing a link to the survey. You are encouraged to select a time to be able to report on the entire day's activities. In other words, as late as comfortable. You will be asked again at the beginning of each week if the time you selected is working or if you would like to change it. The text you will receive each night will come from a strange looking number but will be labeled ---- Student Parent Support Center within the message. Could I have your phone number, carrier for email to text purposes, and the time of night you would like to receive the text message to complete the survey?

Dietary Restrictions:

While attending the two study sessions you and your children will be provided with pizza and refreshments while studying. Are there any dietary restrictions we should know about? If, yes, what alternative meal would you like? What type of pizza would you prefer while studying: cheese, pepperoni, or sausage?

Any group that has all members attend both study sessions and also all members complete at least 90% of their daily surveys will earn a pizza party for all group members all their families.

Do you have any questions thus far?

Informed Consent:

Finally, I would like to go over the informed consent document.

Appendix E

Script for the Study Room (Children in Playroom)

First, I would like to say thank you all for coming down here tonight to study. While in this study room we encourage you to focus your homework, free from distractions. Your children are being supervised in a nearby play room. If at any time you would like to check up on them, please feel free to do so. If your child needs help to use the restroom, please let me know now and I will notify you in case they need to go. Otherwise there is a bathroom located just down the hall that the children can use. With that being said, I would like to encourage you to turn your phones on silent, keep your voices down, and rely on the other students for academic help if needed. Help yourself to pizza and drinks throughout the study session. If you have any questions at any time, please stop by the playroom and I (lead investigator) will be happy to answer them. She (RA) will be here in case you need anything else. Your study session begins now and will end at __: ___ (end time). Good luck!

Appendix F

Script for the Study Room (Children in Child Care Center)

First, I would like to say thank you all for coming down here tonight to study. While in this study room we encourage you to focus your homework, free from distractions. Your children are being supervised in the child care center down the hallway. If at any time you would like to check up on them, please simply exit the study room and I (lead investigator) will be happy to escort you over there. If your child needs help to use the restroom, please let me know now and I will notify you in case they need to go. Otherwise there is a bathroom located within the center that the children can use. With that being said, I would like to encourage you to turn your phones on silent, keep your voices down, and rely on the other students for academic help if needed. Help yourself to pizza and drinks throughout the study session. If you have questions at any time, please exit the study room and I (lead investigator) will be happy to answer them. She (RA) will be here in case you need anything else. Your study session begins now and will end at __: ___ (end time). Good luck!

Appendix G

Primary Research Assistant Training Script

- Data Collection Procedures
    - You will be collecting momentary-time sample (MTS) data on the student parents' studying while you are pretending to do homework. You will place the data sheet in a three-ring binder and be situated facing all participants, however, at enough of a distance to not make them suspicious. The main idea is we do not want them to know you are collecting data on them and instead are simply there to assist.
- Examples Provided
    - The behavior you will be taking data on is on-task studying. So for example, if a student is reading a book, on their computer, or making notecards they would be considered on-task. However, if a student is on their phone or sleeping then that is clearly off-task. Now you need to keep in mind that a person could be on their computer but really looking at Facebook. That could still be recorded as on-task and that's okay this is not our main variable of concern. Just keep in mind that if they are talking very loudly about non-school related things, are on their phone, or sleeping they are off-task.
- Data Sheet and VT-5
    - This is the data sheet we will be using for data collection. Note how the only requirement is to circle Y (for Yes), N (for No), I (for Impartial Interval) related to if each participant is on-task. You will circle I for impartial interval if the

participant is in the bathroom, up getting pizza, or with their children. At the top of the sheet please note the participants name and a brief description so you can keep them straight (ex: Larry Thomson mustache guy). The 2-hour study session is split into intervals that are around 5 minutes. Now they are not always exactly at 5 minutes and will vary from interval to interval but on average they are 5 minutes. Each interval will be cued using a tone played through ear buds. Every time the tone sounds you will circle Y, N, or I for each participant. For the next around 5 minutes you do not have to do anything until the tone sounds again, then you will move to the next interval and again circle Y, N, or I.

- Modeling and Practicing
    - Now I am going to model taking data with hypothetical participants. So let's say I'm observing and the tone goes off. I casually and carefully use my peripheral vision to check each participant (mustache guy, hat lady, glasses, and hot pink shirt lady). Mustache guy and hat lady are both on their computers, so I score both of them as on-task. Glasses is on her phone laughing loudly so I score her as a NO, meaning not on task. Hot pink shirt lady is reading a textbook, so I score her as Yes, meaning on task. Then, I wait until the next tone to repeat this process. Any questions so far?
- Mock Sessions
    - Today you will be conducting mock sessions and practicing taking data. These students are here to pose are participants while they are actually studying. This mock session will last 15 minutes and you will be required to use the same ear

bud cueing we discussed earlier. On average every five minutes a tone will play, at that time you will use your peripheral vision to determine if each participant is on task. Again I stress using your peripheral vision to observe each participant because you can only get caught observing (looking at a participant) once. Any more times and we will start the mock session completely over. I will be standing next to you while you are seated collecting data. I will also be collecting the same data with the same data sheet, however, I will be able to look directly at the participants. After the mock session is over you will be scored based on your accuracy by comparing your data to mine. You will have two attempts to perform the data collection procedures to 90%. If you do not reach these criteria you will either be retrained or dismissed

Appendix H

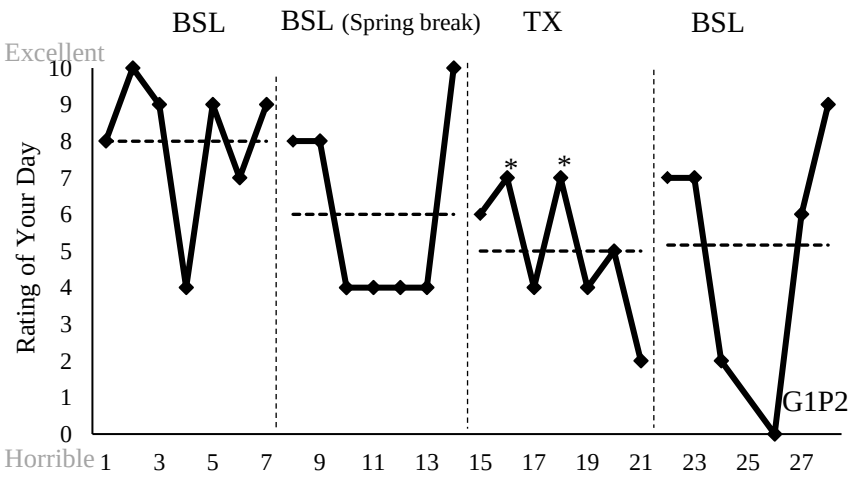
Secondary Research Assistant Training Script

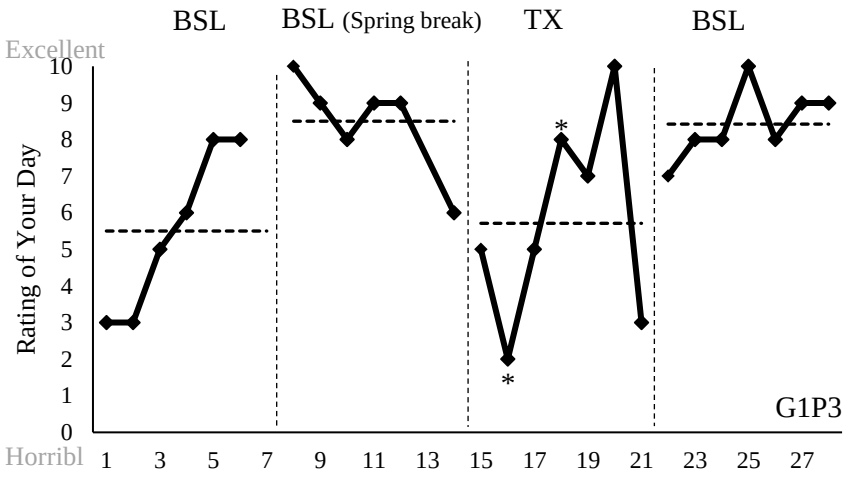
Tonight you will be supervising participants' children while they are in the ------ Child Care Center. If all participants within this group attend, we will have _ children ages __-__ years old. Other children may be present in the center during this time but your job is to make sure the children who are part of the research study stay entertained and safe. Please keep track and remember which children you are responsible for. Since safety is our first priority please have at least one supervisor keeping their eyes on the children at all times. If a child has to go to the bathroom and is not potty trained, please text me the child's name and I will let the parent know. If a child is misbehaving in a way that puts him/herself or other in danger, please text me immediately with the child's name and I will pull the parent from the study room. At any time, the parents are allowed to come down to the playroom and visit their child, obviously, so please give them space if they do. If you run into any questions, please do not hesitate to text me as I will be out in the hallway between the playroom and the study room, stopping in here periodically. There will be pizza and drinks available to the children please make sure a mess is not made with that and feel free to help yourself to some after the children have gotten their food.

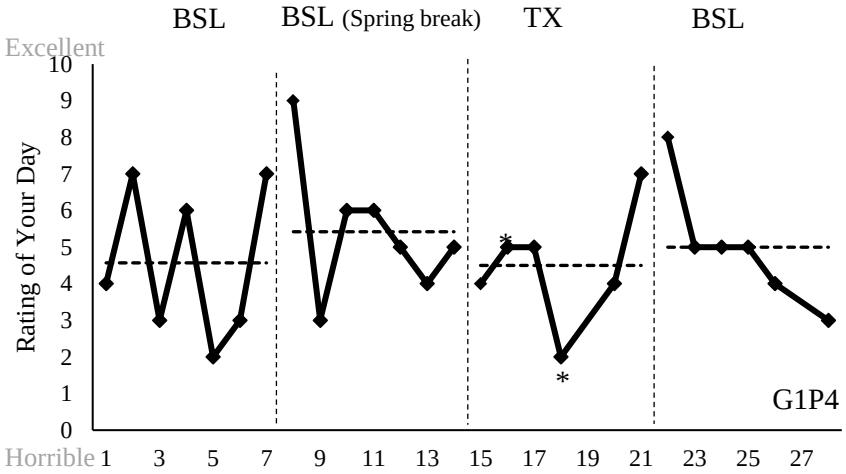
Appendix I: Full 7-Day Analyses

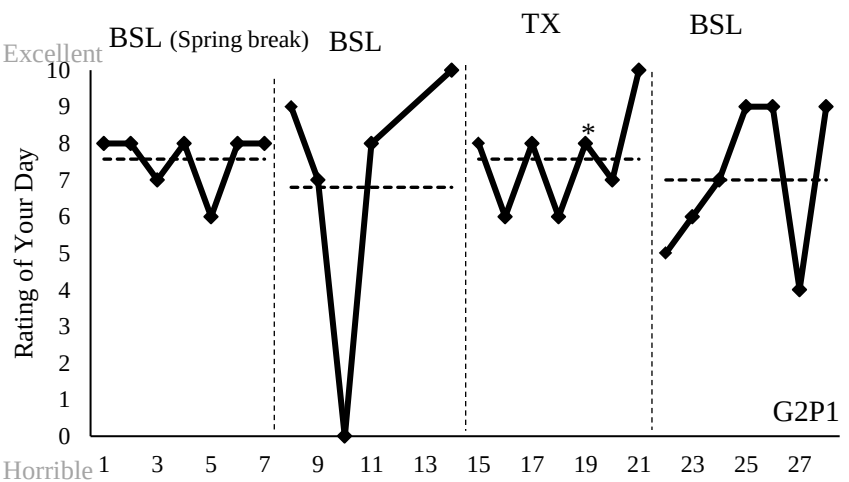
Figure 25

Rating of Your Day









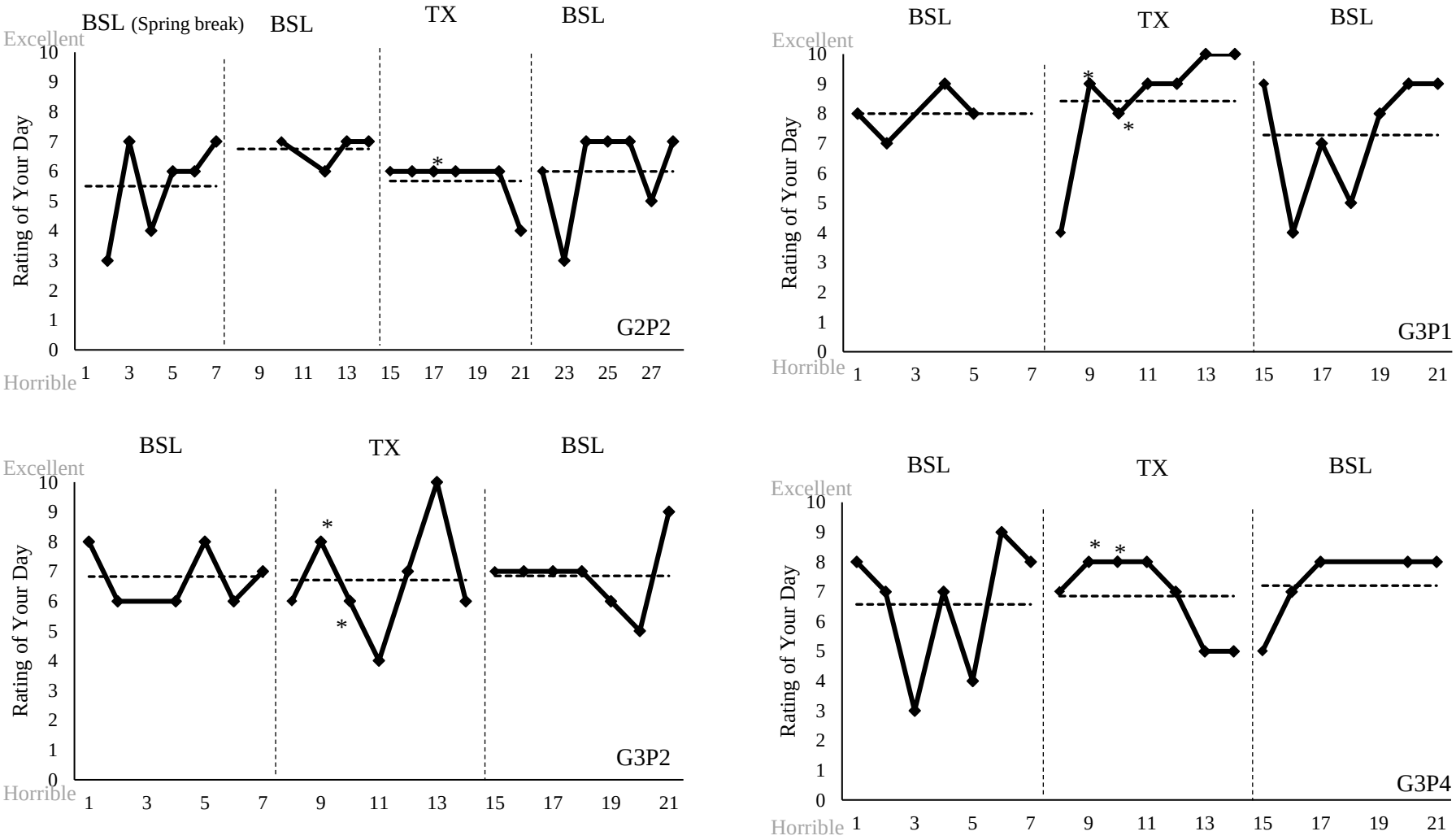
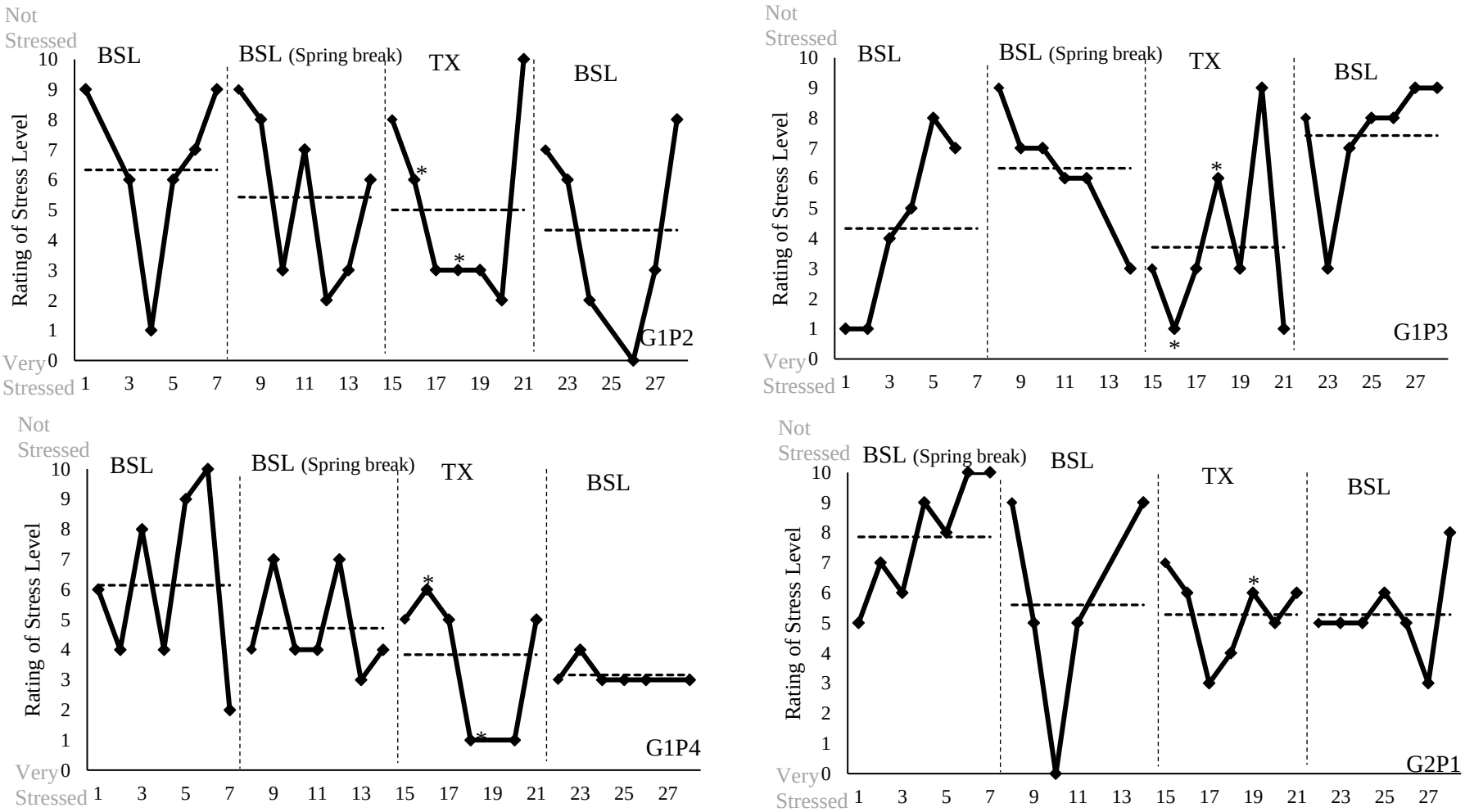


Figure 25. These figures depict the participants' rating of day across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

Figure 26

Stress Ratings



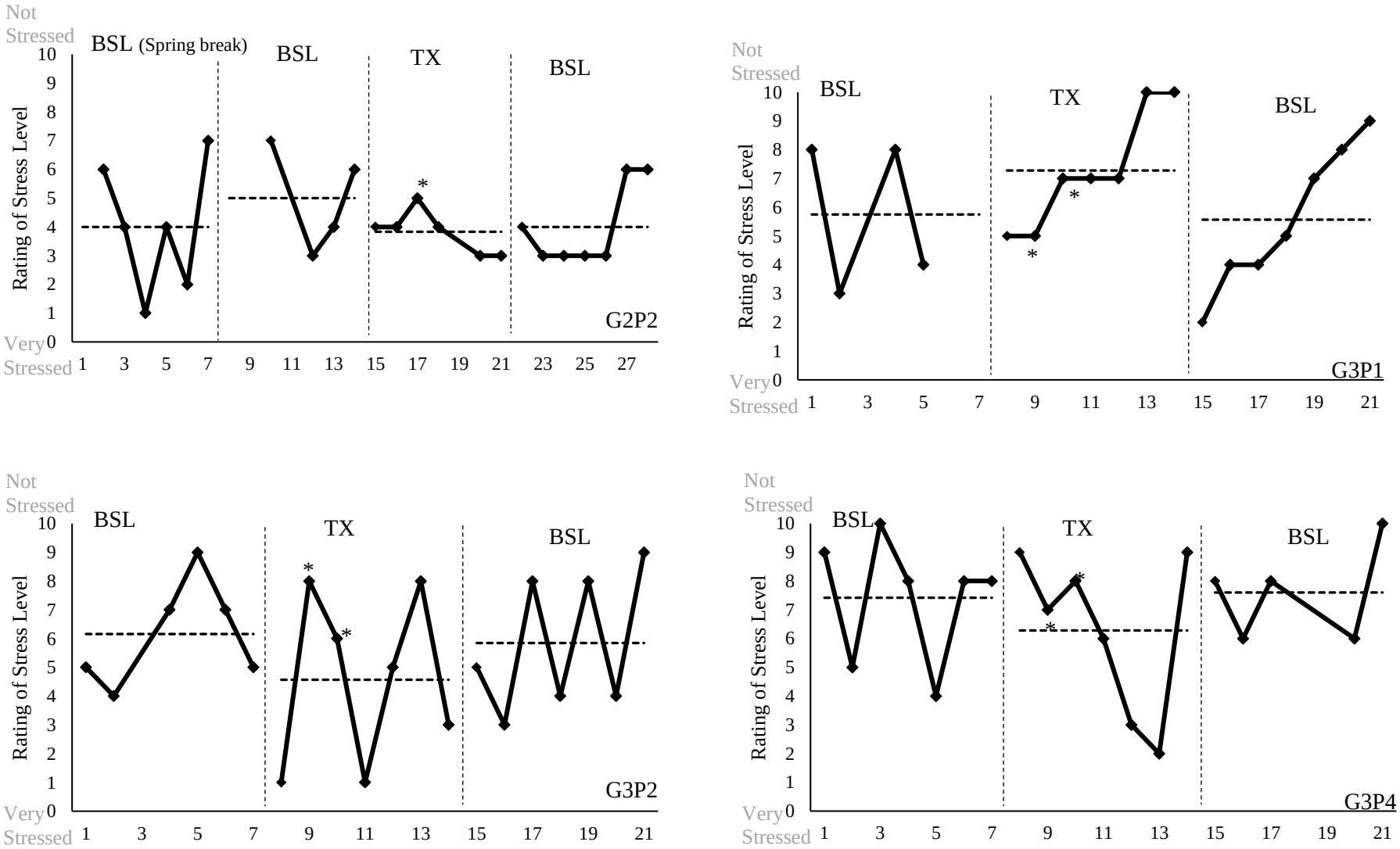
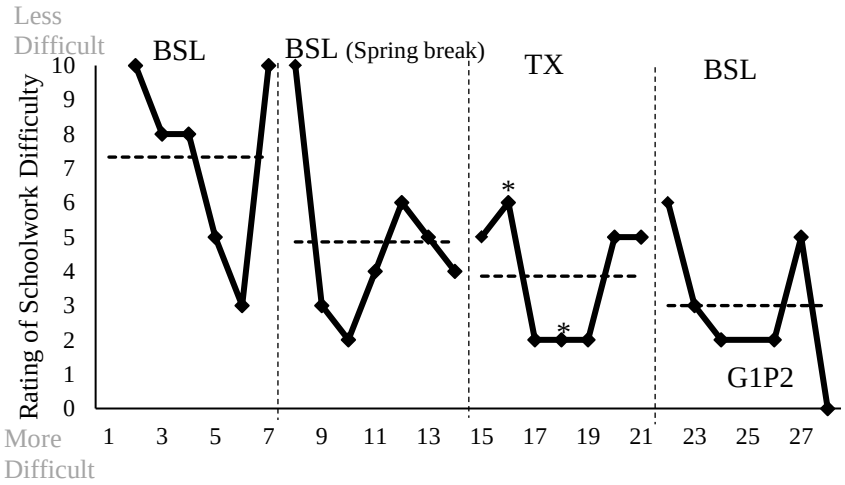
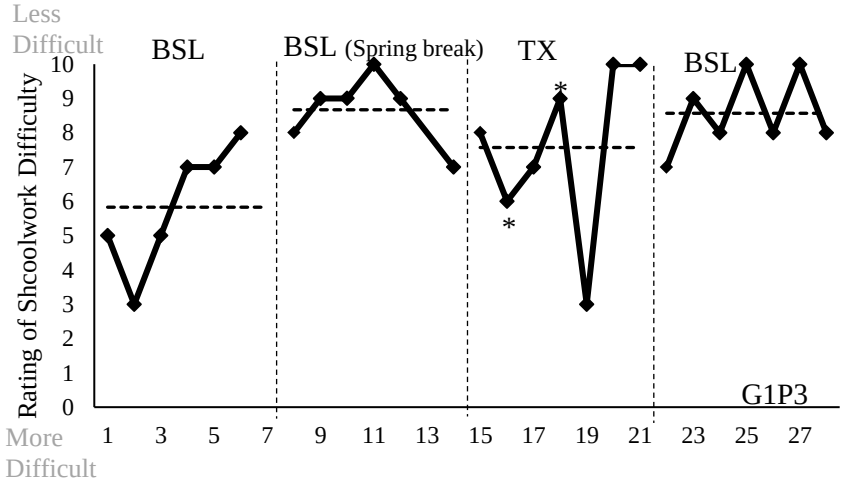


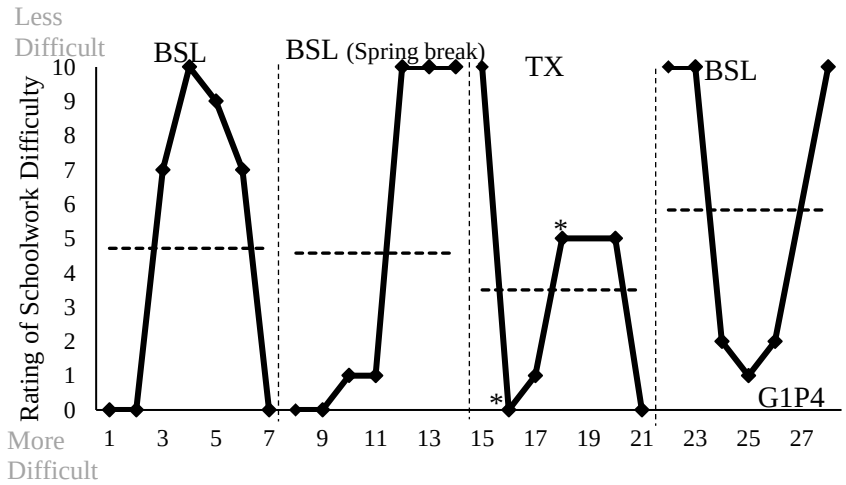
Figure 26. These figures depict the participants' stress level ratings across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

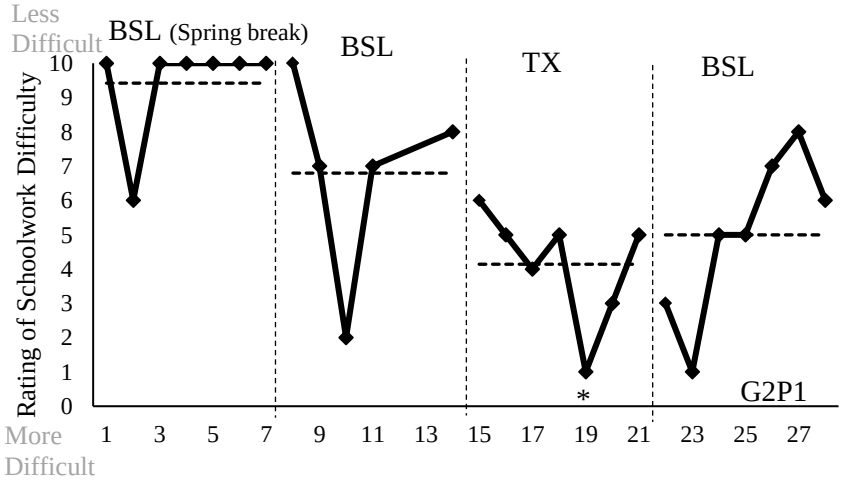
Figure 27

Difficulty of Schoolwork









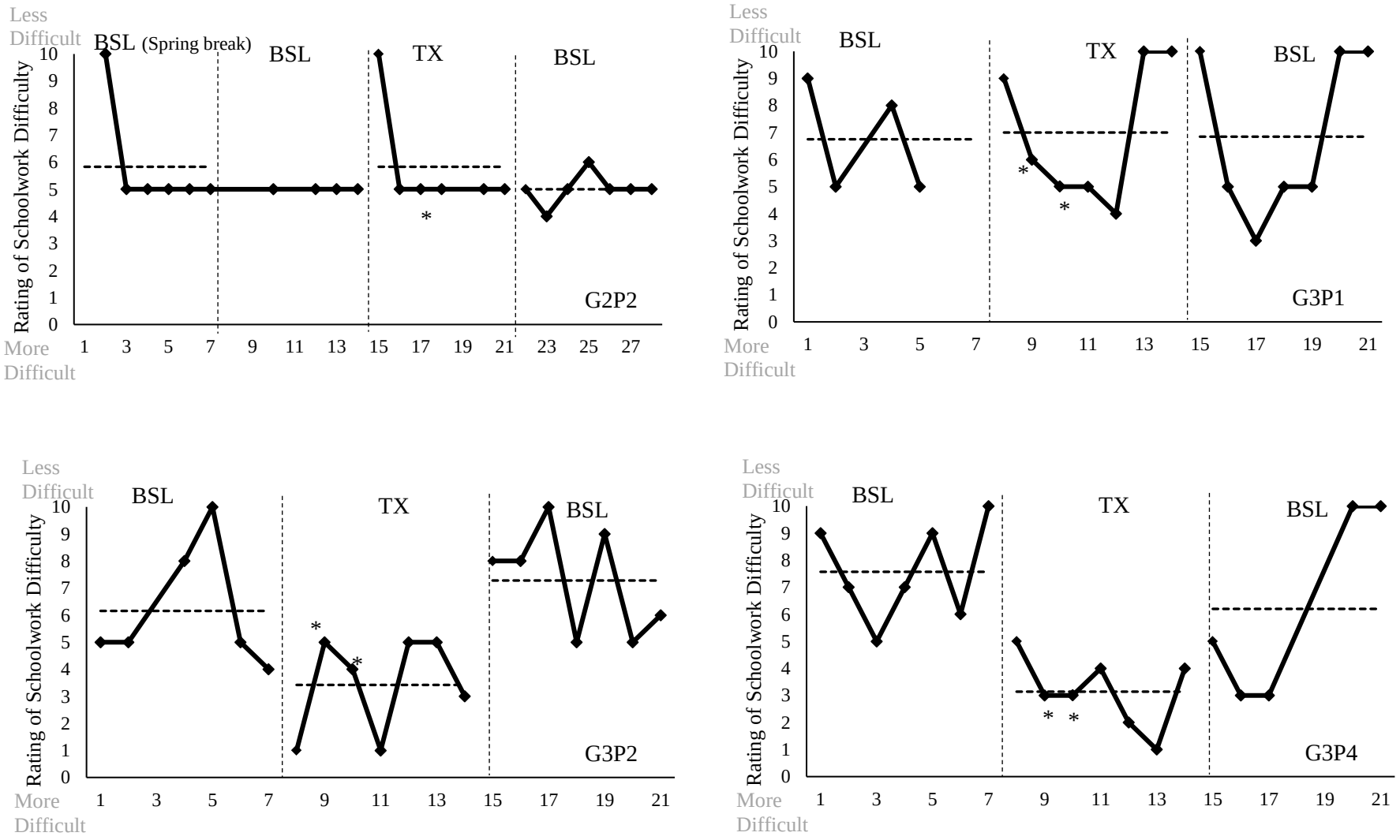
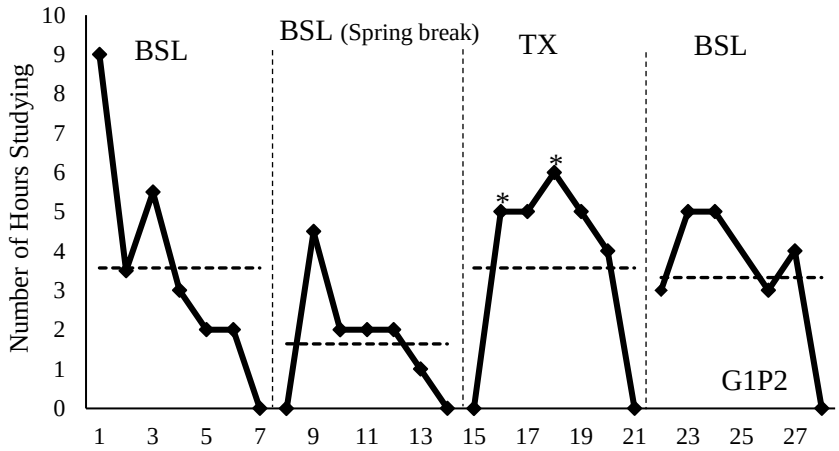
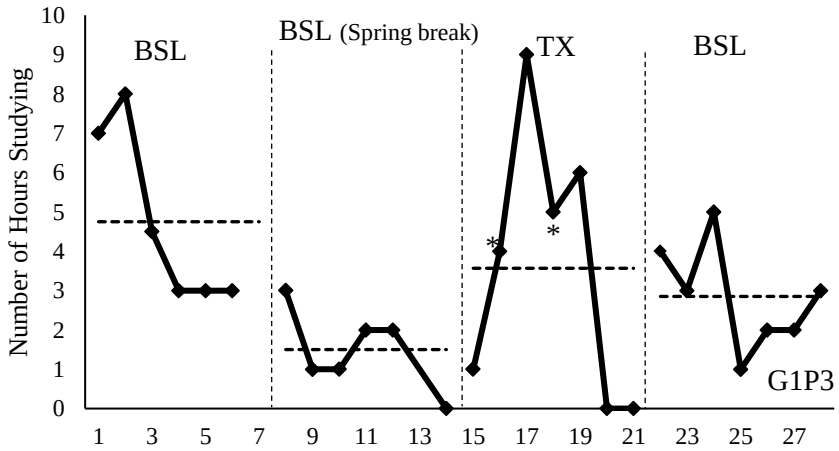


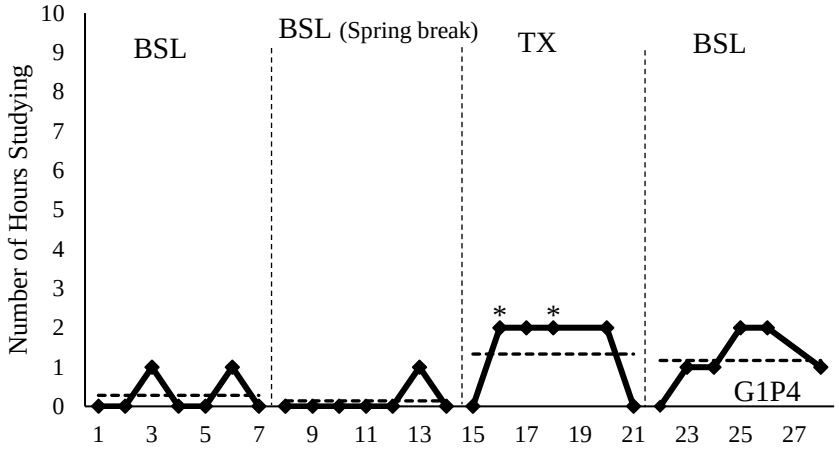
Figure 27. These figures depict the participants' schoolwork difficulty ratings across days. This figure shows the full 7-day analysis with both weekdays and weekends included. The code on the lower right of each graph explains the group number and participant number within that group. The astericks represent when study sessions were attended. The dashed line shows the average rating for each phase.

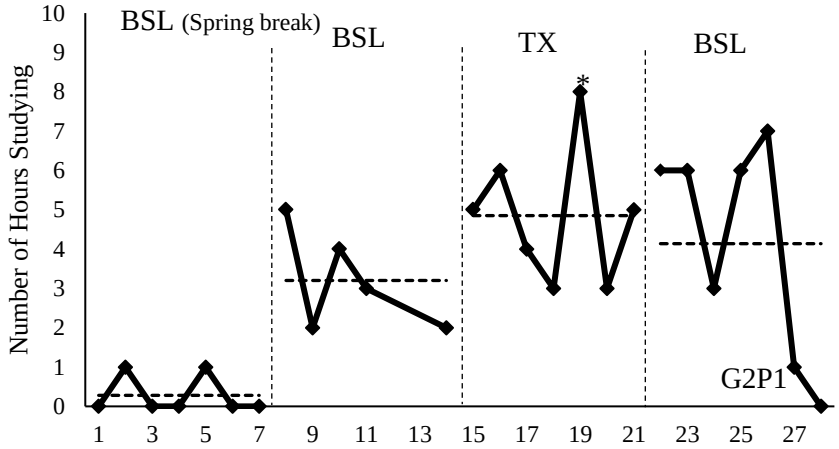
Figure 28

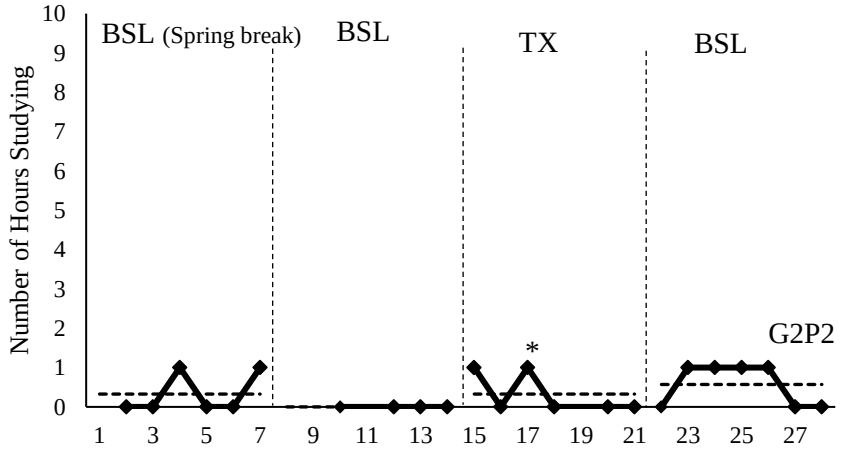
Number of Hours Spent Studying

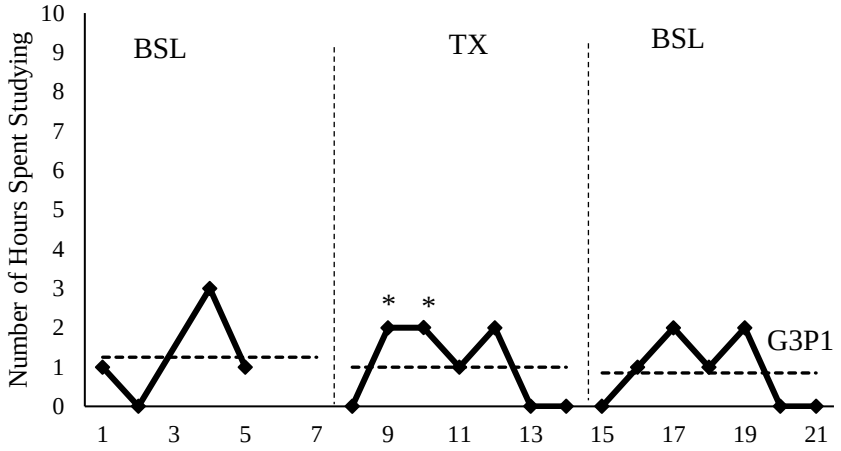


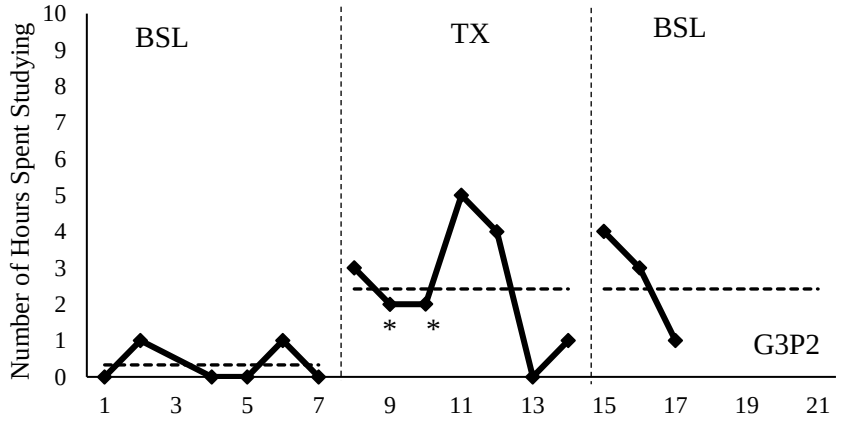


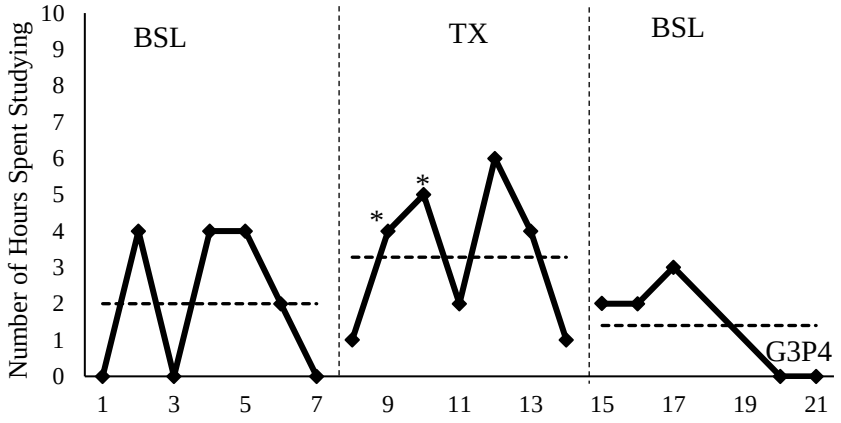





BSL (Spring break)
BSL
TX
BSL
G2P2
Number of Hours Studying


BSL
TX
BSL
G3P1
Number of Hours Spent Studying


BSL
TX
BSL
G3P2
Number of Hours Spent Studying


BSL
TX
BSL
G3P4
Number of Hours Spent Studying

Appendix J

Social Validity Reponses

Note: these are all direct quotes from participants

What did you like about being in the Family Study Room?

- I could only focus on homework. It was (a) separate place from home where I didn't have to do home stuff.
- It was a quiet and calm environment. It was nice to not be worrying about my child for a few hours.
- I loved being able to focus on my homework without any distractions, it was also nice feeling encouraged to check in on my daughter while in the study room. It was nice that the study room was right down the hall from her.
- The quiet, lessened distractions (though my son wouldn't go to the childcare room).
- I got a lot of quality studying done. I was very focused.
- I loved the extra time to get my homework done!! I NEVER get to do homework on weeknights and it was incredibly helpful. It made my week a LOT better! I also loved that I didn't have to worry about supper that night.
- The ability to study and know my kids were taken care of and having fun.
- It provided a great time to work on homework and I felt at ease knowing my son was able to play safely while I worked. It was nice to have a place without distractions where I can work. I was also able to use the campus WiFi to complete my online assignments because I do not have access to WiFi at home. Just having those two hours to undisrupted study time made a big difference in how my school week played out. I had an easier time completing assignments and scored well on three exams I had during the 3 week study period. Overall, great experience.

What did you dislike about being in the Family Study Room?

- I wish I could have been able to easily peek in on my son instead of needing to walk down a hall if I wanted to check up on him.
- Nothing.
- I wish the times were ore flexible. I wish I could've chosen the days I attended the study room. It also would've bee nice to be close to the room my son is in, so I would be able to check on him.
- I would have liked to see my child. I didn't like not seeing what he was doing.
- No window(s)- it's important for me to affirm my location and scale in relation to my observable surroundings and by accident extension, my perspective of myself in relation to the rest of the planet, and the rest of the universe.
- It was a little awkward sitting at one big table with everyone, would feel more comfortable if everyone got their own area. Also I felt really guilty about leaving my daughter.
- I wish we had access to a computer. My laptop is really not portable so I can't bring it.

- Wanted to do it more. Maybe could have been closer to kids.