



3/CS

Internal assessment: group 3 individual candidate cover sheet

Submit to: **moderator**Arrival date: 20 Apr 20 OctSession: May 08

School number

School name:

- Write legibly using black ink and retain a copy of this form.
- Attach one completed copy of this form to the work of each candidate represented in the sample.

Subject: Psychology Level: Standard

Candidate name: _____

Candidate session number:

Title(s) and dates of work: (complete if appropriate)

- (1) An Experiment concerning the effects of
- (2) manipulated contextual clues
- (3) eyewitness memory
- (4) _____

Teacher declaration

To the best of my knowledge ~~the~~ material submitted is the authentic work of the candidate.

Signature of teacher

Date: 4/9/08

Candidate declaration: I confirm that ~~this~~ work is my own work and is the final version. I have acknowledged each use of the words or ideas of another person, whether written, oral or visual.

Candidate's signature:

Types of work undertaken (to be completed by teacher)

(for example, written assignment/essay/case study/fieldwork/portfolio/photography/video/computer)

Geography SL: note whether the one piece is *fieldwork* or a *research assignment* and to which theme it is linked.

Business and management SL: note which of the prescribed list of topics/subtopics (*Business and management guide, February 2000, page 45*) the subject matter of the investigation is linked

Other relevant information (where appropriate)

Teacher support (where a candidate could not have completed the work without substantial support, please indicate)

International Baccalaureate

3/CS (reverse)

School name: ..

Subject: PsychologyLevel: Standard

Candidate name: ..

Assessment criteria: Complete the boxes for the appropriate subject

	A	B	C	D	E	F	Total	
History HL and SL:	0-2	0-5	0-4	0-5	0-2	0-2	0-20	
Geography HL:	0-5	0-5	0-5	0-10	0-5		0-30	
Geography SL: (Note: Criterion B has two alternatives—fieldwork or research assignment)	0-5	0-5	0-5	0-10	0-5		0-30	
Economics HL and SL:	0-2	0-4	0-5	0-5	0-4		0-20	
	A	B	C	D	Total	Mean total		
Philosophy critical analysis:	0-5	0-5	0-10	0-10	0-30	0-30		
Philosophy philosophical dialogue:	0-5	0-5	0-10	0-10	0-30			
	A	B	C	D	E	F	G	Total
Psychology HL:	0-5	0-2	0-2	0-2	0-4	0-8	0-2	0-25
Psychology SL:	0-2	0-2	0-2	0-2	0-4	0-6	0-2	0-20
	2	2	2	2	4	5	2	19
Social and cultural anthropology HL:	0-2	0-5	0-3	0-5	0-3	0-2		0-20
Social and cultural anthropology SL:	0-4	0-4	0-4	0-4	0-4			0-20
Business and management HL:	0-4	0-5	0-7	0-5	0-4			0-25
Business and management SL:	0-4	0-4	0-4	0-4	0-4			0-20
Islamic history HL and SL:	0-6	0-4	0-8	0-5	0-2			0-25
ITGS HL portfolio piece 1:	0-4	0-5	0-5	0-5	0-2	0-4		0-25
ITGS HL portfolio piece 2:								
ITGS HL portfolio piece 3:								
ITGS HL portfolio overall marks								
	G	H	I	J	K	L	M	Total
ITGS SL project:	0-3	0-4	0-10	0-6	0-3	0-6	0-3	0-35
	N	O	P	Q	R	Total		
ITGS HL portfolio extension	0-3	0-4	0-4	0-7	0-2	0-20		

IB Psychology

Internal Assessment

An experiment concerning the effects of manipulated contextual clues on eyewitness memory.

Subject and Level: Psychology, Standard Level
Type of Study: Experiment
Number of words: 1,465
Submitted: 3 March, 2008

Abstract

This experiment was conducted to investigate whether memories could be manipulated by external context clues. This experiment was conducted with 11th and 12th graders at Hc H School. The hypothesis was that a misleading contextual cue, like an intense verb phrase, could affect a participant's memory of the speed estimate of a vehicle and cause memories of nonexistent details in an automobile crash. The results seemed to indicate that this hypothesis is correct, and that reconstruction of memories can be externally affected.

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Introduction

Can our memories be manipulated by misleading context clues? Elizabeth Loftus and John Palmer conducted an experiment that certainly seemed to indicate that an eyewitness memory can be altered by misleading information. In their famous experiment, Loftus and Palmer selected a group of students and showed them a video clip of a car crash. Then they asked the students to answer a questionnaire concerning the video, which contained a critical question about the speed of one of the vehicles involved in the crash. Each of the five experimental conditions had a different version of this question, which differed because the verb used in the question became progressively more suggestive. The second part of the experiment involved another questionnaire with the critical question “did you see any broken glass?” Loftus and Palmer found that the more intense verb phrase could cause subjects to report a higher speed, and also caused the subjects to report that they did see broken glass in the video they had viewed one week earlier. (Loftus and Palmer, 1974)

Loftus and Palmer asserted that these findings supported their theory that memories are reconstructed from a combination of personal interpretation and factual memory of an event. Their results indicate that eyewitness memory can be influenced by external cues, and that a subject could become convinced of the accuracy of a manipulated memory. When we are unsure of the correct solution to a problem, we may look for context clues to help us. However, these external clues can be manipulated to fool us.

Aim: to investigate whether a manipulated context clue can (1) have an effect on our immediate formation of a memory and (2) cause a lasting false memory of a nonexistent object.

Method

An Independent samples experimental design was used to measure the effects leading questions can have on a subject’s response. The independent samples experiment was used because I wanted to compare the responses of five different groups exposed to five different sets of conditions. An Independent samples experiment also allowed me to ensure that the participants could not determine the purpose of the experiment.

IV: leading verb used in the first critical question (contacted, hit, bumped into, collided with, smashed into)

DV: (Part 1) the speed reported by the subjects on the critical question; (Part 2) whether the participant believed they saw broken glass.

Some control variables which were held constant and may have had an effect on the DV include:

- The ages of the participants
- The testing environment

Communication between the subjects was not allowed. All ethical concerns for psychological experiments were accounted for, and no violations of APA ethics guidelines occurred.

Participants

My participants were High school students obtained through opportunity sampling due to the fact that random sampling was not feasible. I was assigned two classes of participants by my teacher from a list of volunteer classes. Both classes had 18 students, for a total of 36 participants. There were 7 participants in each condition, except for condition 5, which had one extra student. The participants were all between 16 and 18 years old. All subjects were in either eleventh or twelfth grade, and 21 were male while 15 were female. Each participant was assigned to their experimental condition through a graphing calculator's random integer function. Because opportunity sampling was used, results cannot be generalized to any other group than the sample population.

Materials

- class roll
- A graphing utility
- Standardized instructions (Appendix III)
- Two questionnaires concerning the movie clip (appendix II)
- Test run video
- Car crash video
- A projector system and screen
- Debriefing letter (Appendix IV)

Procedure

1. Use the previously obtained roll sheet to assign a random integer between 1 and 5 to each student, which will correspond to their experimental condition.
2. Assign a second identification number that identifies the student as an individual participant in their condition group. For instance, student 53 would be the third student assigned to condition 5.
3. Enter the experimental testing location and introduce yourself.
4. Deliver the scripted instructions, following the instructions to the experimenter which are in parentheses
5. Answer any questions that arise from the participants, making note of these questions and the answers
6. Clean up any remaining materials and thank the participants for their participation
7. Inform the participants that a follow up study will be conducted in one week
8. Return to the testing class one week later, and deliver the script for the second part, following the instructions to the experimenter. Match the participants from the first questionnaire to the answers given in the second questionnaire.
9. Process the data to produce finalized results
10. debrief the participants and make the results available to them

Results

Table 1 summarizes the results of the critical question on the first questionnaire by experimental condition. As can be seen from this table, there is a general correlation between the intensity of the verb phrase and the average speed reported by each group.

Table 1:

Experimental Condition Group Number	Verb Phrase Used	Mean Speed Estimate (mph) Reported By The Subjects
1	Contacted	39
2	Hit	39
3	Bumped into	42
4	Collided with	39
5	Smashed into	50

Graph 1 displays the data from table 1 in graphical form.

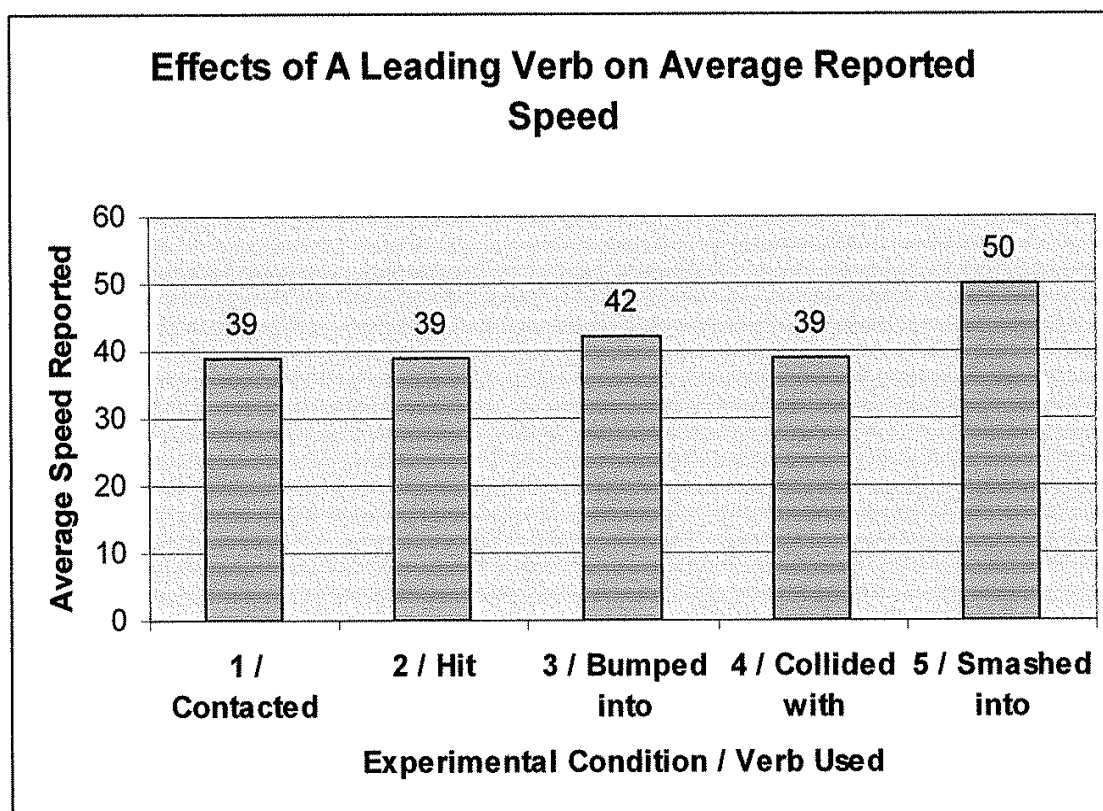
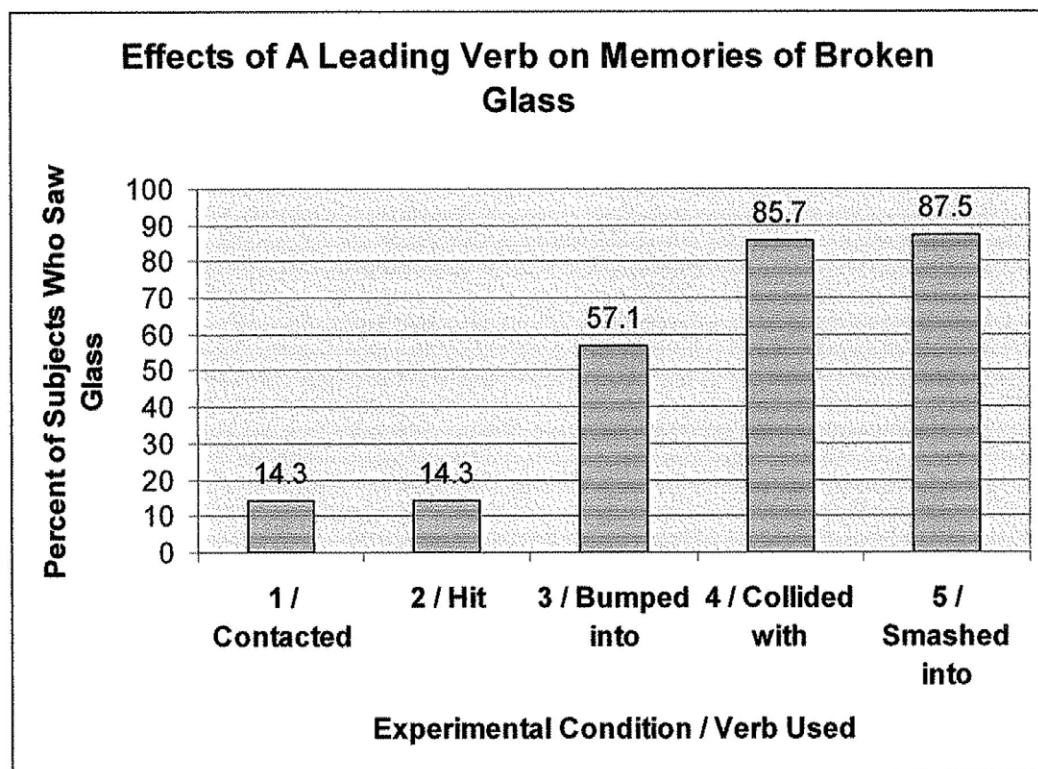


Table 2 displays the results of the critical question of the second questionnaire by experimental condition. The data indicates a clear trend correlation between the verb phrase and percentage of subjects who reported glass.

Table 2

Experimental Condition Group Number	Verb Phrase Used in First Questionnaire	Percentage of Condition Subjects Who Reported Seeing Broken Glass
1	Contacted	14.3
2	Hit	14.3
3	Bumped into	57.1
4	Collided with	85.7
5	Smashed into	87.5

Graph 2 displays the data from Table 2 in graphical form



Discussion

The results of this study seem to support Loftus and Palmer's assertion that external context clues can affect our memories. According to their hypothesis, it was predicted that using a more intense verb in the critical question of the first questionnaire would elicit a higher average group speed estimate. Although there were some unexpected fluctuations in the middle groups, there was a net increase of 11 mph from group 1 to group 5. This is relatively close to the net increase value obtained by Loftus and Palmer of 9 mph. My study supports Loftus and Palmer's arguments that memories are reconstructed from factual memory and external cues which can often be manipulated.

Loftus and Palmer also hypothesized that the manipulated context clues could produce lasting changes in the memory of an event. They predicted that subjects exposed to the more intense verb phrase would be much more likely to report seeing broken glass one week later, even though the video did not show any broken glass. The data displayed a clear increase in the percent of subjects who reported seeing glass as the verb phrase became more intense. This finding lends further support to Loftus and Palmer's reconstructive hypothesis.

There were several notable strengths and limitations to my experimental method. One important strength of my study was that I used a fairly large sample population to ensure the validity of my results. Another important strength of my method was my numbering system, which allowed me to match students with their experimental groups for both parts of the experiment, while also preserving the anonymity of the subjects. There were also some important weaknesses of my methodology as well. The two separate classrooms I conducted my experiment in had different testing environments, which could have caused a confounding variable to skew my results. My methodology is also a simulation of a real life event, causing my experiment's results to be ecologically invalid in that it is difficult to generalize them to real life events. Possibly the most important weakness of my methodology involves the internal validity concern of diffusion of treatment. During the one week delay between the two parts of my experiment, I was unable to control the communications concerning my experiment between experimental groups. This could cause participants to guess the purpose of the experiment.

If I were to repeat this experiment, I would suggest that additional teachers be used as monitors to ensure that there is no communication between participants before they have completed the experiment. Some interesting and related topics of study could include investigating the effects of gender and age group on susceptibility to manipulated external clues, as well as conducting a follow up study after a longer length of time to measure the persistence of false memories.

The results of this experiment indicate that manipulated external memory cues can have an effect on our immediate formation of a memory and cause a lasting false memory of a nonexistent object.

Reference

Loftus, E.F. & Palmer, J.C. (1974) Reconstruction of auto-mobile destruction: An example of interaction between language and memory. *Journal of Verbal Learning and Verbal Behavior*, 13, 585-589.

APPENDIX I

Part I data Table

Student ID code	Experimental condition (1-5)	frequent driving experience?	Speed the truck was going (MPH)	measures of central tendency
11	1	yes	30	mean = 30 39 M median = 40 MPH mode = none call unia range = 25 MPH SD = 11.16
12	1	yes	50	
13	1	yes	35	
14	1	yes	45	
15	1	no	20	
16	1	yes	40	
17	1	no	55	
21	2	no	20	mean = 20 34 MPH median = 35 mode = 25 range = 40 SD = 15.06
22	2	yes	25	
23	2	yes	60	
24	2	yes	50	
25	2	yes	25	
26	2	yes	35	
27	2	no	55	
31	3	yes	60	mean = 60 42 M median = 40 mode = none range = 35 SD = 12.21
32	3	yes	30	
33	3	yes	40	
34	3	yes	55	
35	3	yes	25	
36	3	yes	50	
37	3	yes	35	
41	4	yes	50	mean = 50 39 M median = 40 mode = 40 range = 30 SD = 9.80
42	4	yes	25	
43	4	yes	40	
44	4	yes	55	
45	4	yes	35	
46	4	yes	30	
47	4	yes	40	
51	5	yes	70	mean = 70 50 median = 50 mode = 50, 55 range = 40 SD = 10
52	5	yes	35	
53	5	no	50	
54	5	yes	40	
55	5	yes	50	
56	5	yes	55	
57	5	yes	55	
5A	5	yes	45	

Overall
 mean = ~~42~~ 42 MPH
 median = 40
 mode = 50, 55

SD = 12.55

Appendix II
part 2 data table

Student ID code	Experimental condition (1-5)	Did you see broken glass?
11	1	no
12	1	no
13	1	no
14	1	no
15	1	yes
16	1	no
17	1	no
21	2	no
22	2	no
23	2	no
24	2	no
25	2	no
26	2	no
27	2	yes
31	3	yes
32	3	no
33	3	yes
34	3	yes
35	3	no
36	3	yes
37	3	no
41	4	yes
42	4	yes
43	4	yes
44	4	yes
45	4	yes
46	4	no
47	4	yes
51	5	yes
52	5	yes
53	5	yes
54	5	yes
55	5	no
56	5	yes
57	5	yes
5A	5	yes

APPENDIX III.

PART I SURVEY

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Instructions: Please fill out the following survey with honest answers. Do not put your name on your answer sheet. All information is confidential and will be used only for the purposes of a study examining patterns of cognition.

1. How old are you? 13 14 15 16 17 18 19
2. What gender are you? Male Female
3. What grade are you currently in? 9 10 11 12
4. How many hours do you spend watching television each night? _____
5. Do you drive frequently? Yes No
6. What color was the car you saw in the crash? _____
7. How many vehicles were involved in the crash? _____
8. How fast was the truck going when it contacted the car? _____ m.p.h.
9. Which vehicle stopped just before entering the intersection? _____
10. How many lanes wide was the highway on which the crash occurred? _____

Disclaimer: If you do not feel comfortable answering any of these questions, you are under no obligation to answer them. All information is confidential, and your name will not be asked for.

PART 2 SURVEY

Instructions: Please fill out the following survey with honest answers. Do not put your name on your answer sheet. All information is confidential and will be used only for the purposes of a study examining patterns of cognition.

1. How old are you? 13 14 15 16 17 18 19
2. What gender are you? Male Female
3. What grade are you currently in? 9 10 11 12
4. Do you drive frequently? Yes No
5. Did you see any broken glass? Yes No
6. Have you ever witnessed an automobile wreck in person? Yes No

Disclaimer: If you do not feel comfortable answering any of these questions, you are under no obligation to answer them. All information is confidential, and your name will not be asked for.

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Appendix IV.

Directions/script for part 1

Hello, I am M. C. and I am in Mrs. D's IB Psychology class. I am conducting a psychological study, and I have selected this class as prospective participants. The basic format of this study will be a short movie clip followed by a questionnaire with questions about the movie clip. Participation in this study is completely optional. If you do not wish to participate, or wish to withdraw from the study at any time, you may do so without any penalty whatsoever. Your answers will not affect your grade in this class or any other class. Your name will not be asked for, and any personal information collected is strictly confidential (no identifying factors such as social security number or locker number will be collected). Answer the questionnaire honestly to the best of your ability.

Are there any questions?

(Pause to answer questions, making notes about each question)

I will now pass around a written consent for each participant to sign. Carefully read the short statement at the top, and if you wish to participate, sign your name in one of the blanks below. Your signature cannot be matched with your responses to the questionnaire in any way, and will be used only to demonstrate that all participants gave written consent.

From this point forward, please do not communicate with any other participants in any way.

I will now show a short test run video clip. The questionnaire will not contain any questions concerning this first movie clip. This test run is designed to test the projector system. If you cannot see the screen or cannot make out the video clip, please raise your hand, and you will be allowed to move closer to the screen. (Show test run clip available at the following URL: <http://www.youtube.com/watch?v=c-yxbVKYVrk>). Is anyone having difficulty seeing the screen? (Reseat any participants who answer yes)

I will now show the main clip that the questionnaire will ask questions about. When this section of the movie is completed, I will hand out questionnaires to each participant. Please refrain from talking once the questionnaire has been passed out. The movie clip will feature a car crash caught on a local news camera. Carefully observe the accident, as the questionnaire will ask questions concerning your observations. (Show the video clip of the car accident available at the following URL: <http://www.youtube.com/watch?v=Jjp9DjDECvk>)

I will now distribute the questionnaires. Once again, please do not communicate with other participants. Answer each question honestly and to the best of your ability. Once you have completed the questionnaire, please fold it in half and raise it in the air, concealing your answers from other participants. This is necessary in order to ensure that the experiment's results are valid. I will come to you and I will collect your survey. Once you have completed the survey, please wait quietly for further instruction. (Wait while students complete questionnaire)
Has everyone turned their questionnaire in? (Count the surveys as you collect them to ensure this). Thank you for participating in this study. I will return to do a small follow up study in one week. Until this time, do not communicate with your classmates about the nature of this study in

| | |

any way. When the data has been fully compiled, the results of this study will be made available for each of you, and I will be available to answer any questions you may have concerning this study. Once again, thank you for your participation. (Return all materials to their proper place and exit the room)

Script for part 2

Hello, I am M _____ and I am in Mrs. D _____'s IB Psychology class. I am conducting a follow up study of the previous experiment you all participated in involving the car crash video. Once again, you may choose to withdraw from this ongoing study at any time. Your answers will not affect your grade in this class or any other class. Your name will not be asked for, and any personal information collected is strictly confidential (no identifying factors such as social security number or locker number will be collected). Answer the questionnaire honestly to the best of your ability.

Are there any questions?

(Pause to answer questions, making notes about each question)

I will now distribute the second set of questionnaires. This survey contains different questions concerning the video clip than the first survey. Once again, please do not communicate with other participants. Answer each question honestly and to the best of your ability. Once you have completed the questionnaire, please fold it in half and raise it in the air, concealing your answers from other participants. This is necessary in order to ensure that the experiment's results are valid. I will come to you and I will collect your survey. Once you have completed the survey, please wait quietly for further instruction. (Wait while students complete questionnaire)
Has everyone turned their questionnaire in? (Count the surveys as you collect them to ensure this). Thank you for Participating in this study.

When the data has been fully compiled, the results of this study will be made available for each of you, and I will be available to answer any questions you may have concerning this study. Once again, thank you for your participation. (Return all materials to their proper place and deliver the debriefing)

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Appendix V.
Debriefing letter

This experiment was designed to measure the effects of leading questions on the responses of eyewitnesses. Each of you was given a seemingly identical questionnaire, but there were actually five different groups, each with a minutely different survey. For instance, group 1 had a question: How fast was the truck going when it contacted the car, while group 5's survey asked how fast the truck was going when it smashed into the car. This minute change in wording is thought to produce substantial change in the responses of each participant. The following were the words used:

- Group 1- contacted
- Group 2- hit
- Group 3- bumped into
- Group 4- collided
- Group 5- smashed

I have hypothesized that each successive group's average response will steadily grow from groups 1 to 5. All results of the study will be made available to you once they are finalized. The results of this experiment should demonstrate how effective leading questions can be in changing the responses of eyewitness testimony. The results will be made available to all subjects, and if interested in viewing these results, the participant should report to Mrs. D's psychology classroom before or after 3rd period.

Appendix VI.

or

Written Consent Form

- I have been informed about the nature of the study and the layout of the methods.
- I understand I have the right to withdraw from the research at any time, am under no obligation to participate, and that any information about me will remain confidential.
- My anonymity will be protected as my name will not be identifiable, nor will any other identifying information be collected
- My answers to the questionnaires will not affect my grades in any class, and will be analyzed only in the context of this research study.
- The research will be conducted so that I will not be demeaned in any way.
- I will be debriefed at the end, and have the opportunity to find out the results at a later date.
-

I give my informed written consent to participation in this study.

1. Name: _____ Date: _____

Appendix VII.

k

Written Consent Form

- I have been informed about the nature of the study and the layout of the methods.
- I understand I have the right to withdraw from the research at any time, am under no obligation to participate, and that any information about me will remain confidential.
- My anonymity will be protected as my name will not be identifiable, nor will any other identifying information be collected
- My answers to the questionnaires will not affect my grades in any class, and will be analyzed only in the context of this research study.
- The research will be conducted so that I will not be demeaned in any way.
- I will be debriefed at the end, and have the opportunity to find out the results at a later date.
-

I give my informed written consent to participation in this study.

1. Name: _____ Date: _____