Anticipation Timing Lab

NAME:_____ SCORE:_____

Part I: Effects of Temporal Visual Occlusion on Coincident Anticipation Timing

Introduction. Whiting and Sharp (1974) considered the occlusion period to be the time interval from light-off to interception of the moving object. According to Whiting and Sharp, the relationship between the occlusion period and the correct decision was as the occlusion time increased (0-160 msec.), the number of incorrect decisions also increased. Therefore, with longer occlusion time, the frequency of correct decisions decreased.

The concept of temporal occlusion is used as a technique to evaluate the use of precues in sport situations. Studies of this technique have been carried out with athletes of various skills of tennis players returning a serve, of hockey players before a pitch to the goal, or of soccer player before a penalty kick. Data is these studies suggest experienced athletes are more effect than novice in occlusion situations during the first stages of sport sequence, particularly right before the main stimulus occurs.

Temporal occlusion procedure involves blocking visual information at different stages of the performance usually at the beginning, middle, and end of the situation to determine the way people and performers use vision to perform real life skills. In this lab, the temporal occlusion procedure will be used to study the affect of occluding on their *coincidence anticipation*.

Coincidence anticipation timing (CAT). CAT affects performance in volleyball, basketball, tennis, field hockey, and skills of catching and hitting. CAT involves anticipating the arrival of a moving object and making a motor response of coincident at the exact moment the moving object arrives at a predetermined target area (Millslagle, 2002 & 2004). Other studies have proven that a highly skilled player in sports requiring catching, striking, and hitting has a better CAT ability than player' who are inexperienced (Millslagle, 2000). CAT studies have determined that a gender difference may exist in CAT ability, that is, men are better than women. CAT ability seems to mature between the ages of 14-19 and then declines after the age of 30. Of the many variables that have been studied to affect CAT ability, the effect of stimulus speeds seemed to have the greatest affect (Millslagle, 2008a & 2008b).

Bassin Anticipation timer. The Bassin Anticipation timer will be used to study CAT performance. The Bassin Anticipation timer will record the subject ability to respond accurately by depressing a hand held button at the exact moment of the anticipated arrival of the object. The CAT performance is measured in msec. A negative score indicates an early response where as positive score indicates a late response. The Bassin Anticipation Timer has the capability to occlude different segments of the runway.

Purpose: The purpose is to investigate the affects of temporal occlusion procedure on one's coincidence anticipation timing.

*Procedure***:** All subjects in this experiment will perform 18 trials. The stimulus traveling down the runway will occluded at the beginning, middle, and end. There will 6 trials for each occluded location. The stimulus speed for all trials will be set at 30 mph. The experimenter will record the subject's coincidence anticipation timing in Msec and bias (- or +) for each trial in Table 1 to determine the effect of occluded at the beginning, middle, and end one's coincidence anticipation.

Table 1

		Fast	
Trials	Occlusion	Direction (-/+)	Time (Msec)
1	Beginning		
2	Beginning		
3	Beginning		
4	Beginning		
5	Beginning		
6	Beginning		
7	Middle		
8	Middle		
9	Middle		
10	Middle		
11	Middle		
12	Middle		
13	End		
14	End		
15	End		
16	End		
17	End		
18	End		

Error score calculation. After you have collected your data for this experiment the next step is to calculate your AE and CE for occluded condition (beginning, middle, & end). Use the AE, CE, and VE formulas* to calculate these error scores. Report your AE, CE, and VE in that below data table.

Error scores\Speed	Beginning	Middle	End
AE			
CE			
VE			

*K = 6 in this study, C = 0 msec, X = sum of trial scores

Part 2: Assimilation Effect

Introduction: The assimilation effect observed by Haywood, Greenwald, and Lewis (1981) is the performer would respond in the direction of the prior stimulus speed. That is, prediction of a slower speed which follows a faster one would yield a negative error (an early response). Prediction of a faster speed which follow a slower one would yield a positive error (an late response). For example by varying the speeds of their pitches to try and trick batters into swinging early or late, baseball or pitchers use this effect to their advantage. It is seen most often when a change-up or slow pitch is thrown following a fast ball, causes the batter to swing impulsively early and gain a strike.

Purpose: To examine the assimilation effect using the basin anticipation timing task.

Equipment: Basin anticipation timer.

Procedure: The subject will be seated in front of a basin anticipation timer. The subject will depress the hand held button held by their non-dominant hand with their forefinger at the exact moment the lighted stimulus travelling down the runway will arrive at the target area. The experimenter will manipulate the speed at which the led light will travel down the runway (see table 1). Record the subject bias, that is, being fast (-) or slow (+), and magnitude of error in msec for the designed trials identified in the Table 1.

Trial	Speed	CE (+ or -)	AE (Msec)	Combination	Predicted Result
1	20	----------	----------		
2	20	----------	----------		
3	10			Fast then slow	Early (-)
4	10	----------	----------		
5	10	----------	----------		
6	20			Slow then fast	Late (+)
7	10			Fast then Slow	Early (-)
8	10	----------	----------		
9	20			Slow then fast	Late (+)
10	20	----------	----------		
11	20	----------	----------		
12	10			Fast then slow	Early (-)
13	20			Slow then fast	Late (+)
14	20	----------	----------		
15	20	----------	----------		

16	10			Fast then slow	Early (-)
17	10	----------	----------		
18	20			Slow then Fast	Late (+)
19	10			Fast then Slow	Early (-)
20	20			Slow then fast	Late (+)

Results: Calculate your AE for the different combinations and record these means in the table below

Fast to slow AE Mean (msec)	Slow to fast AE Mean (msec)

Lab Questions:

1. Did you find a difference in magnitude of your temporal anticipation? Where?
2. Did you find a difference in bias of your temporal anticipation ? Where?
3. Did you find a difference in your consistency of temporal anticipation? Where?
3. In examining your CE (bias) for the different combinations (Fast to slow; slow to fast), did you support or not support the assimilation effect?
4. Which combination produced the greatest error (AE)? Why?