

The Passing of Joe Brady

Dr. Joseph V. Brady died on July 29, 2011. This version of the ABAI presentation has several slides in tribute to our colleague.



Behavior Analysis of Team Performance: A Case Study of Membership Replacement

Henry H. Emurian

&

Kip Canfield

UMBC

&

Joseph V. Brady

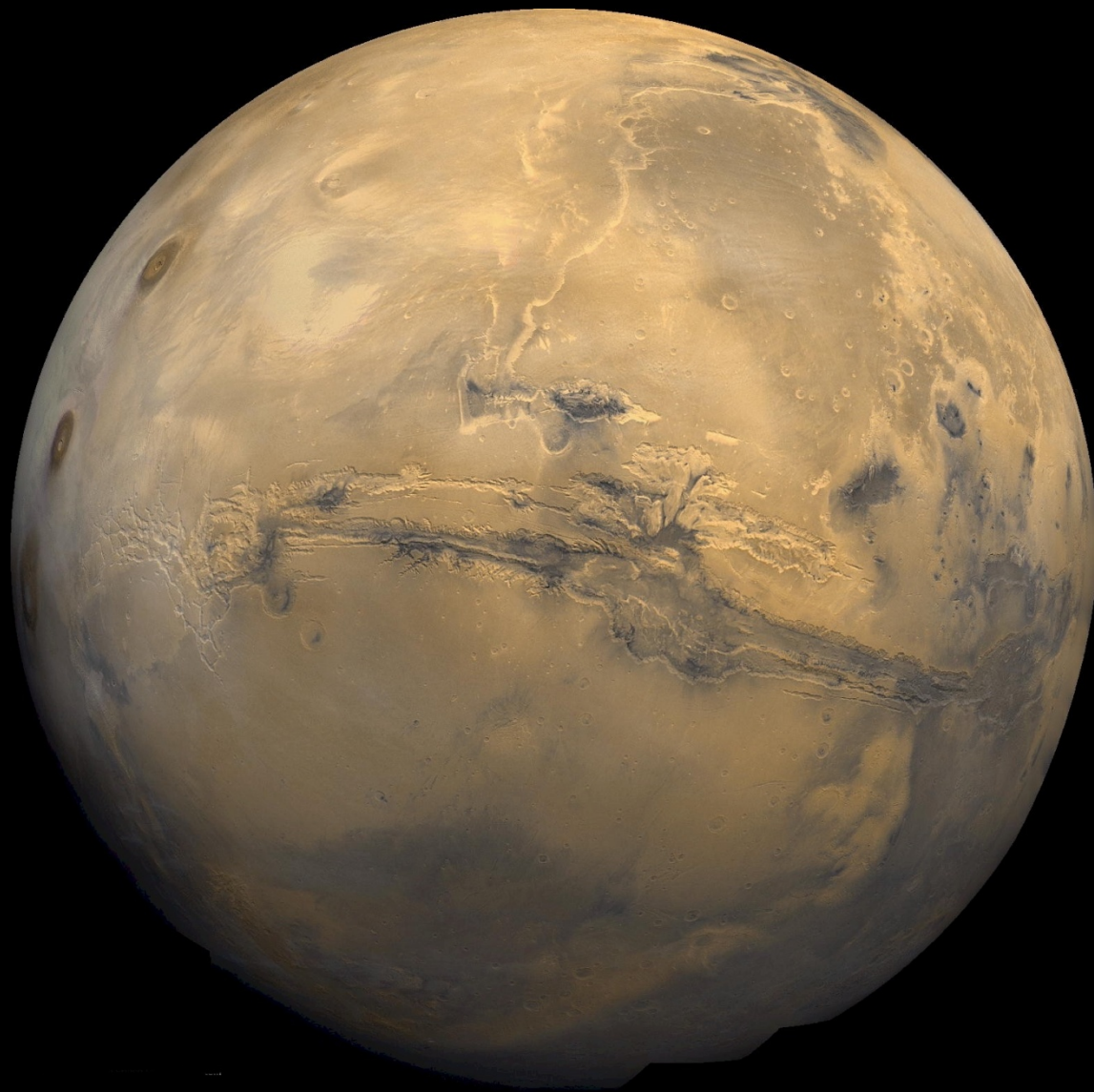
Behavioral Biology Research Center

Johns Hopkins University School of Medicine

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Founder and Chairman Emeritus
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The Institutes for Behavior Resources, Inc. (IBR) is a non-profit organization in Baltimore dedicated to research, education and service. It was founded in 1960 for the purpose of enhancing the growth of the behavioral sciences and their application to human affairs.

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- **Extended stays** by human groups in extraterrestrial vehicles and habitats will be common in this century.
- Ensuring participants' **behavioral health** requires consideration of innovative approaches to microsociety assessment and management.

Life in Space Will Not Be Easy



- The **detection** of impending performance degradation requires innovative approaches to monitor and measure both individual and team performances that relate to the operational status of a crew.
- The introduction of effective **countermeasures** to degradation is complementary to detection.
- Potential **solutions** to these two challenges will benefit from a technology that can integrate both considerations within a common conceptual framework with respect to task performance.

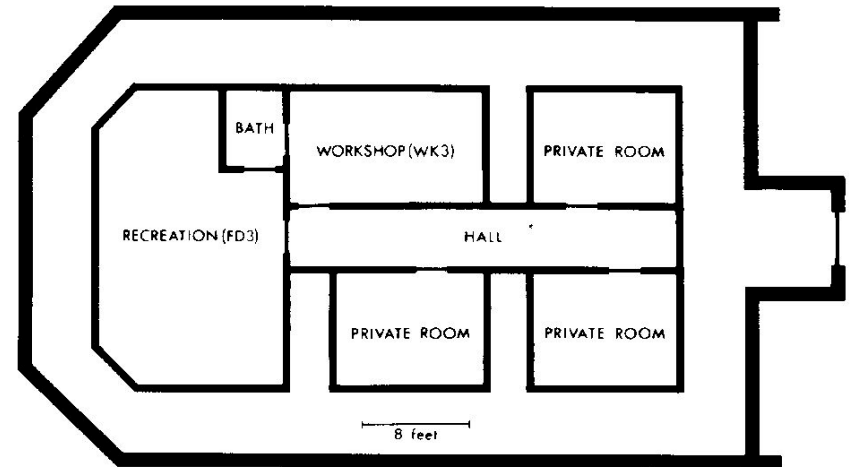
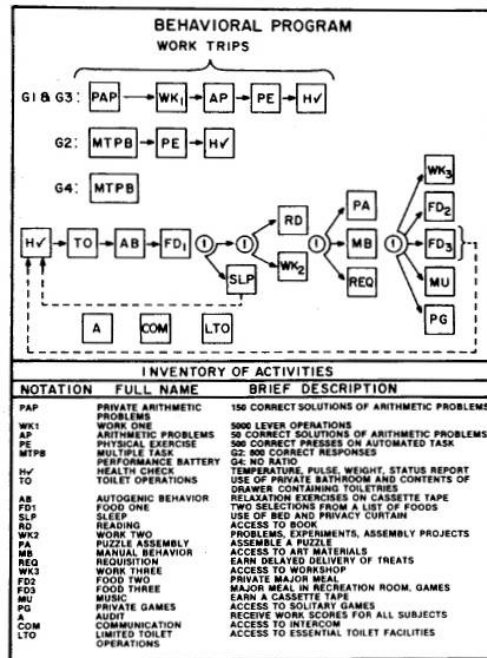
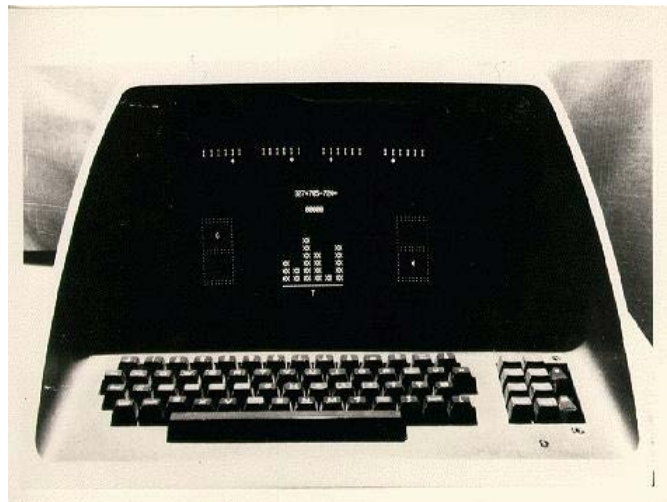
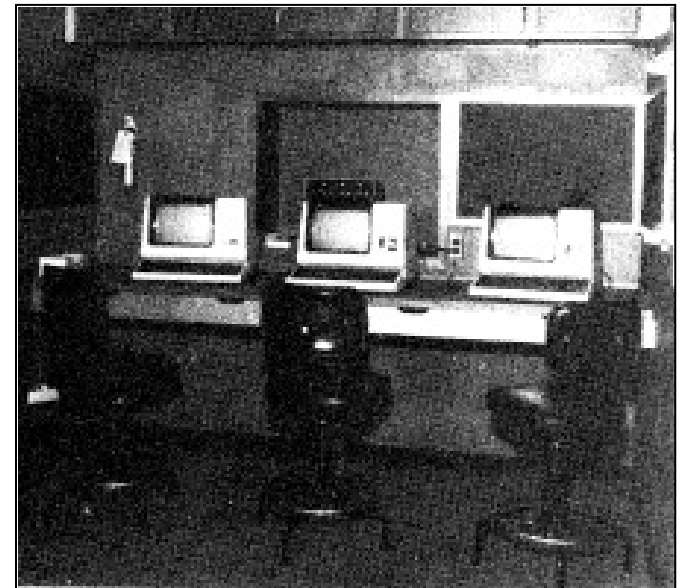


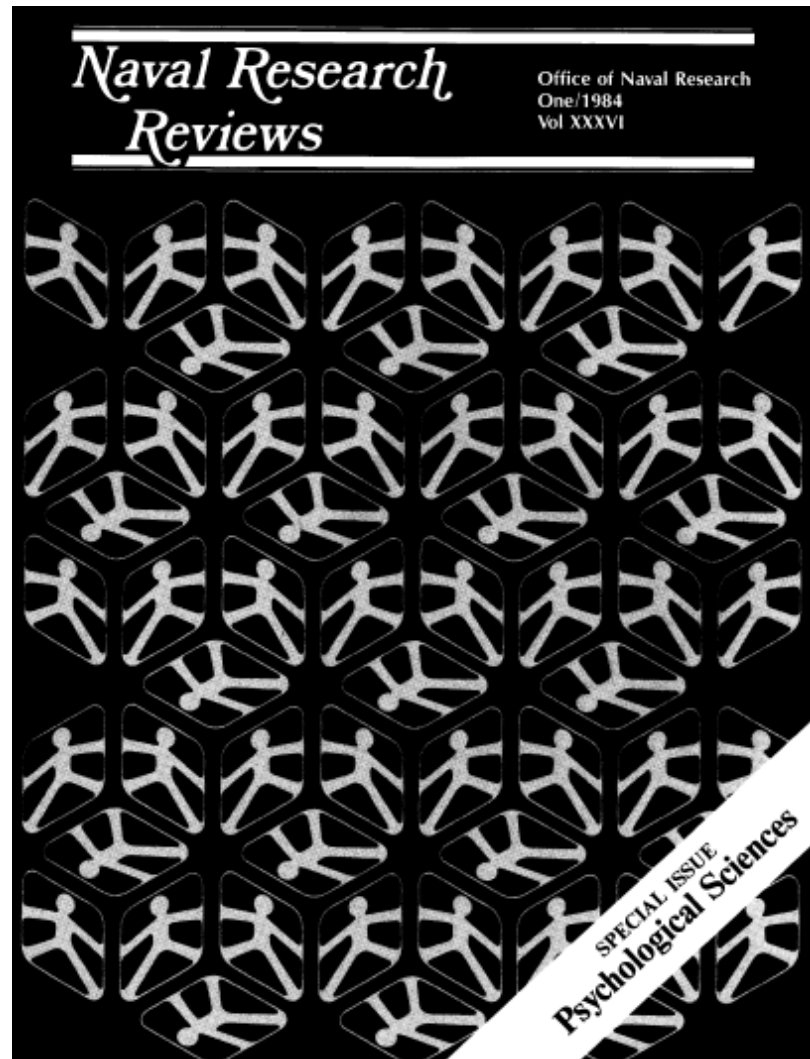
Fig. 1. A schematic diagram of the programmed environment.



“The Alluisi”



Brave New World?



Team Performance Task (TPT)

TPT Main

zaad.umbc.edu:8888/tpt9jtb/tpt6v9.php?var=var.100.js

Resource

Resource

Resource

Barrier3

Barrier4

Barrier5

Barrier6

Barrier8

Barrier9

Target score=0

You are User1
Barrier= 1000 Points= 60 for Team
User1 Score = 0
User2 Score = 0
User3 Score = 0

Total Score = 0

Send a request to reveal a barrier.

Request

TPT Main

zaad.umbc.edu:8888/tpt9jtb/tpt6v9.php?var=vari.25.js

Resource

Resource

Resource

User3 has requested that you reveal your Barriers.

Barrier1

Barrier2

Barrier3

Barrier6

Barrier8

Barrier9

Target score=1

Send a request to reveal a barrier.
Request

You are User2
Barrier= 250 Points= 20 for Individual
User1 Score = 0
User2 Score = 1
User3 Score = 0

Total Score = 1

TPT Main

zaad.umbc.edu:8888/tpt9jtb/tpt6v9.php?var=vari.25.js

Resource

Resource

Resource

You hit **Barrier2**

Barrier1

Barrier2

Barrier3

Barrier6

Barrier8

Barrier9

Target score=0

You are User2
Barrier= 250 Points= 20 for Individual
User1 Score = 0
User2 Score = 0
User3 Score = 0

Total Score = 0

Send a request to reveal a barrier.

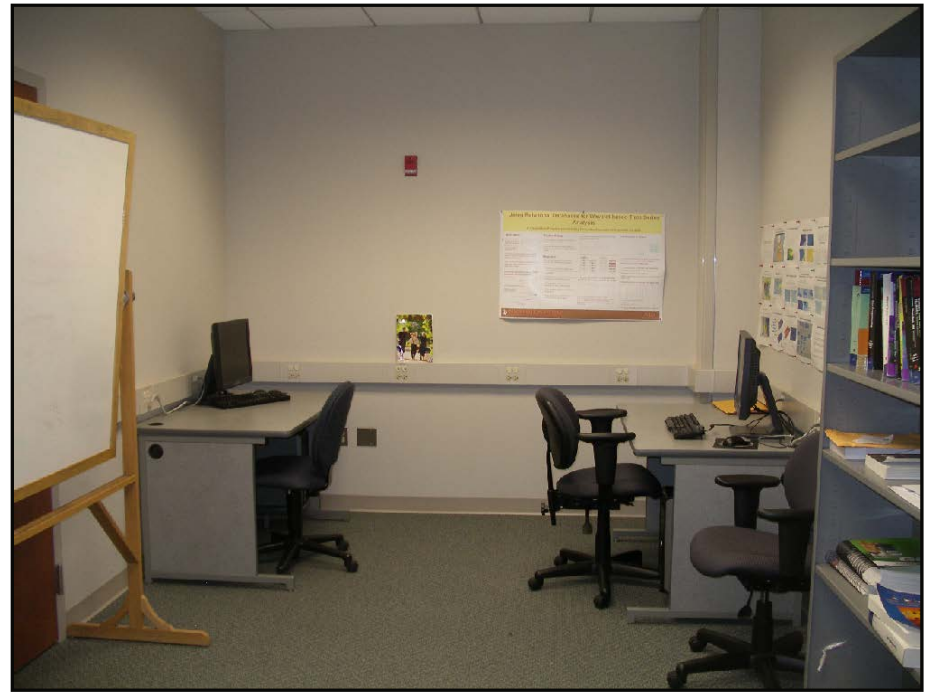
Request

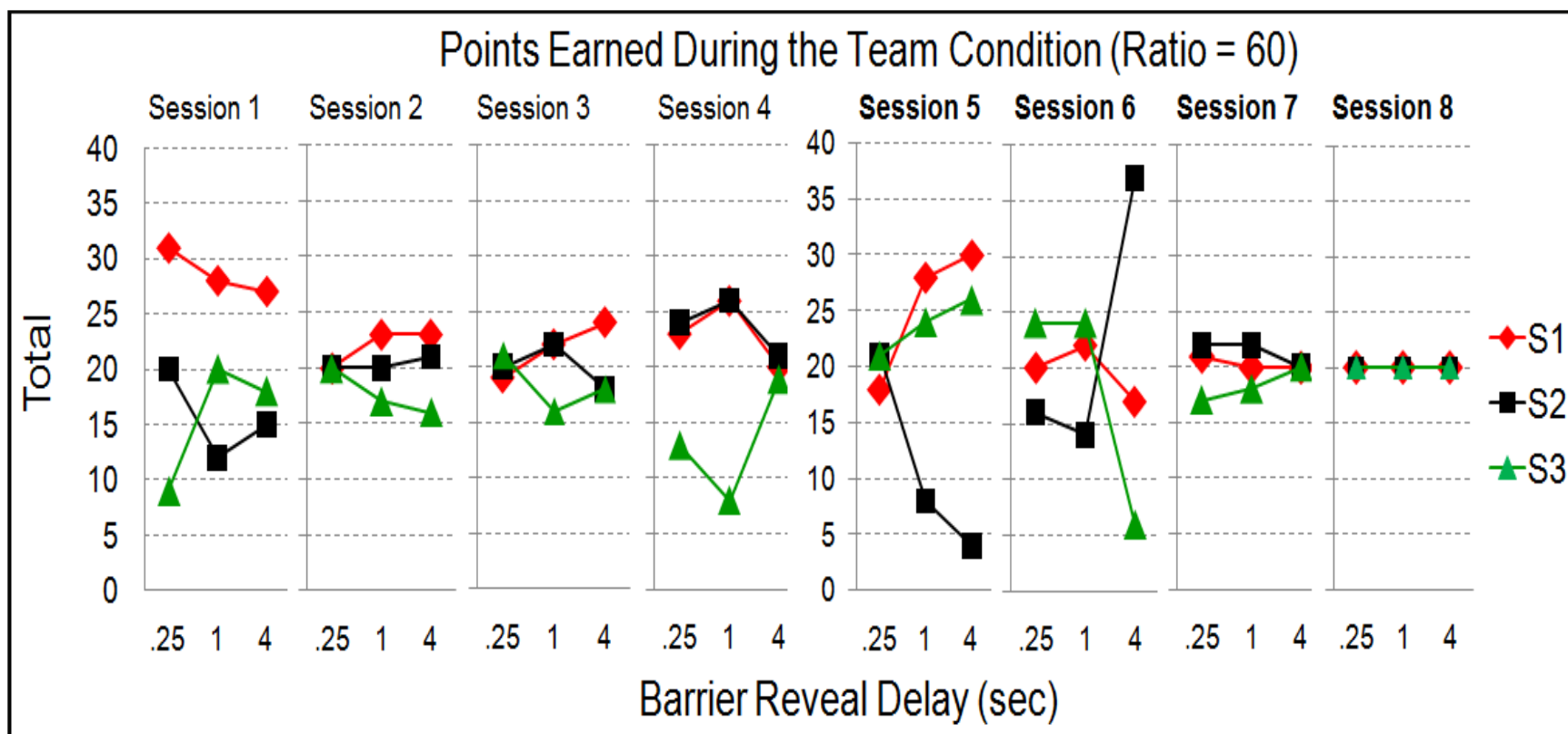
- Individual fixed ratios (I)
 - Each team member was required to accumulate 20 points to complete each of three successive session components.
 - .25 sec barrier reveal delay
 - 1 sec barrier reveal delay
 - 4 sec barrier reveal delay
- Team fixed ratio (T)
 - The team was required to accumulate 60 points to complete each of three successive session components.
 - .25 sec barrier reveal delay
 - 1 sec barrier reveal delay
 - 4 sec barrier reveal delay

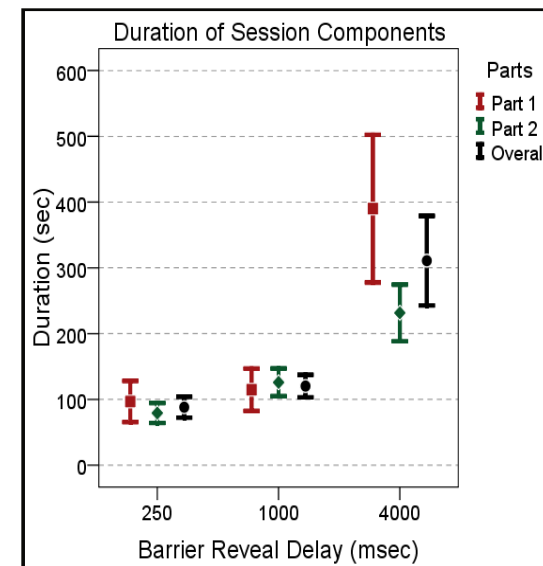
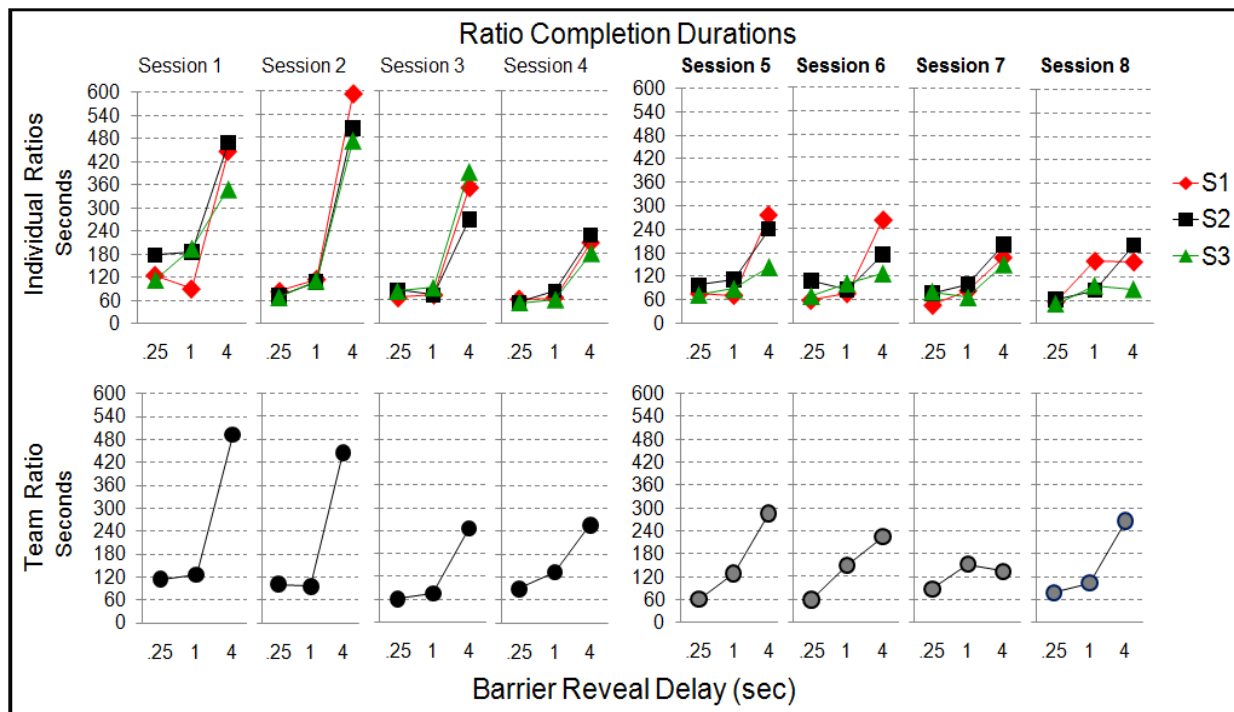
- Day 1: I-T
- Day 2: T-I
- Day 3: I-T
- Day 4: T-I
- Day 5: I-T with S2 replaced
- Day 6: T-I
- Day 7: I-T after team meeting
- Day 8: T-I after team meeting

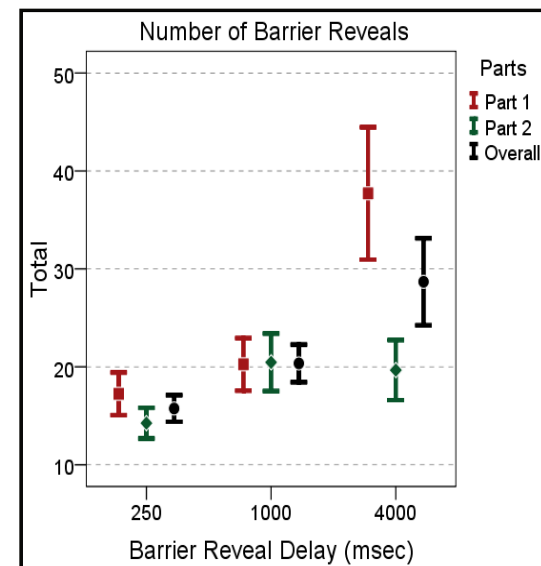
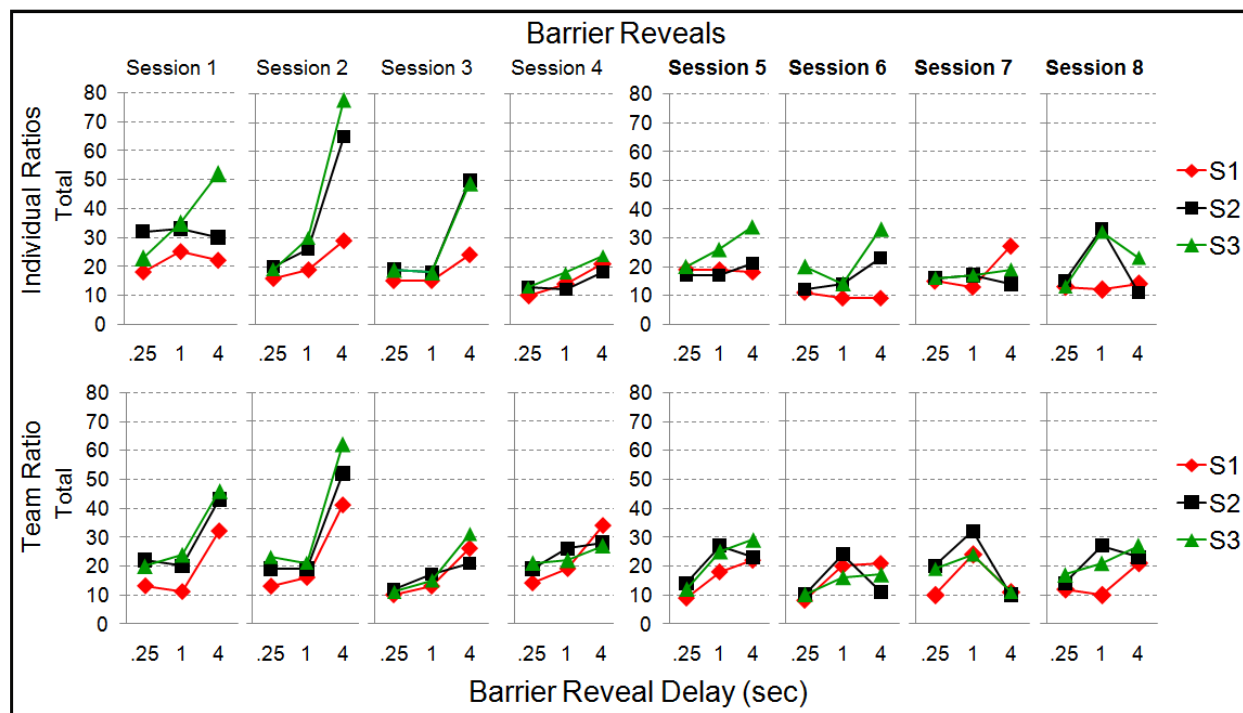
Table 1

S#	Status	Major	Sex	Age	Game Experience	Computer Experience
1	Junior	Health Administration	F	19	8	8
2	Junior	Social Work	F	19	2	6
3	Junior	Health Administration	M	20	7	7
2*	Sophomore	Biology	F	18	8	9

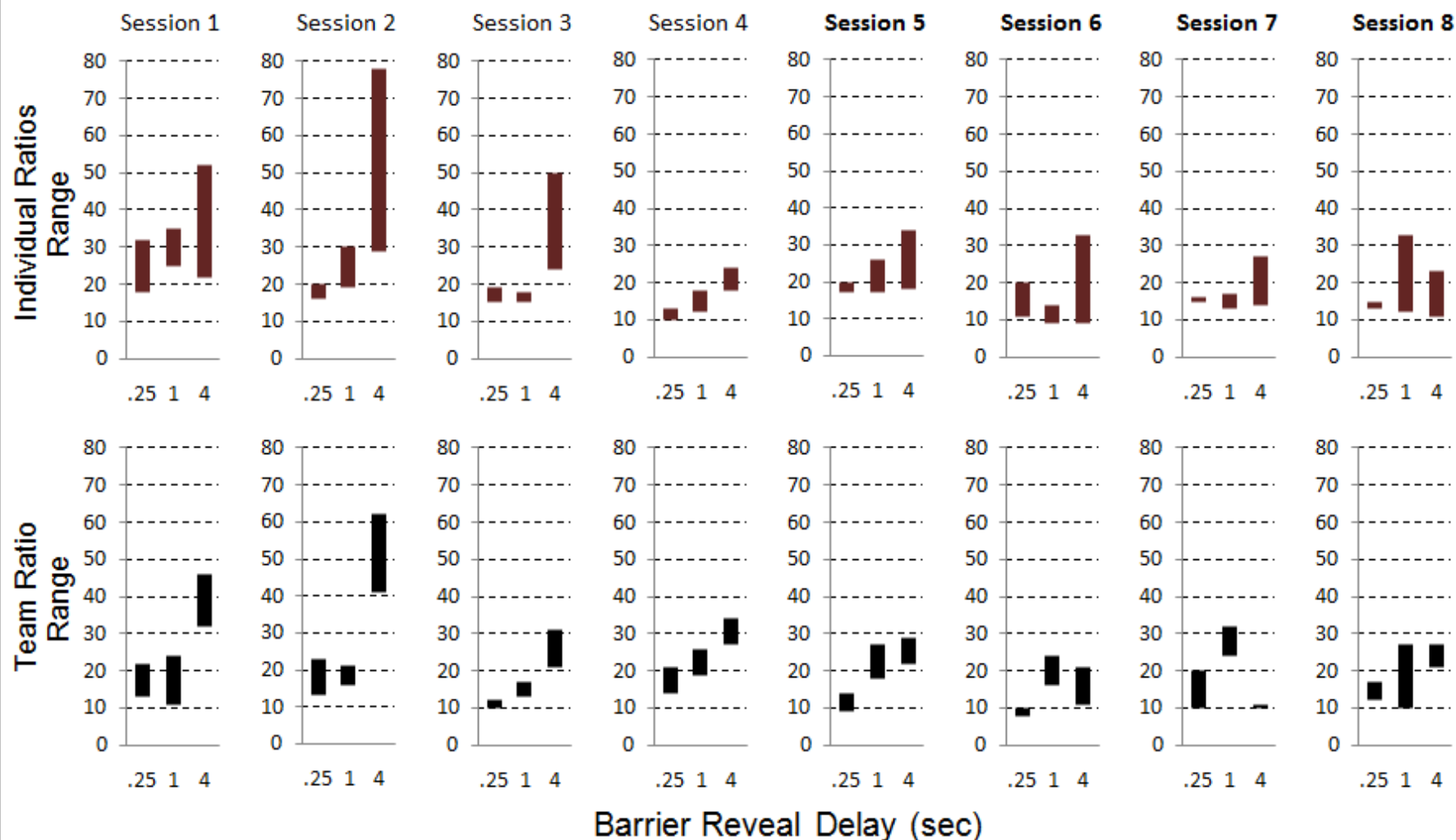


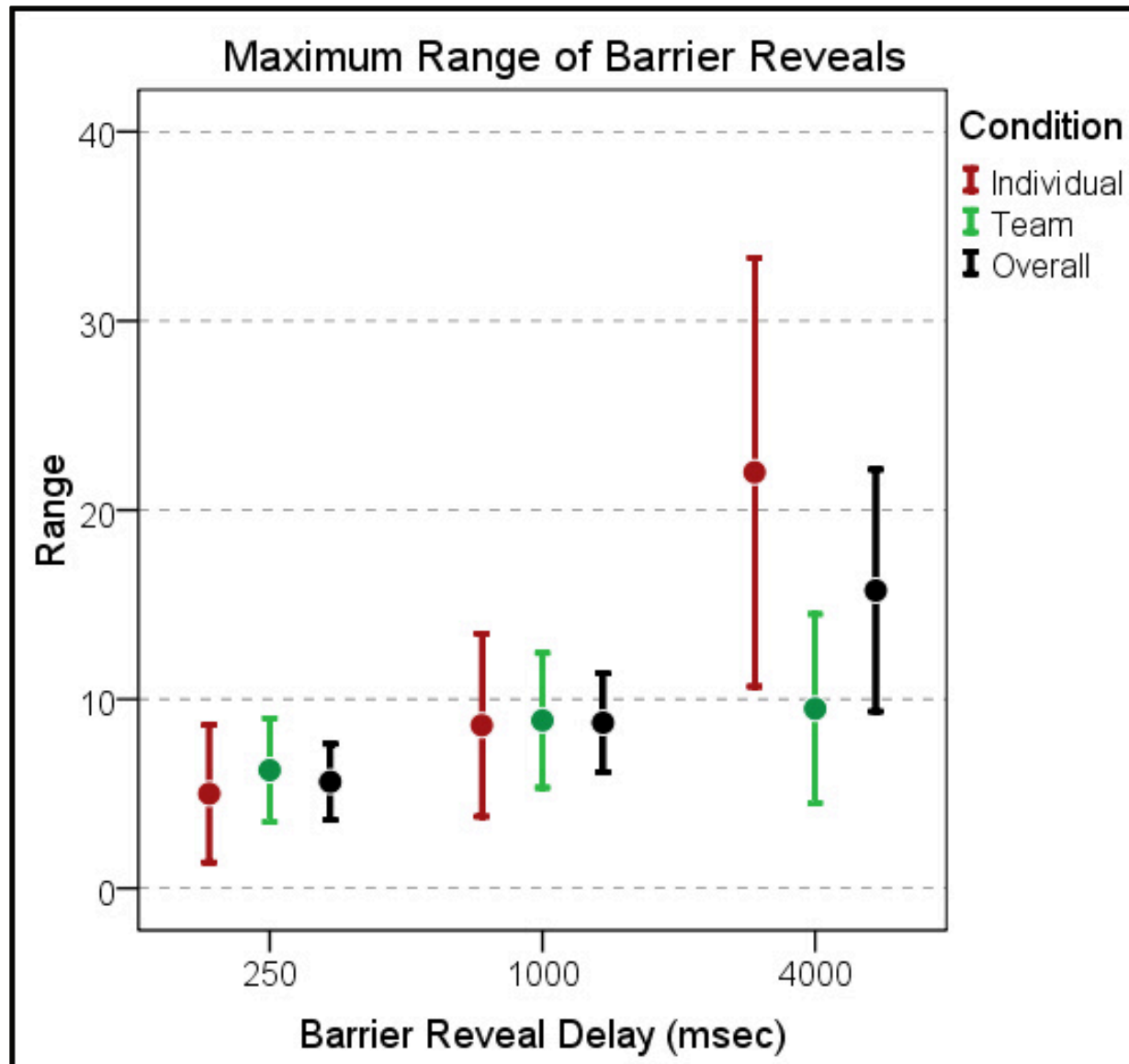






Maximum Range of Barrier Reveals

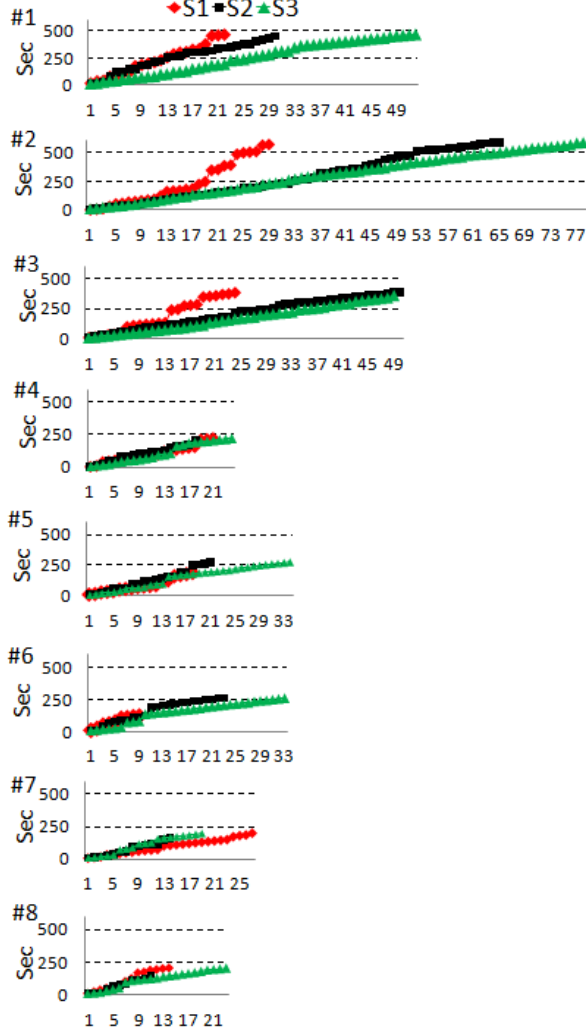




Barrier Reveals: 4000 msec Delay

Individual

◆S1■S2★S3

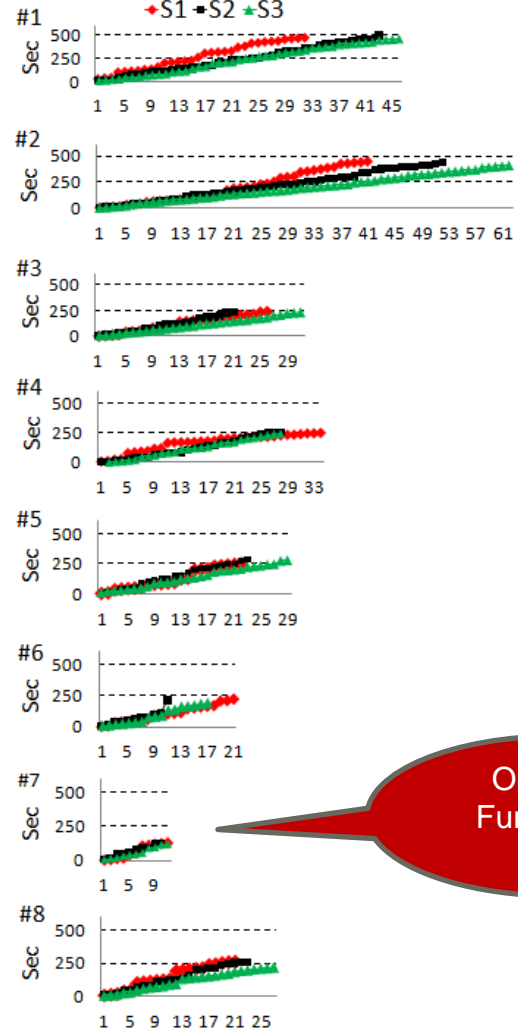


Subject 2
Replaced

Strategy Meeting Before #7 and #8

Team

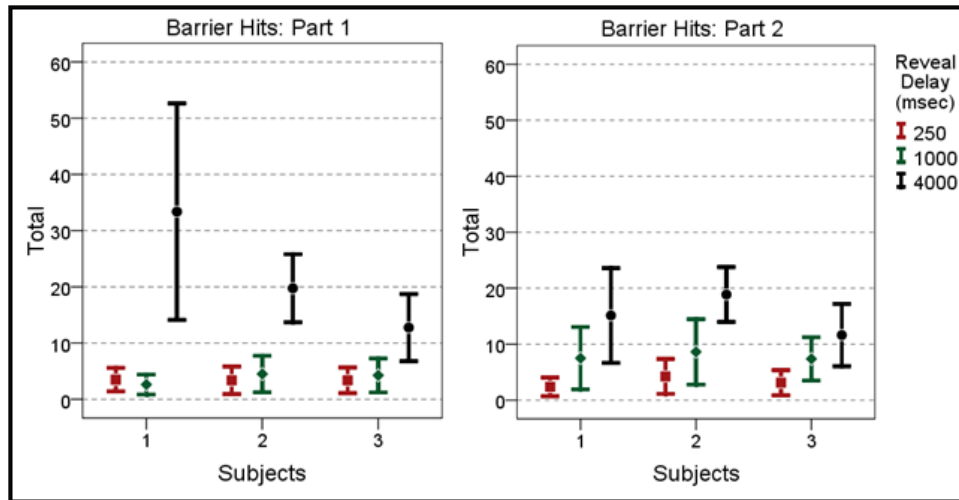
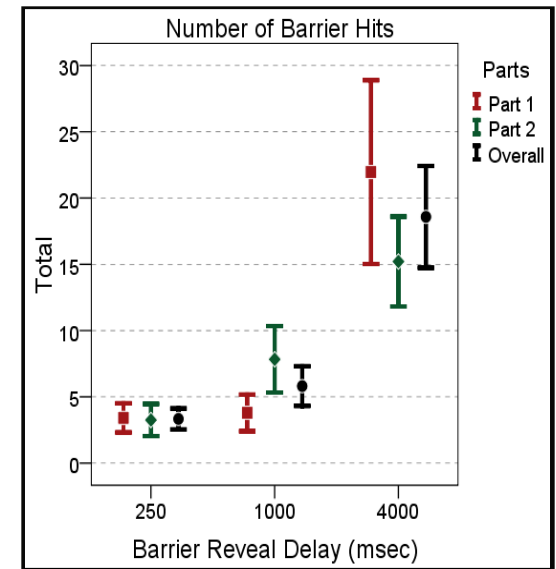
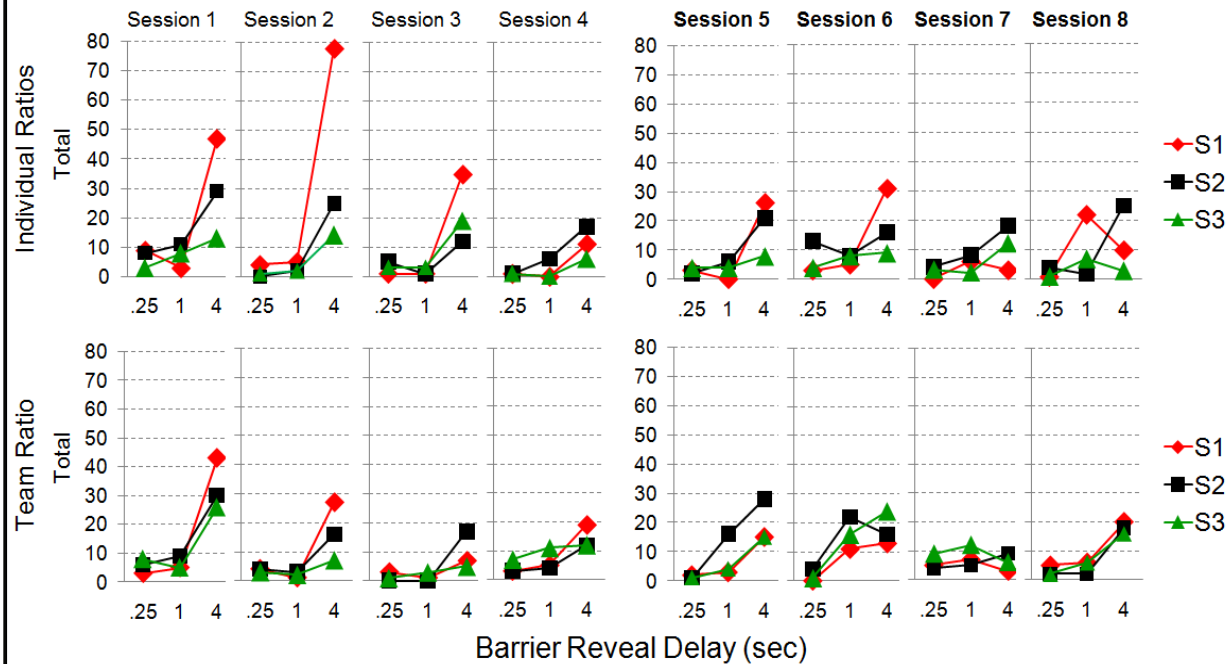
◆S1 ■S2 ▲S3



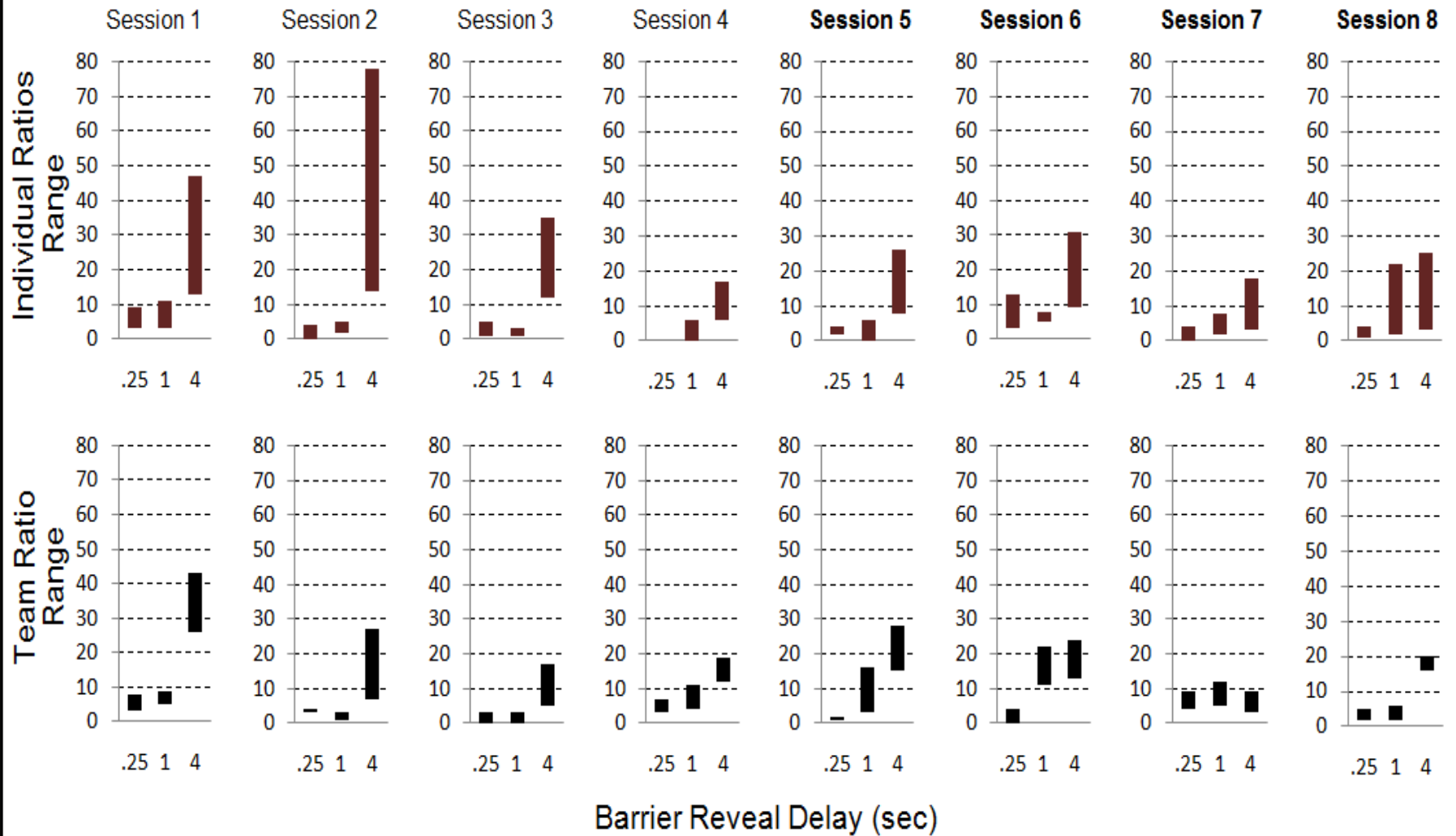
Optimally Functioning Team

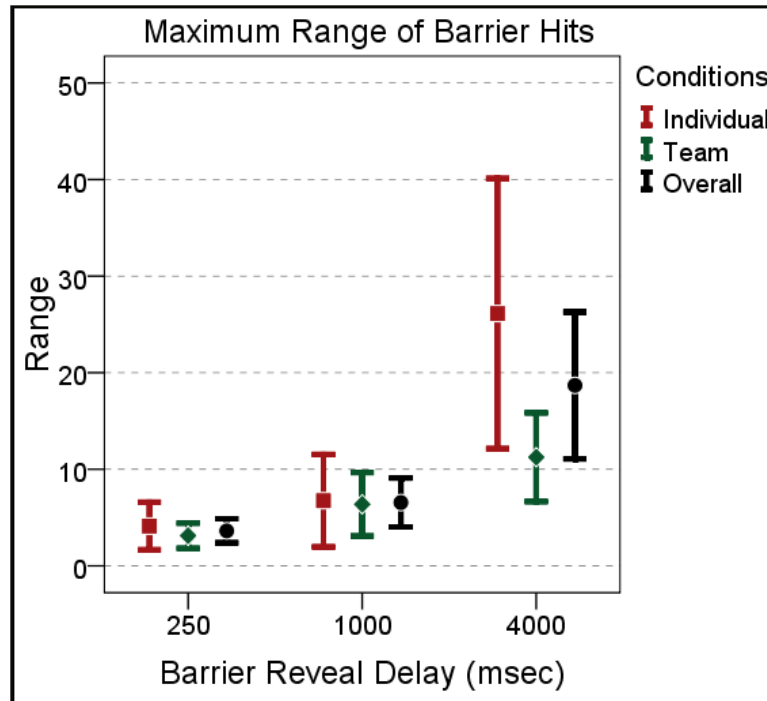
Successive Reveals

Barrier Hits



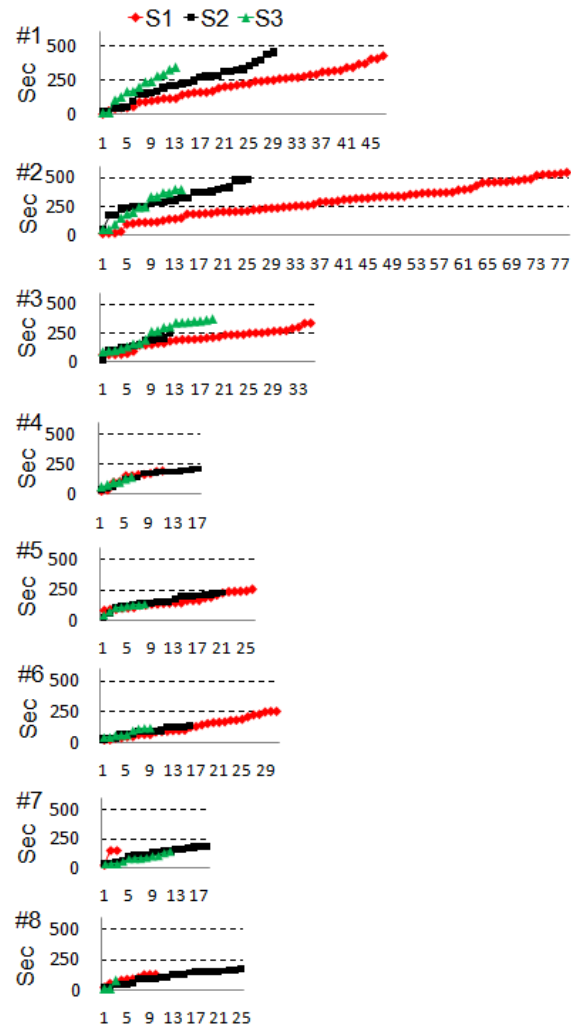
Maximum Range of Barrier Hits



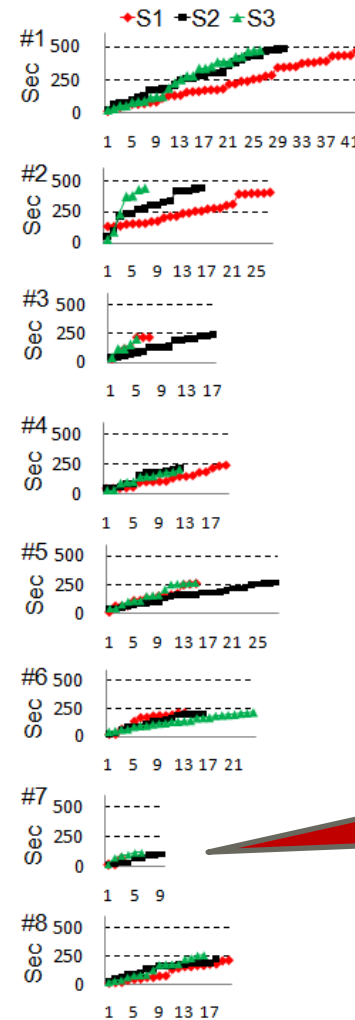


Barrier Hits: 4000 msec Delay

Individual



Team

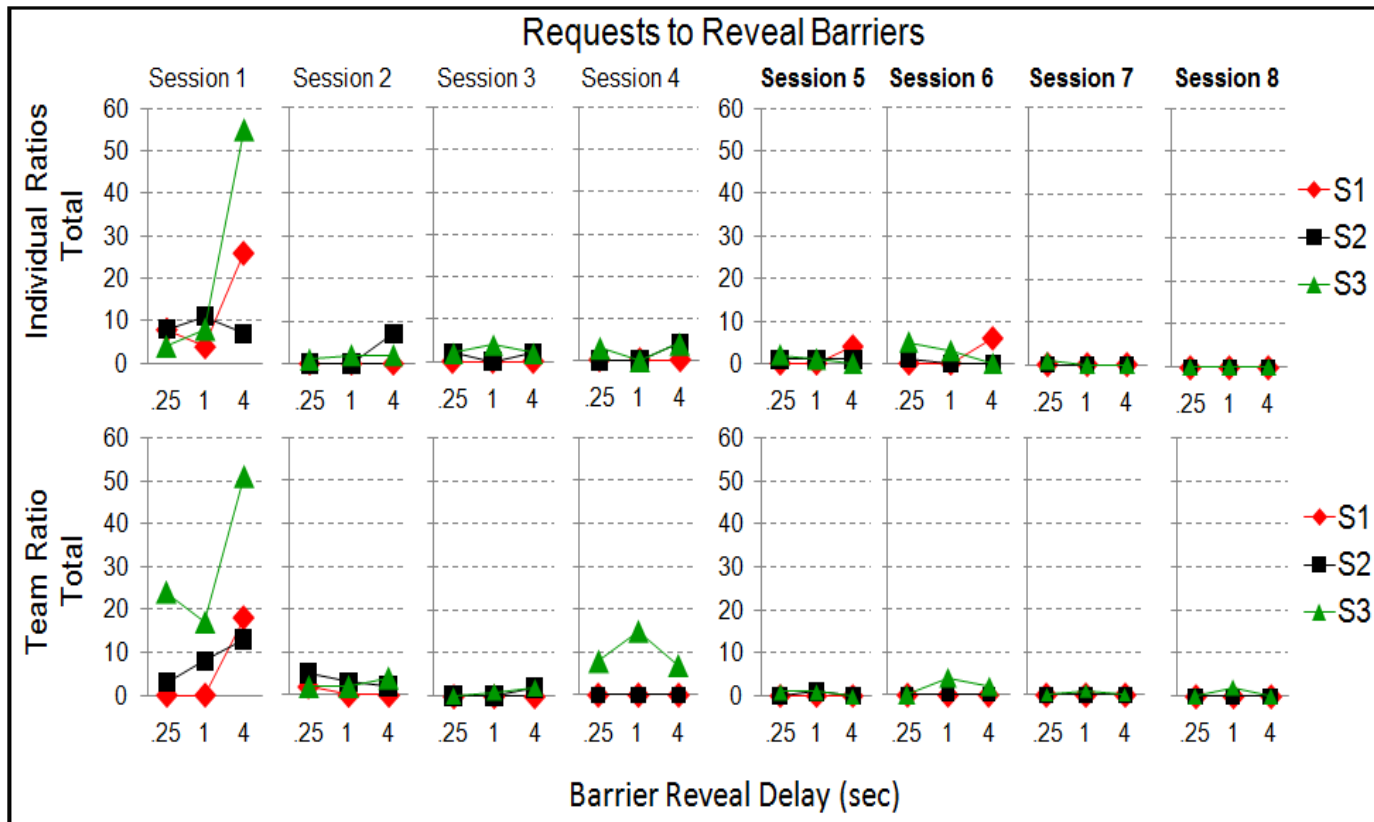


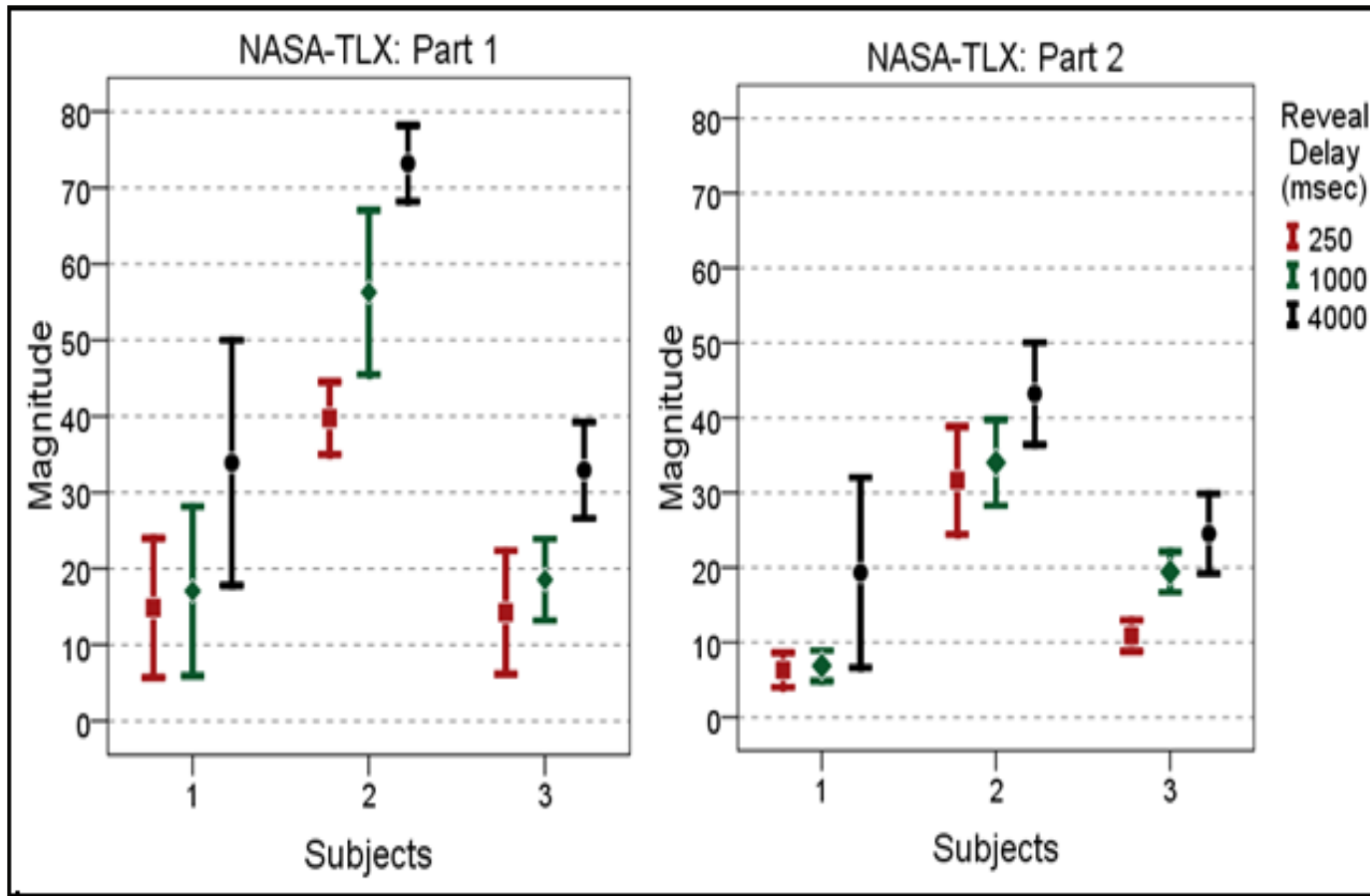
Subject 2
Replaced

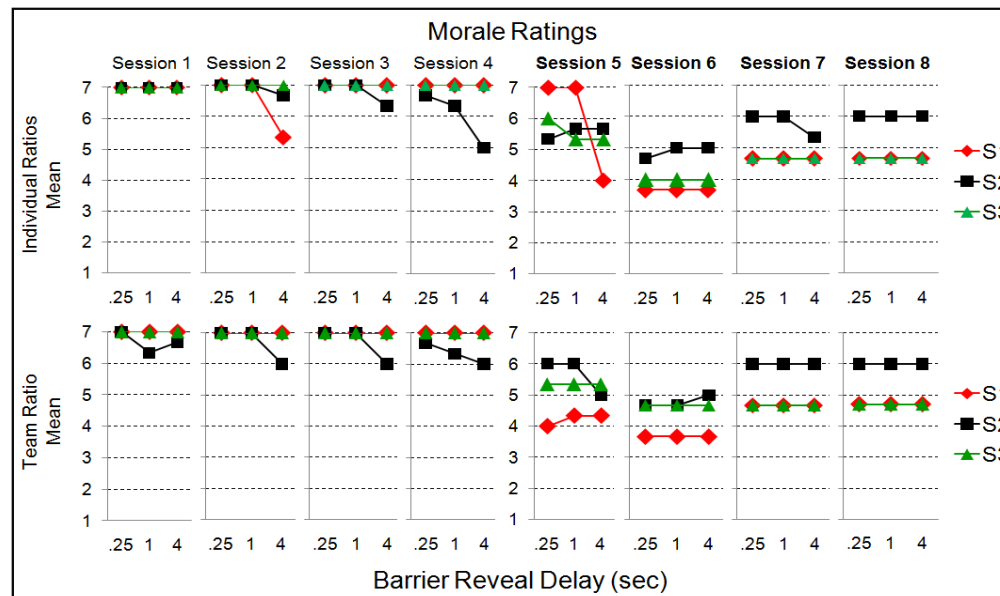
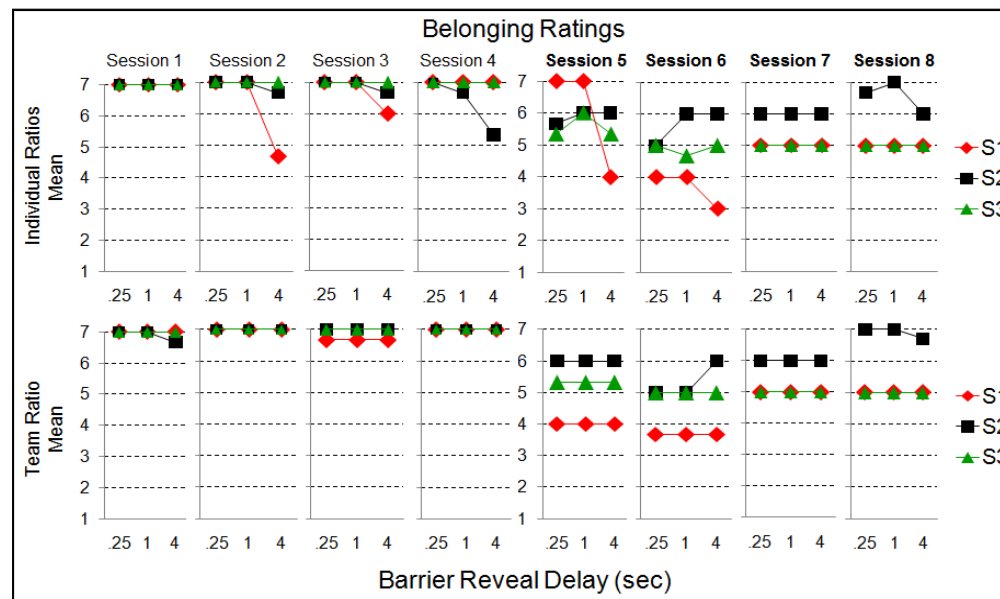
Strategy
Meeting Before
#7 and #8

Optimally
Functioning
Team

Successive Hits







- Performance differences observed between the individual and team ratio conditions were evident in the **range of barrier reveals and barrier hits** during the 4-sec component.
 - The mean range of barrier reveals was **higher** in the individual condition in comparison to the team condition
 - The mean range of barrier hits was **higher** in the individual condition in comparison to the team condition.
- The debriefing statements suggest that the individual and team ratio conditions differentially affected the way that team members perceived the task scenario and undertook to **fulfill the ratio requirements** under the two conditions.

Replacement Effects

- Destabilization of teamwork
- Lowered team morale

- Shared “mental model”
- Rule-governed performance
- Optimal performance exemplar

- In what ways may team-oriented tasks such as the TPT be used not only as **diagnostic markers** of the status of a crew, but also as tools to **affirm and maintain social cohesion** and **role differentiation and identification** among crew members and between crew members and mission control?

Acknowledgements

This study was supported in part by the National Space Biomedical Research Institute through NASA NCC 9-58-NBPF01602, Joseph V. Brady, Principal Investigator.

The authors acknowledge the assistance of Christian E. Demeke, an undergraduate major in Information Systems at UMBC, in testing the TPT and in conducting this study. We also acknowledge the contributions of Emily Toy and Oana Tibu, UMBC students, for their previous assistance in this stream of task development and research.

Thank You!





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This presentation is based upon an article published in *The Behavior Analyst Today*.

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URL: http://userpages.umbc.edu/~emurian/space/Emurian_Brady_2007.pdf

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URL: <http://papers.sae.org/2009-01-2423/>

A Tribute

UMBC

An Honors University in Maryland

March 25, 2011

Dr. Joseph V. Brady

Dear Joe,

It was my good fortune to be working for you in the programmed environment when interactions between coffee drinking and cigarette smoking were being investigated. On one occasion, a participant had prepared a cup of coffee for himself, and he put the cup down on a table close to the opening of a cigarette dispenser that was mounted on a wall. There was a button on the dispenser, and a fixed ratio of presses was required to earn a cigarette, which was released through an opening at the bottom of the dispenser. On that particular occasion, when the ratio was completed, the cigarette came flying out of the opening, sailed across the table, and landed in the man's cup of coffee. As I recall, that was the best evidence ever observed of an interaction.

Stay well, Joe. We've got work to do: MARS!

Best to you,



Henry H. Emurian

We must finally rely, as have the older sciences, on replication.

➤ **Cohen, 1994, p. 1002**

Cited in Cumming, G. (2008). Replication and p Intervals: p Values Predict the Future Only Vaguely, but Confidence Intervals Do Much Better. *Psychological Science*, 3(4), 286-300.

Keep making responses.

➤ **Brady, 2009**

BehvWiki interview with Joseph V. Brady:

http://web3.unt.edu/behvh/wiki/index.php/Joseph_V._Brady

The Passing of Joe Brady

Subject: The Passing of Joe Brady
From: reid blank <Rblank@ibrinc.org>
Date: 7/31/2011 11:59 PM
CC: Steven Hursh <srhursh@ibrinc.org>

Dear Friends,

With great sadness IBR reports that Dr. Joseph V. Brady died on July 29, 2011 at the age of 89 in Baltimore, Maryland. While Joe will be greatly missed by all of us at IBR, as well as his family, friends, and professional colleagues, the family is grateful that he was able to fully participate in the May 2nd event celebrating the 50th anniversary of the founding of IBR, the beloved organization he established.

As you know, the Gala Dinner honored Joe for his life achievements and was an opportunity for all who knew and loved Joe to thank him and show their warm appreciation. The Brady family thanks all who participated in the Gala Dinner for helping to make the event a fitting memorial, with Joe in attendance standing on his own two feet, as he wanted to be remembered. A small, private ceremony at Arlington National Cemetery is planned for the near future.

Condolences may be sent to:

Nancy Brady
1000 Fell Street, Unit 610
Baltimore, Maryland 21231

In lieu of flowers, the Brady family requests that tax-deductible contributions be made to IBR in support of the "Joseph V. Brady Behavioral Sciences Center", which will be located on the 4th and 5th floors in IBR's building.

--

Steve

Steven R. Hursh, Ph.D.
President
Institutes for Behavior Resources
2104 Maryland Avenue
Baltimore, MD 21218
410-752-6080, ext 150 (office)

Programmed Environment Research Center (PERC)

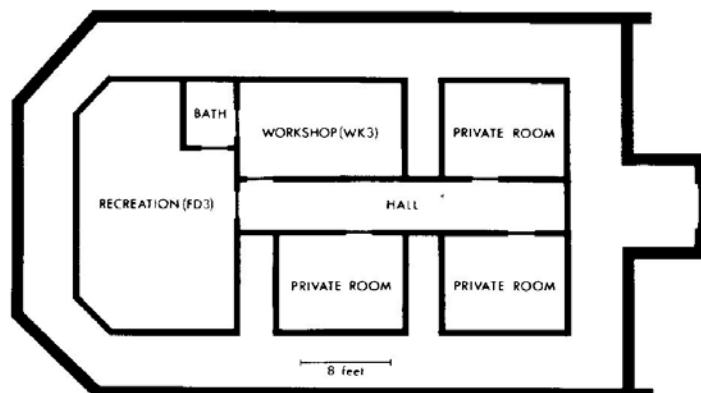
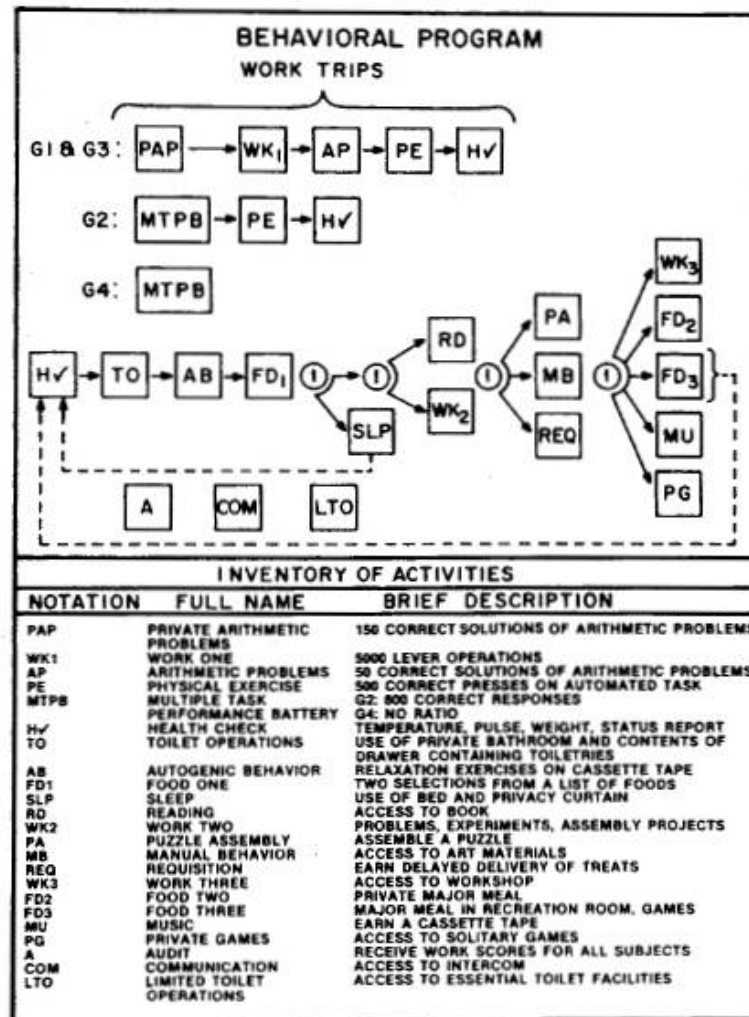
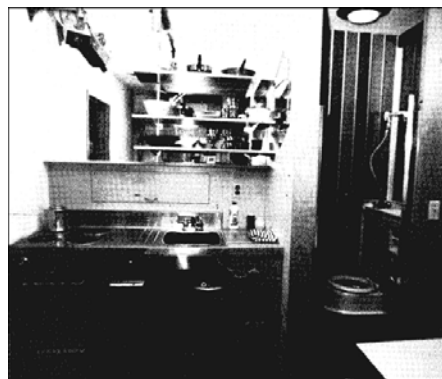


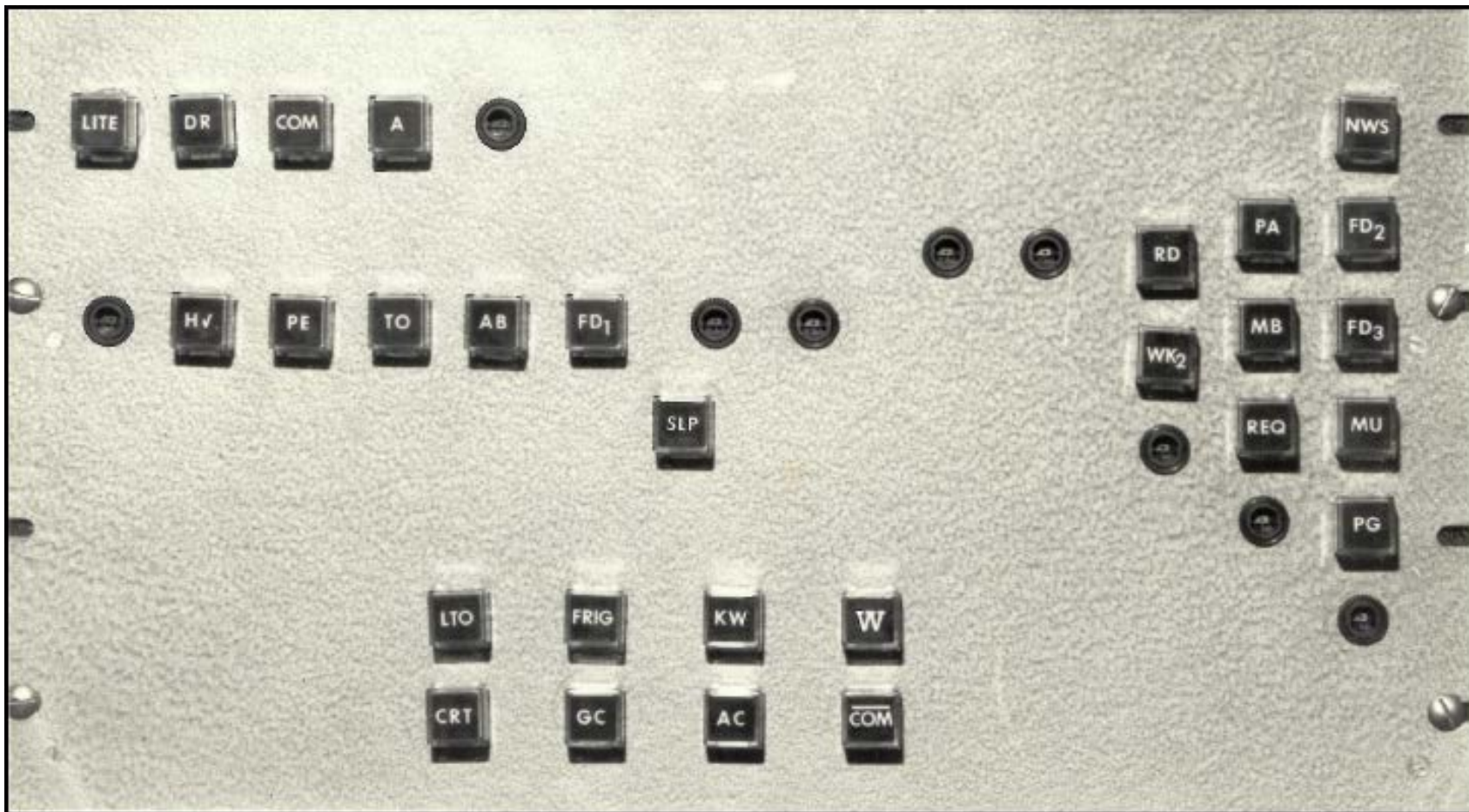
Fig. 1. A schematic diagram of the programmed environment.



Private Chamber Work Station: Up Close



Monitor's Console



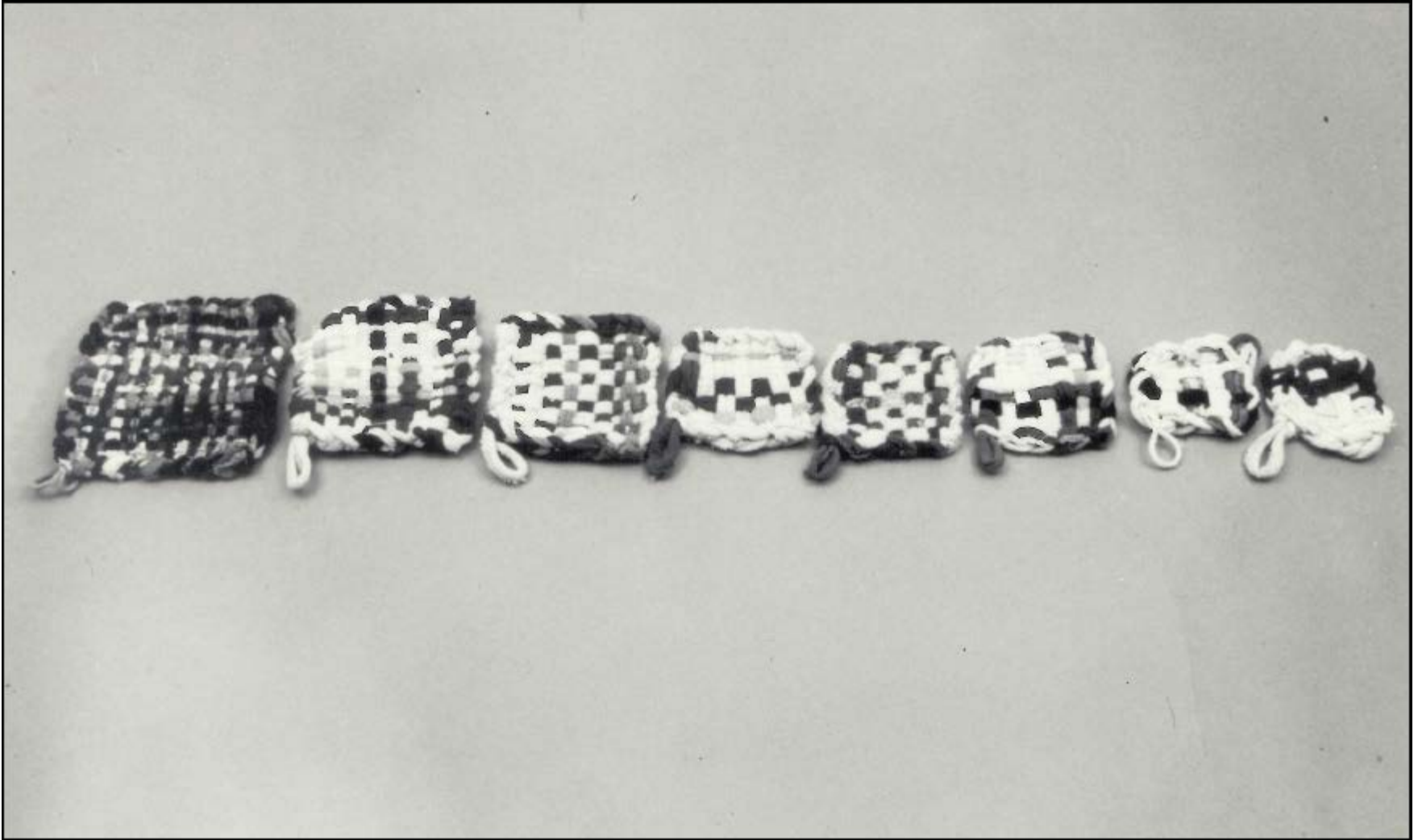
Control Room Consoles



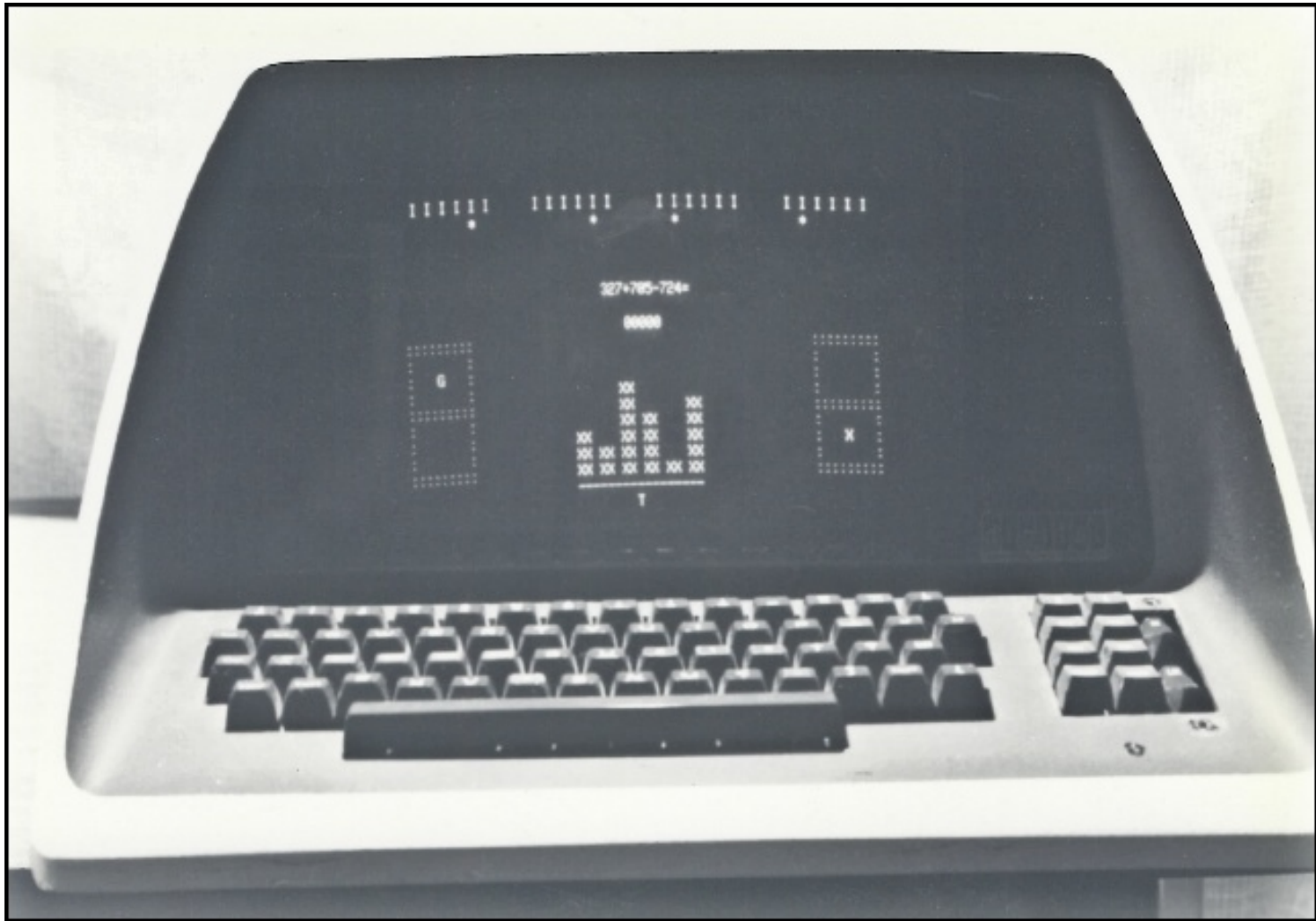
Monitors Deluxe!



A Change in Performance Effectiveness?



The Alluisi Multiple Task Performance Battery



Applications: I



Applications: II



Our Friend, Joe

