Children's Affective Experiences in TGfU Game Environments

By

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Previous TGfU Research

- **Physical Domain**
  - Performance

- **Cognitive Domain**
  - Understanding

- **Affective Domain**
  - Motivation
    - Invasion Games (Mitchell et al., 1995)
    - Net/Wall Games (Griffin et al., 1995)
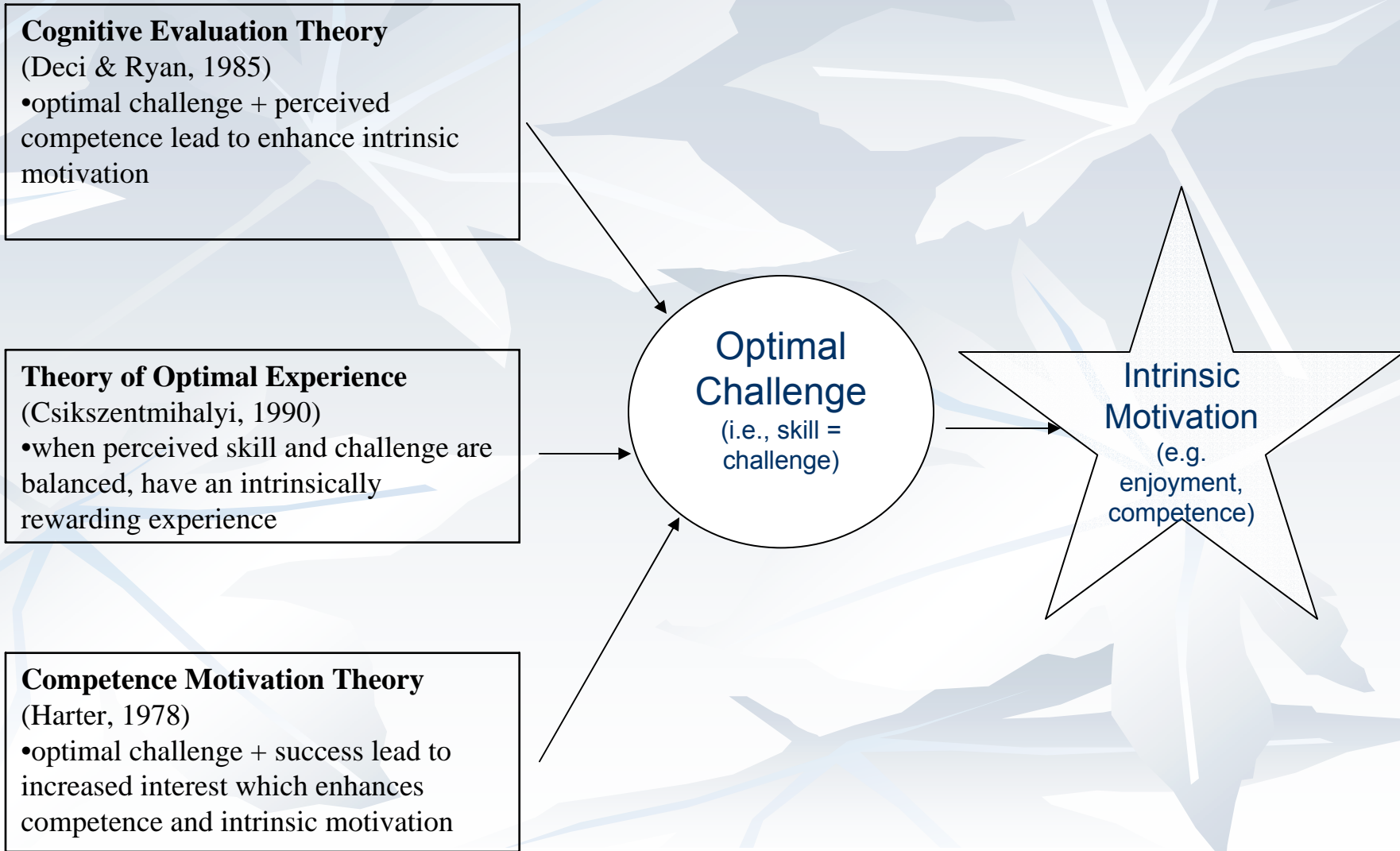
Majority of Research
- Holt et al., 2001
- Rink et al., 1996

Physical

Whole Child

Affective   Cognitive
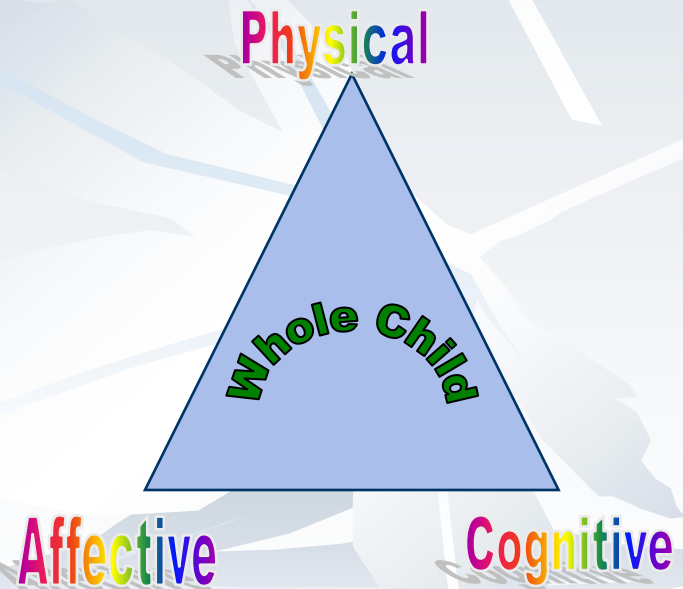
Wall & Murray, 1990

Theoretical Framework

(Mandigo & Holt, 2002)

Cognitive Evaluation Theory
(Deci & Ryan, 1985)
•optimal challenge + perceived competence lead to enhance intrinsic motivation

Theory of Optimal Experience
(Csikszentmihalyi, 1990)
•when perceived skill and challenge are balanced, have an intrinsically rewarding experience

Competence Motivation Theory
(Harter, 1978)
•optimal challenge + success lead to increased interest which enhances competence and intrinsic motivation

Optimal Challenge
(i.e., skill = challenge)

Intrinsic Motivation
(e.g. enjoyment, competence)

Filling in the Research Gap
(Butler, Griffin, Lombardo, Nastasi, & Robson, 2003)

- Ideas for Future Research
  - Look for strong empirical data that would support our intuitive sense that this approach works for students
  - Continue to explore and examine subjective outcomes
  - Focus on all aspects of the child
  - Continue to ask good questions and to involve major players in finding answers (e.g., teachers, students)
  - Fill the gap between theory and practice
  - Research the four fundamental pedagogical principles

Purpose

- To present data from two studies to help fill an important gap in the TGfU scholarship related to children's motivation.

- Study 1:
  - Children's Experiences in Two Different Approaches to Teaching Games
- Study 2:
  - Children's Experiences Within a TGfU Environment that Modifies Teaching Styles

Methods

- 8 Pickleball Lesson Plans
  - Lessons 1 & 8 = Formal Pickleball
  - Lessons 2 – 7 = Pickleball Lessons
- 2 Lesson Groups
  - Technical (n = 51)
    - Grade 6 (n = 27)
    - Grade 3 / 4 (N = 24)
  - Tactical (N = 53)
    - Grade 5 (n = 25)
    - Grade 4/5 (n = 28)
- All lesson plans corresponded to Ontario Ministry of Education's expectations for grades 4 – 6.

Pickleball Lessons & Progressions

Lesson	Skill Focus (Curtis, 1998)	Tactical Focus (Mandigo & Anderson, 2003
1	• Pickleball Game	• Pickleball Game
2	• Hand eye coordination • Volley	• Cooperative – Keep it Going
3	• Forehand Drive • Ready Position	• Competitive – Put it Away
4	• Backhand Drive • Drive Serve	• Placement – 4 Corners
5	• Review • Lob Serve	• Long & Short
6	• Review	• Short & Wide
7	• Review	• Doubles
8	• Pickleball Game	• Pickleball Game

Affective Domain Instruments

- **Motivational State**
    - *Children's Perceptions of Optimal Challenge Instrument (CPOCI):*
        - Contains 3 sub-scales that represent the degree to which children are optimally challenged (Mandigo, 2001).
        - Skill = Challenge, Challenge > Skill, Skill > Challenge
    - *Intrinsic Motivation Inventory (IMI):*
        - Multidimensional instrument intended to assess participants' interest/ enjoyment; perceived competence (Whitehead & Corbin, 1991).

Factor Analyses

	Factor 1	Factor 2
ENJ1	.886	
COMP2		.936
ENJ3	.919	
COMP4		.942
ENJ5	.836	
COMP6	*.446*	.813
ENJ7	.888	
ENJ8	.872	

N = 101
Explained Variance = 85.6%

	Factor 1	Factor 2	Factor 3
OC1	.666		
CS2		.755	
SC3	*-.640*		.475
OC4	.854		
CS5		.858	
SC6			.827
OC7	.790		
CS8		.889	
SC9			.827
OC10	.767		
CS11		.887	
SC12			.773
OC13	.897		
CS14		.772	
SC15			.825
OC16	.889		
CS17		.816	
SC18	*-.614*		.416

N = 101
Explained Variance = 72.4%

Internal Consistency
(Mean of Each Item Across 8 Lessons)

- Enjoyment: α = .94

- Competence: α = .92

- Skill = Challenge: α = .91

- Challenge > Skill: α = .92

- Skill > Challenge: α = .87

Situational Factor
(Optimal Challenge)

- Group (2) x Time (2) Repeated Measures
- Lessons 1 & 8
- MANOVA
  - No Significant Interaction
  - No Significant Between-Subject Effect
  - Significant Within-Subject Effect for Time
    - $\lambda (2, 79) = .807; p < .01, eta^2 = .19$
- Univariate Within-Subject Effects
  - Skill > Challenge: $F(1,80) = 9.94, p < .01, eta^2 = .11$
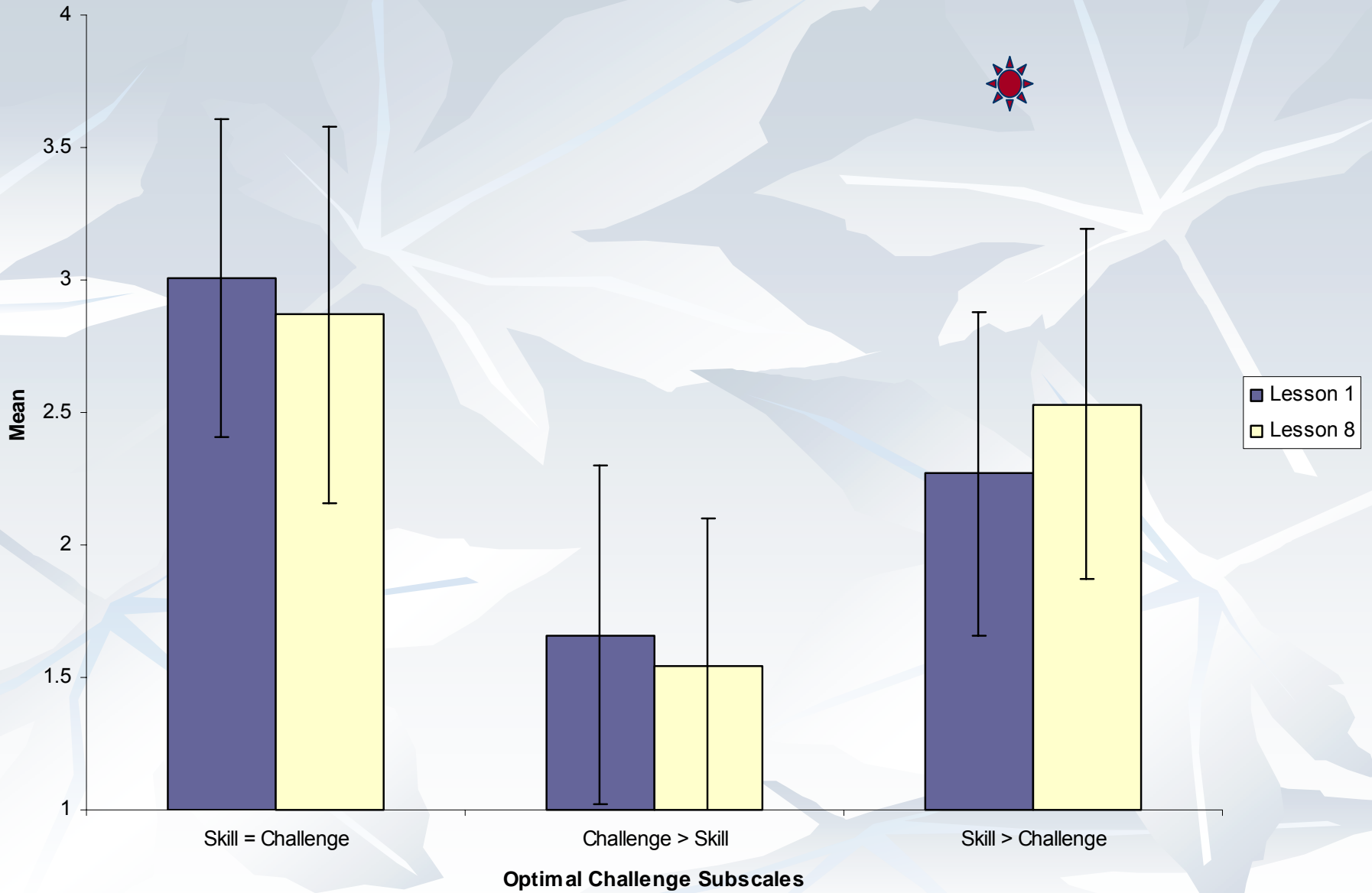
Situational Factor
(Enjoyment & Competence)

- Group (2) x Time (2) Repeated Measures
- Lessons 1 & 8
- MANOVA
  - No Significant Interaction
  - No Significant Between-Subject Effect
  - Significant Within-Subject Effect for Time
    - λ (2, 79) = .777; $p < .001$, $eta^2 = .22$
- Univariate Within-Subject Effects
  - Enjoyment: $F(1,80) = 4.69$, $p < .05$, $eta^2 = .06$
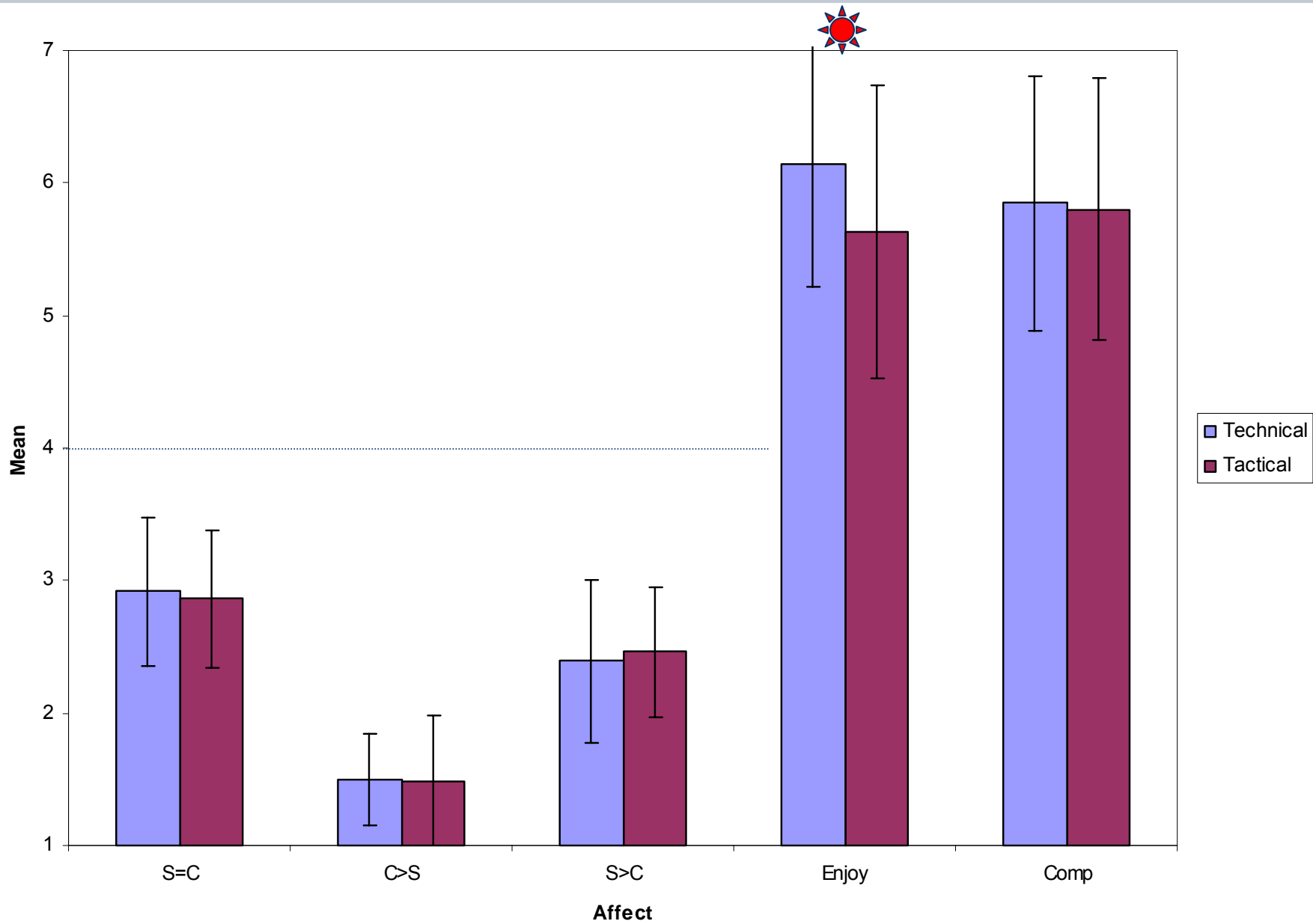 - Competence: $F(1,80) = 9.28$, $p < .01$, $eta^2 = .10$
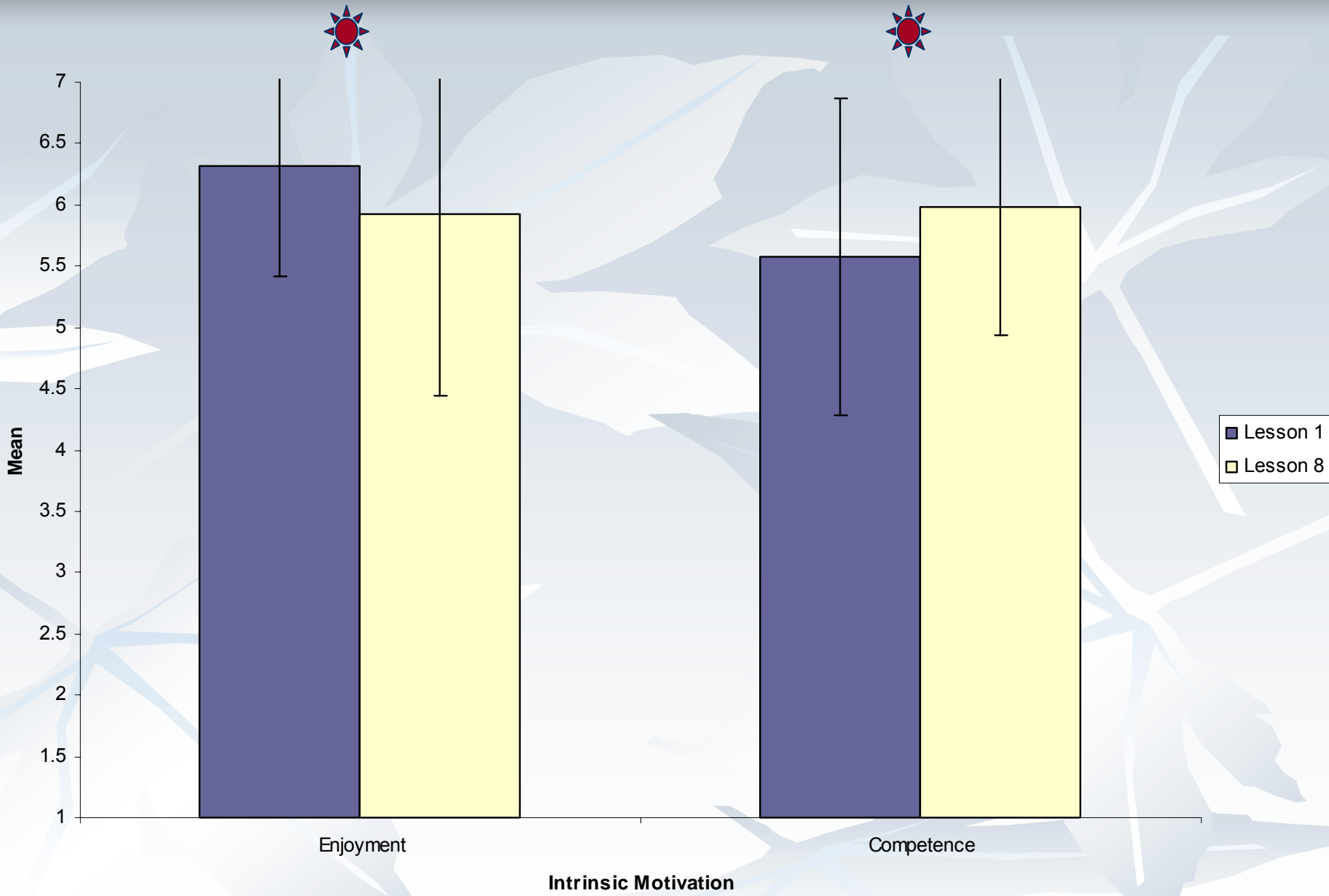
Affective Outcomes Across 6 Lessons

- MANOVA 1
    - IV: Group (Tactical/ Technical)
    - DVs: Mean = Skill = Challenge, Challenge > Skill, Skill > Challenge
    - No Significant MV Effect
        - λ (3, 96) = .995; $p > .05$, $eta^2 = .01$

- MANOVA 2
    - IV: Group (Tactical/ Technical)
    - DVs: Mean Skill = Enjoyment & Competence
    - Significant MV Effect
        - λ (2, 98) = .932; $p < .05$, $eta^2 = .07$
            - Enjoyment: $F(1, 99) = 6.12$, $p < .05$, $eta^2 = .06$

Specific Lessons (Enjoyment)

- Multiple Independent T-Tests

- Bonferroni Correction Factor (.05 / 6 = .008)

- Lesson #6

  - $t(93) = 2.82; p = .006$

    - Technical (Review forehand, backhand, and volley)

      - $M = 6.27$ ($SD = 1.00$)

    - Tactical (Defending Space)
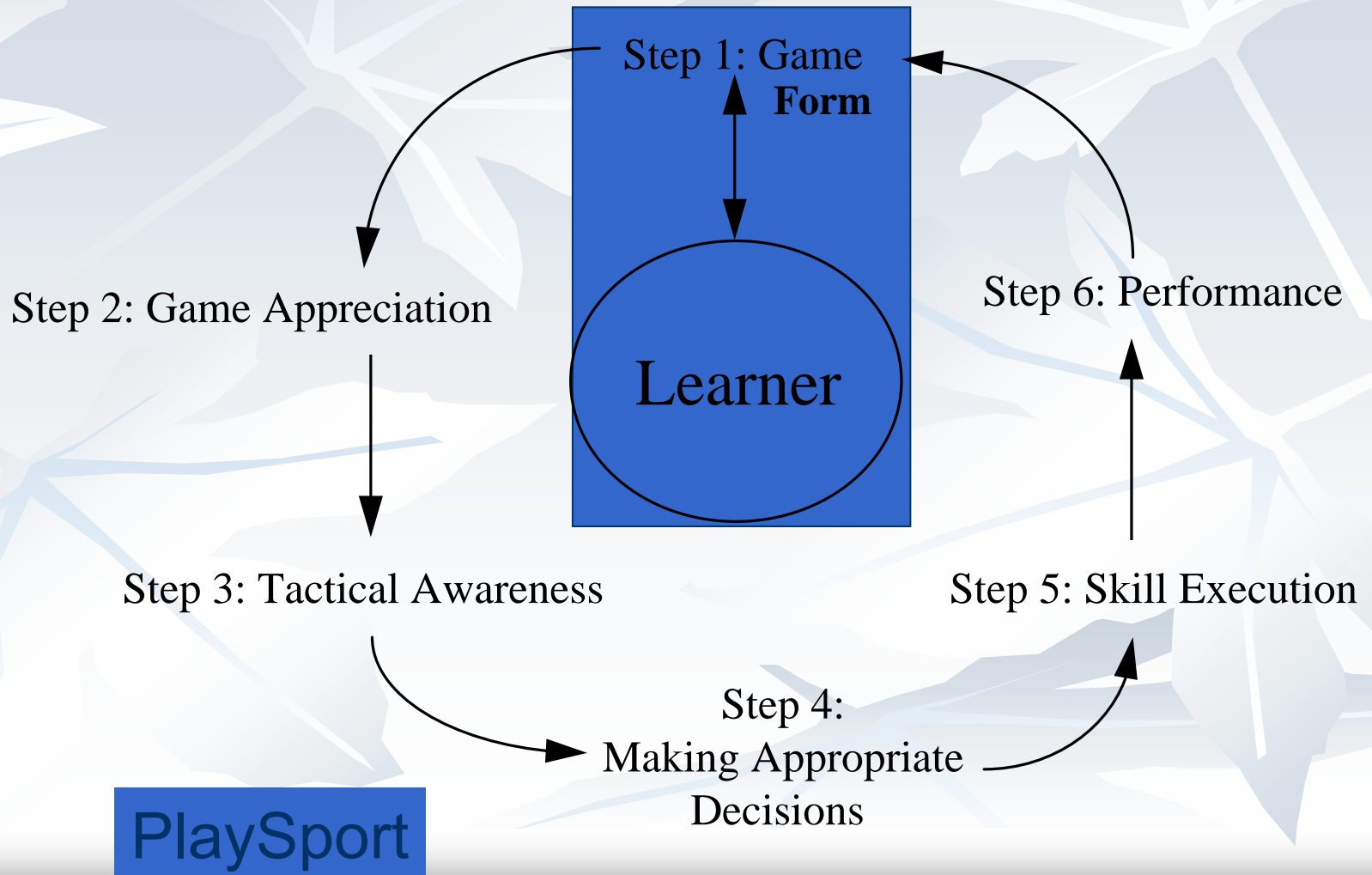
      - $M = 5.45$ ($SD = 1.74$)

Study 1 Discussion

- Minimal Differences In Affective Outcomes Between The Two Domains
  - Enough Time (Turner & Martinek, 1999)
  - Influence of Effective Teaching (Hopper, 2002)
- Both Approaches Demonstrated Positive Affective Outcomes
- Games Pedagogy within TGfU

Study 2

- Does How We Deliver Games Within a TGfU Environment Impact on Participant's Motivation?

- PlaySport: Guiding Principles
    - Embraces Teaching Games for Understanding
    - Incorporates the 4 pedagogical principles
    - Designed for children ages six to twelve
    - Games are designed to help children develop skills and learn strategies
    - Children will have fun and gain a deeper understanding of games
    - Leads to competency and preparation in sports
    - Leads to greater success and enjoyment

- Thematic Approach to Teaching Games (Mitchell et al., 2003)

Ophea
Ontario Physical and Health Education Association

www.ophea.net

PlaySport Project

Step 1: Game **Form**

Learner

Step 2: Game Appreciation

Step 6: Performance

Step 3: Tactical Awareness

Step 5: Skill Execution

Step 4:
Making Appropriate
Decisions

PlaySport

Participants (Schools)

- 4 Schools Across Ontario (North, South, East, West)
- School A Students (Target)
  - Grades 2 & 3
  - N = 21 (8F; 13M)
- School B Students (Net/Wall)
  - Grade 4
  - N = 25 (12F; 13M)
- School C Students (Striking/ Fielding)
  - Grade 4
  - N = 24 (11F; 13M)
- School D Students (Invasion)
  - Grade 8
  - N = 25 (14F; 11M)
- Consent Forms Collected and Organized by Teachers

Questionnaires

- **Quality of Experience Journal**
  - Children's Perception of Optimal Challenge Instrument: Skill = Challenge (Mandigo, 2001)
  - Intrinsic Motivation Inventory – Competence , Choice, & Enjoyment Items (McAuley, Duncan & Tammen, 1989)
  - Perceived Skill and Challenge (Csikszentmihalyi & Larson, 1987)
  - Perceived Difficulty (Harter, 1978)

Method

- Teacher Received Detailed Instructions
- 5 Games/ Category
  - Two Practice Style (Teacher Chose Modification)
  - Two Inclusion Style (Students Chose Modification)
  - One Divergent (Students Created Own Game)
- Completed Quality of Experience Journal Immediately Afterwards

Overall PlaySport Means
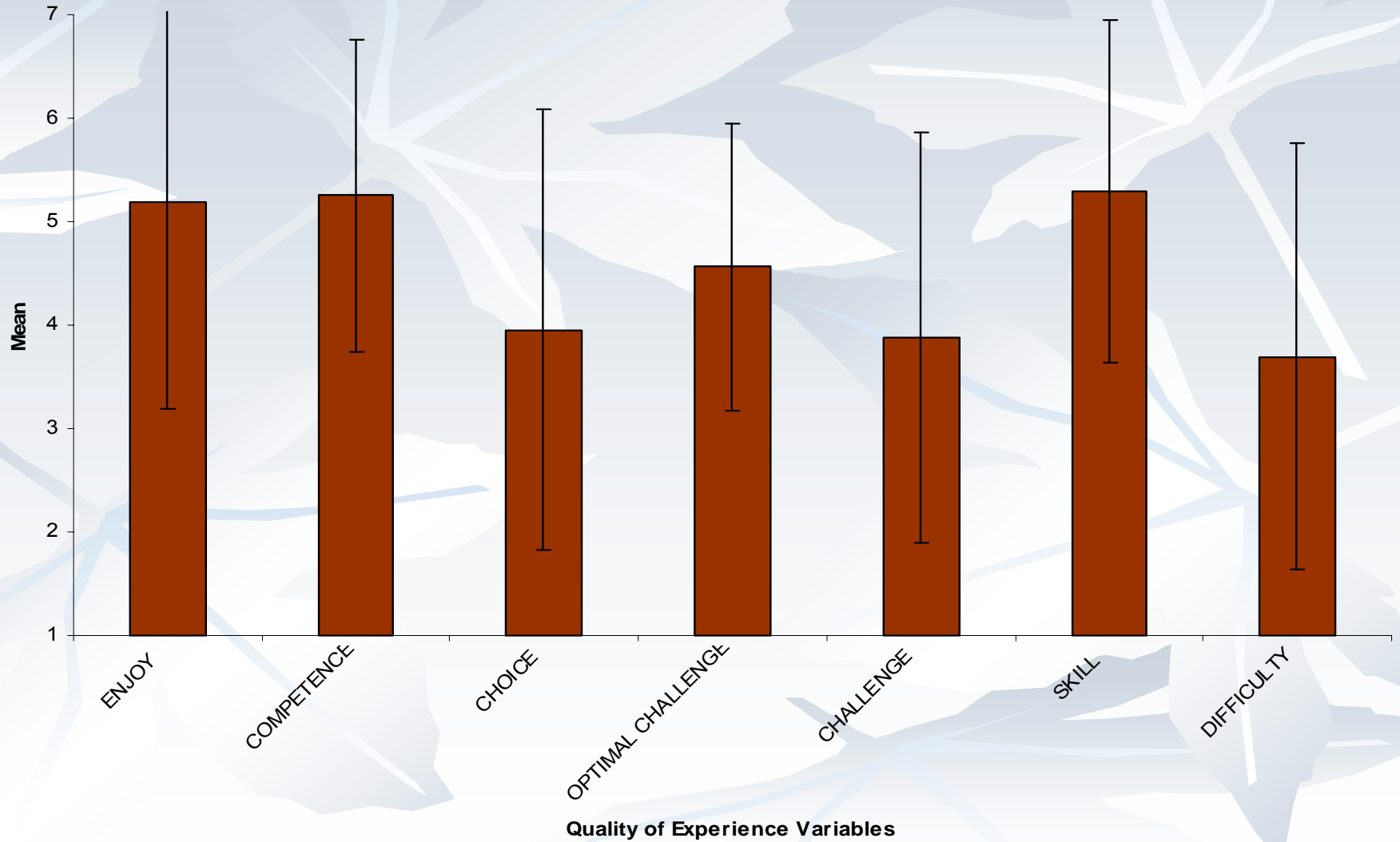
Differences Between Teaching Styles (All Schools)

- Multivariate Effect
  - λ (14, 846) = .884; $p < .001$, $eta^2 = .06$
- Significant Between Subject Effects
  - Enjoy: $F(2,429) = 3.44$, $p < .05$, $eta^2 = .02$
  - Choice: $F(2,429) = 12.85$, $p < .001$, $eta^2 = .06$
  - Optimal Challenge: $F(2,429) = 4.09$, $p < .05$, $eta^2 = .02$
  - Difficulty: $F(2,429) = 3.20$, $p < .05$, $eta^2 = .02$

Differences Between Teaching Styles (All Schools)

Mean

Variable

Legend:
- Practice
- Inclusive
- Divergent
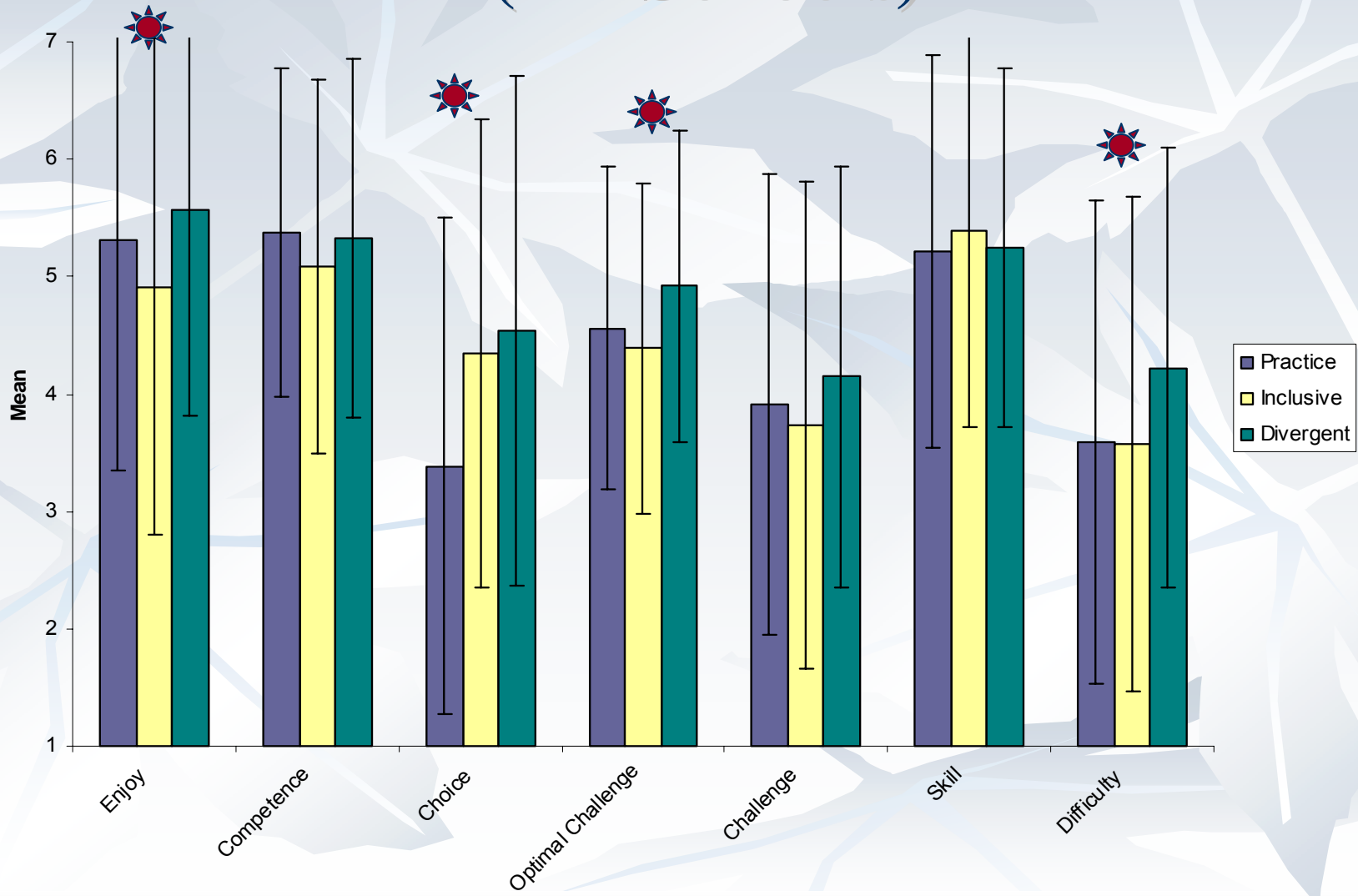
* $p < .05$

Differences Within Least Complex Game Categories

- **Target Games**
  - Multivariate Effect
    - ג (14, 184) = .605; $p < .001$, $eta^2 = .22$
  - Significant Between Subject Effects
    - Enjoy: $F(2,98) = 3.95$, $p < .05$, $eta^2 = .08$
    - Choice: $F(2,98) = 25.08$, $p < .001$, $eta^2 = .34$
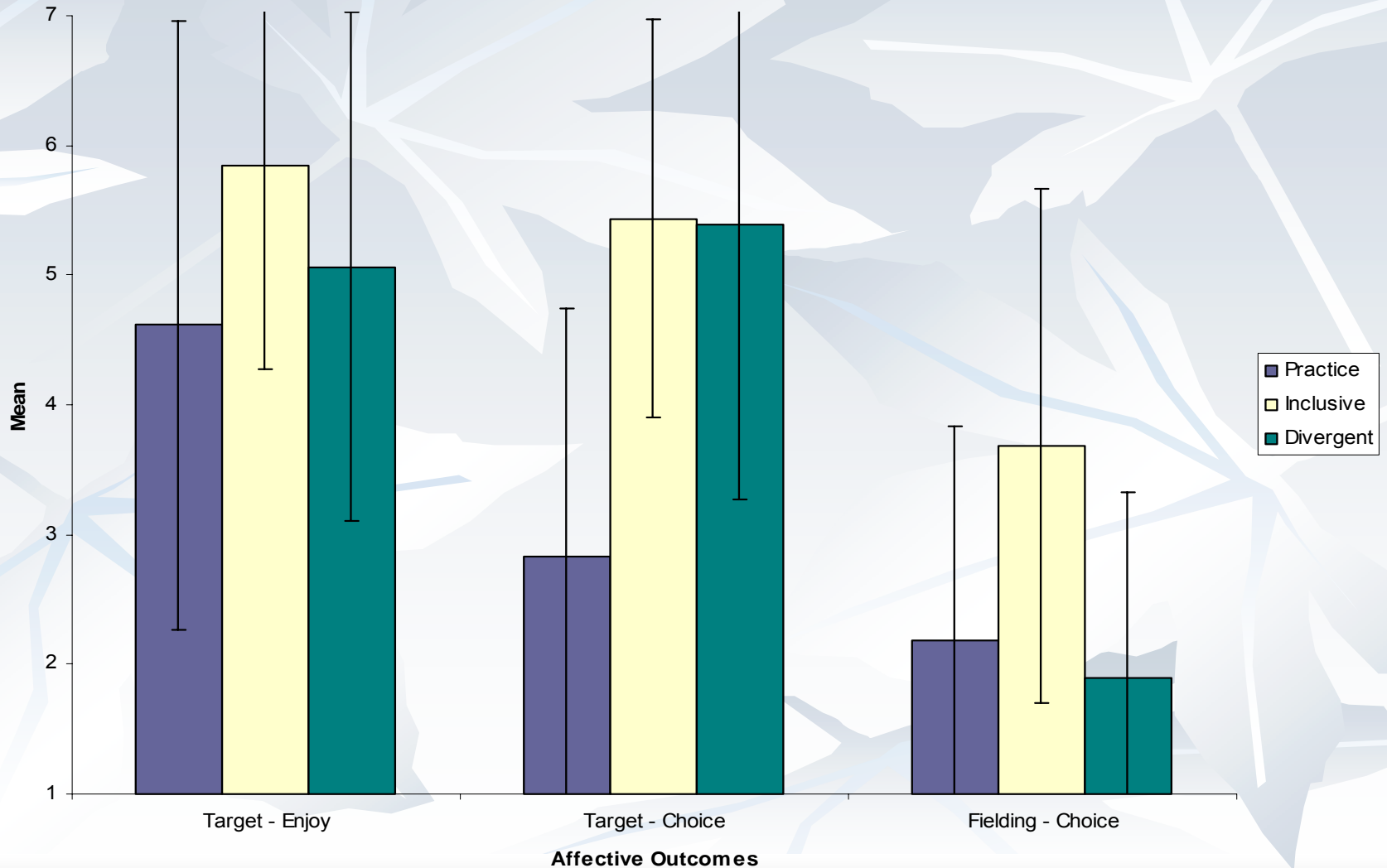- **Striking/ Fielding**
  - Multivariate Effect
    - ג (14, 204) = .708; $p < .01$, $eta^2 = .16$
  - Significant Between Subject Effects
    - Choice: $F(2, 108) = 11.14$, $p < .001$, $eta^2 = .17$

Target & Fielding Game Differences

Differences Within More Complex Game Categories

- **Net/ Wall**
  - Multivariate Effect
    - λ (14, 226) = .679; $p < .001$, $eta^2 = .18$
  - Significant Between Subject Effects
    - Enjoy: $F(2,119) = 10.80$, $p < .001$, $eta^2 = .15$
    - Competence: $F(2,119) = 5.29$, $p > .01$, $eta^2 = .08$
    - Choice: $F(2,119) = 6.44$, $p < .01$, $eta^2 = .10$
    - Optimal Challenge: $F(2,119) = 4.79$, $p < .05$, $eta^2 = .08$
    - Difficulty: $F(2,119) = 4.57$, $p < .05$, $eta^2 = .07$
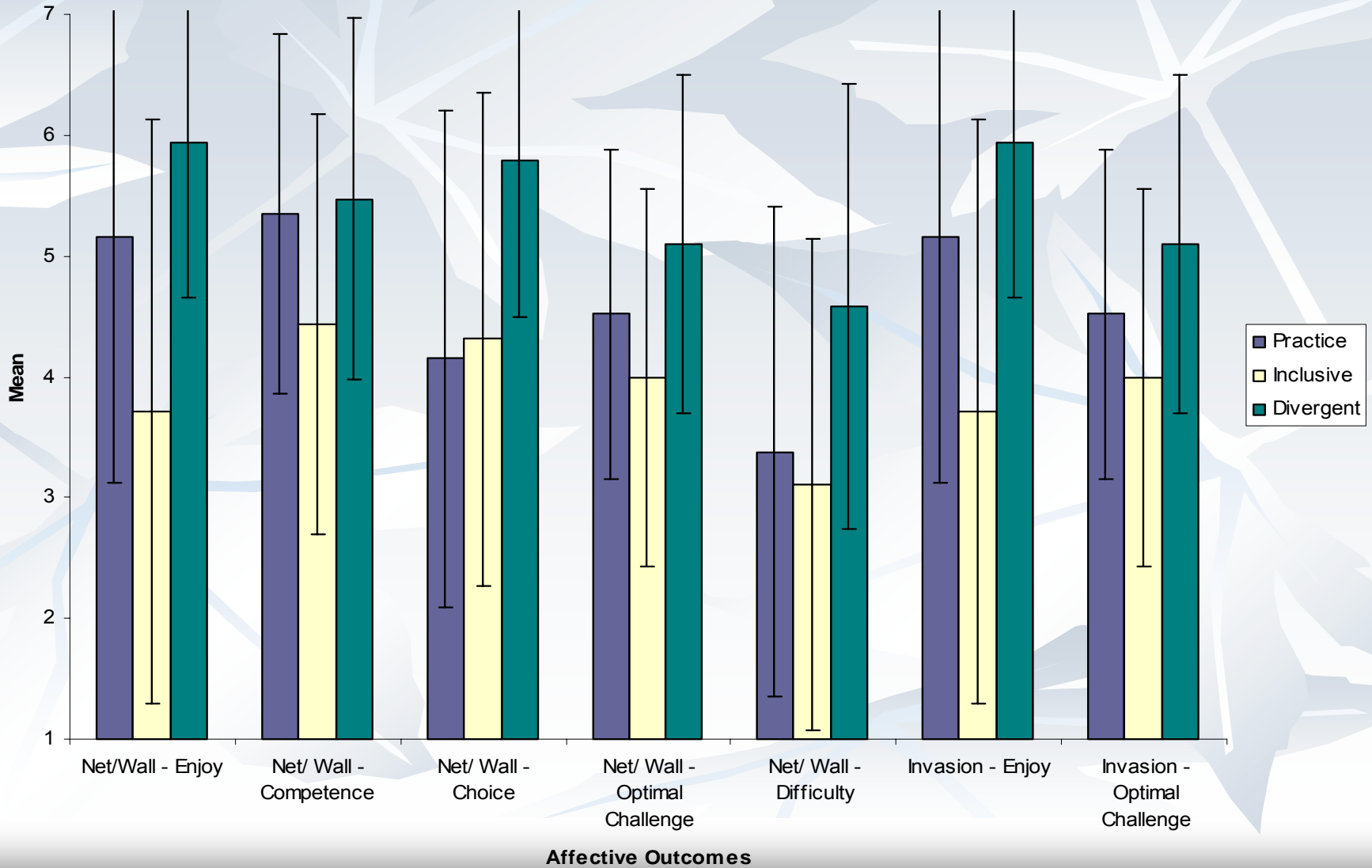- **Invasion Games**
  - Multivariate Effect
    - λ (14, 226) = .786; $p > .05$, $eta^2 = .11$
  - Significant Between Subject Effects
    - Enjoy: $F(2,95) = 6.04$, $p < .01$, $eta^2 = .11$
    - Optimal Challenge: $F(2,95) = 3.88$, $p < .05$, $eta^2 = .08$

Teacher Feedback

- **Any Positive Outcomes?**
  - Try a lot of those games outside from the class
  - Increased involvement
  - Connection between what they were doing the skill they were trying to improve
  - Create an activities … they had absorbed everything we had talked about
  - The kids really like the opportunities to have some input
- **Any Indicators of Success?**
  - Lower level participants got more active then they did in previous units
  - They were really interested so it was easier to explain what was going on
  - The kids were very excited about PlaySport so they would come in each day wondering what we were doing that day
  - A lot of questions about the program and visually just seeing all the kids that were involved playing the best they could
  - They would have free time at recess time and then during our free gym periods they would be much more active doing games

Study 2 Discussion

- Positive Outcomes Associated With Creating Games (Curtner-Smith, 1996)
- Types of Knowledge (Dodds, Griffin & Placek, 2001)
  - Less Complex Game Categories
    - Positive Affect for Inclusion
  - More Complex Game Categories
    - Positive Affect for Practice
- Developmental Progression for Thematic Approach (Mitchell et al., 2003)

Future Research Within the Affective Domain

- Children's Experiences *Within* TGfU Pedagogy and Behavioural Impact

- Interaction with Cognitive & Physical Domains

- Situational x Dispositional Interaction
  - Individual Differences re: Experience in TGfU
  - Autonomy-Supportive Environments

And they lived
Happily Ever Active