The Developmental Model of Sport Participation: 15 years After Its First Conceptualization

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RECOMMENDATIONS

The developmental model of sport participation: 15 years after its first conceptualization

Le modèle de développement à la participation sportive: 15 ans après sa première conceptualisation

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Acknowledgement

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Outline

1. Dynamic Process of Development in Sport
2. The DMSP and its Postulates
3. Cost-Benefit Analysis of Early Sampling vs Early Specialization
4. Summary
5. Conclusion

Dynamic Process of Development

1. **Personal Engagement in Activities:**
   - The everyday “activities” of sport (e.g., practice, games, play)
2. **Quality Relationships:**
   - The interactions that coaches, parents, peers engage in with youth in sport
3. **Appropriate Settings:**
   - The micro and macro environments in which the activities and relationships are happening (e.g., field, arena, club, city)
4. **Time:**
   - Changes occurring over time (e.g., age and development)

(Bronfenbrenner, 1977; Côté, Strachan & Fraser-Thomas, 2008)
Personal Assets Framework for Sport

Dynamic Elements

- Personal Engagement in Activities
- Quality Relationships
- Appropriate Settings

Outcomes

TIME

Outcomes

3 P’s

1. Performance:
   - Develop motor skills for future elite athletes

2. Participation:
   - Improve physical health and continued participation

3. Personal Development:
   - Contribute to positive youth development and developmental assets such as discipline, self-control, leadership, and cooperation

(Côté & Fraser-Thomas, 2007; Côté & Hancock, 2014)
Personal Assets Framework for Sport

Dynamic Elements

- Personal Engagement in Activities
- Quality Relationships
- Appropriate Settings

Outcomes (3Ps)

- Participation
- Performance
- Personal Development

TIME

Personal Assets Framework for Sport

Dynamic Elements

- Personal Engagement in Activities
- Quality Relationships
- Appropriate Settings

Changes in Individuals (Personal Assets)

- Competence
- Confidence
- Connection
- Character

Outcomes (3Ps)

- Participation
- Performance
- Personal Development

TIME
Personal Assets

4 C’s

1. Competence:
   - Positive view of one’s action in sport; learning sport specific skills, competing, and performing

2. Confidence:
   - An internal sense of positive self-worth in sport

3. Connection:
   - Positive bonds with people and institutions in sport

4. Character:
   - Respect for rules, integrity, and empathy for others

(Côté, Bruner, Erickson, Strachan, & Fraser-Thomas, 2010; Jelicic, Bobek, Phelps, Lerner, & Lerner, 2008; Lerner, 2004)
Côté, 1999; Côté, Baker, & Abernethy, 2007; Côté & Fraser-Thomas, 2007

**Performance?**
- Participation?
- Personal development?

**Entry into sport**

**Purple Pathway**

**Early Specialization and Deliberate Practice**

1. Adults initiate and control the activity
2. Adults segregate groups by age to facilitate formal instruction
3. Adults provide instruction
4. Adults restrict “time on task” to make more time for instruction
5. Adults keep learning focused on the demands of a particular sport
Blue/Green Pathway

Early Sampling and Deliberate Play

1. Requires less resources
2. Designed to maximize enjoyment and participation
3. Promotes inclusion
4. Regulated by flexible rules
5. Can be monitored by youth or an involved adult
6. Promotes age-mixed and gender-mixed participation

(Côté, 1999; Côté & Abernethy, 2012)

Entry into sport

(Côté 1999; Côté Baker & Abernethy, 2007; Côté & Fraser-Thomas, 2007)
Postulates and Outcomes

- 7 Postulates:
  - 5 postulates in relation to diversification and deliberate play during childhood.
  - 2 postulates in relation to key developmental transition periods.
- 3 Outcomes: Performance, Participation, and Personal Development.

(Côté, 2007; Côté & Hancock, 2014; Côté, Lidor, & Hackfort, 2008)

DMSP: 7 Postulates

1. Diversification during childhood is associated with long-term Participation.
2. Diversification during childhood is associated with expert adult Performance.
3. Diversification during childhood is associated with Personal Development.
4. Deliberate play during childhood is associated with long-term Participation.
5. Deliberate play during childhood is associated with Performance.
6. Transition to specializing years or recreational years at approximately age 13.
7. Transition to investment years at approximately age 16.

(Côté 2007; Côté & Hancock, 2014; Côté, Lidor, & Hackfort, 2008)
Grading the Postulates

- Grade the postulates on the four following aspects: (a) Study design, (b) study quality, (c) consistency and (d) directness (Osman 2004)
  - **High**
    - Further research is unlikely to change our confidence in the postulate
  - **Moderate**
    - Further research is likely to have an important impact on our confidence and may change the postulate
  - **Low**
    - Further research is very likely to have an important effect on our confidence and is likely to change the postulate
  - **Very low**
    - The postulate is uncertain

1. Diversification & Performance

- Early diversification (sampling) does not hinder elite participation in sports where peak performance is reached after maturation.

  **Grading the evidence = High**
  **Recommendation = Strong**

Supporting evidence:
- Retrospective quantitative and qualitative data: Ice hockey (Soberlak & Côté. 2003), field hockey, basketball, netball (Baker, Côté, & Abernethy 2003), triathlon (Baker, Côta & Deakin, 2005), baseball (Gilbert, Côté, Harada, Marchbanks, & Gilbert, 2002), Australian rules football (Berry, Abernethy, & Côté 2008), athletics, soccer, rugby union, swimming etc (Bridge & Toms 2013), football, ice hockey, rugby, basketball, and track and field (Surya, Bruner, MacDonald, & Côté, 2012). Tennis (Carlson, 1988; Côté, 1999; Monsaas 1985), baseball (Hill. 1993) and rowing (Côté. 1999).

Conflicting Evidence
- Soccer in England (Ward, Hodges Williams, & Starkes 2004)
2. Diversification & Participation

- Early diversification (sampling) is linked to a long sport career and has positive implications for long-term sport involvement.

  Grading the evidence = Moderate
  Recommendation = Strong

Supporting evidence:
- Continued participation and physical fitness quantitative data: Robertson-Wilson, Baker, Derbinskyre, & Côté (2003); Fransen et al., (2012).
- Dropout/burnout quantitative and qualitative data: Tennis (Carlson, 1988; Gould, Tuffey, Udry & Loehr, 1996), swimming (Fraser-Thomas, Côté & Deakin, 2008a), ice hockey (Wall & Côté, 2007), swimming (Fraser-Thomas, Côté, & Deakin, 2008b).
- Length of career data: swimming (Baryntina & Vaitsekhovskii, 1992), master athletes (Baker, Côté & Deakin, 2006).

Conflicting Evidence: ??

3. Diversification & Personal Development

- Early diversification allows participation in a range of contexts that most favourably affects youth development.

  Grading the evidence = Moderate
  Recommendation = Weak

Supporting evidence:
- Qualitative data: Diversified sport experiences in childhood fostered positive peer relationships and leadership skills (Wright & Côté, 2003).
- Quantitative data: Adolescent's involvement in greater number of extracurricular activities was associated with better psychological adjustment, school belonging and more positive peer contexts (Busseri & Rose-Krasnor, 2009; Fredricks & Eccles, 2006). “Specializers” and “samplers” showed different positive experiences (Strachan, Côté & Deakin, 2009).

Conflicting Evidence:
- Social recognition, diverse peer groups (Strachan, Côté, & Deakin, 2009).
4. Deliberate Play & Performance

- A high amount of deliberate play during the sampling years establishes a range of motor and cognitive experiences that the child can ultimately bring to their principal sport of interest.

Supporting Evidence:
- Qualitative data: High amount of deliberate play in elite tennis (Carlson 1988; Côté, 1999), rowing (Côté, 1999), and baseball (Hill, 1993).
- Quantitative data: Elite players were involved in more deliberate play hours than deliberate practice hours during childhood (Berry, Abernethy & Côté, 2008; Ford & Williams, 2012; Memmert, Baker, & Bertsch, 2010; Soberlak & Côté, 2003).

Conflicting Evidence:

Grading the evidence = Moderate
Recommendation = Strong

5. Deliberate Play & Participation

- High amounts of deliberate play during the sampling years builds a solid foundation of intrinsic motivation through involvement in activities that are enjoyable and promote intrinsic regulation.

Supporting Evidence:
- Qualitative data: High amount of deliberate play and continued sport participation in team sports and swimming (Fraser-Thomas & Côté, 2009).
- Theories: Self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000); Early intrinsically motivating behaviors will have a positive effect over time on an individual's overall motivation. Achievement goal theory: A deliberate play environment during the sampling years is closely link to creating a “task” climate (Biddle, 2001; Treasure, 2001).

Conflicting Evidence: ??

Grading the evidence = Moderate
Recommendation = Strong
6. Transition from Sampling to Specializing

- Around the end of primary school (around age 13), children should have the opportunity to either choose to specialize in their favourite sport or continue in sport at a recreational level.

  Grading the evidence = High
  Recommendation = Strong

Supporting Evidence:
- Quantitative data: Specialization in one sport does not occur before age 13 in sport where peak performance is reached in adulthood (Baker et al., 2003; Baker et al., 2005; Berry et al., 2008; Gilbert et al., 2002; Soberlak & Côté, 2003).
- Qualitative data: Kirk & MacPhail (2003); MacPhail, Gorey & Kirk (2003).
- Theories of human development: Lerner (2002)

Conflicting Evidence:
- Early skill advantage (Ericsson et al. 1993)
- Early specialization sport (Law, Côté & Ericsson, 2007; Starkes, Deakin, Allard, Hodges & Hays, 1996)

7. From Specializing to Investment

- Late adolescents (around age 16) have developed the physical, cognitive, social, emotional, and motor skills needed to invest their effort into highly specialized training in one sport.

  Grading the evidence = Low
  Recommendation = Weak

Supporting Evidence:
- Quantitative data: Baker et al. (2003); Baker et al. (2005); Helsen et al. (1998).
- Qualitative data: Bloom (1985); Côté (1999).

Conflicting Evidence:
- Early skill advantage (Ericsson et al. 1993)
- Early specialization sport (Law, Côté & Ericsson, 2007; Starkes, Deakin, Allard, Hodges & Hays, 1996)
Early Specialization: 4 Postulates

1. Skill development in one sport during childhood provides an early advantage that is crucial for adult performance in the same sport.

2. The explicit teaching of non-sport specific skills are the building blocks of long-term sport participation.

3. Early investment in deliberate practice is associated with elite performance.

4. Early specialization and deliberate practice require effort that is associated with personal development.
1. Early Specialization & Performance

- Skill development in one sport during childhood provides an early advantage that is crucial for adult performance in the same sport.

Grading the evidence = Moderate
Recommendation = Weak

Supporting Evidence
- The Early Involvement hypothesis (Ford, Ward, Hodges, & Williams, 2009; Ford & Williams, 2008).
- Anecdotal evidence (Tiger Woods, Andre Agassi) and the structure of some youth sport clubs and academies.

Conflicting Evidence
- Early success in one sport is a weak predictor of adult elite performance in the same sport (e.g., Barreiros, Côté & Forseca 2012; Vaeysens Gullich, Wart. & Philippaerts 2009).
- Anecdotal evidence (Wayne Gretzky, Lorenzo Cain, Dennis Kimetto)

2. Early Specialization & Participation

- The explicit teaching of non-sport specific skills are the building blocks of long-term sport participation.

Grading the evidence = Low
Recommendation = Weak

Supporting Evidence:
- Fundamental movement skills and active lifestyle (Lubans, Morgan, Cliff, Barnett, & Okely, 2010)

Conflicting Evidence:
- Too many hours of practice activities not related to “playing sport” is associated with burnout and dropout (e.g., Carlson 1988; Fraser-Thomas. Côté. & Deakin. 2008; Gould, Tuffey, Udry. & Loehr. 1996; Strachan. Côté. & Deakin. 2009; Wall & Côté. 2007)
3. Deliberate Practice & Performance

- **Early investment in deliberate practice is associated with elite performance**

  Grading the evidence = Moderate
  Recommendation = Weak

**Supporting Evidence**

**Conflicting Evidence**
- Deliberate practice systematic review (Macnamara, Hambrick, & Oswald, 2014)
- For adult performance difference in deliberate practice between experts and less-experts does not occur before teenage years (Baker, Côté, & Deakin, 2005; Helsen et al., 1998; Hodges & Starkes, 1996)

4. Early Specialization & Personal Development

- **Early specialization and deliberate practice require effort that is associated with personal development**

  Grading the evidence = Low
  Recommendation = Weak

**Supporting Evidence**
- Early specialization enhance emotion regulation, time management, coping skills (Stephens, 2000; Wilkes & Côté, 2010).
- One aspect of positive youth development (Larson, 2000)

**Conflicting Evidence**
- Early specialization and deliberate practice is associated with less enjoyment and more injuries (e.g. Carlson, 1988; DiFiori et al., 2014; Fraser-Thomas, Côté & Deakin, 2008; Gould, Tuffey, Udry & Loehr, 1996)
- When decision is made by adults, lack of autonomy (Deci & Ryan, 1985)
Cost-Benefit Analysis of
Early Sampling vs Early Specialization
Cost-Benefit Analysis

- A frame of reference for relating costs to program results.
- Evidence on the degree to which program's benefits exceed costs.
- Requires estimates of the benefits of a program and estimates of the costs of the program both direct and indirect (i.e. resources, organization of resources, and social processes).

(Rossi, Lipsey, & Freeman, 2004)

Costs

<table>
<thead>
<tr>
<th>Costs</th>
<th>Early Specialization (i.e. Specialization and Deliberate Practice)</th>
<th>Early Sampling (i.e. Sampling and Deliberate Play)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Adults’ Involvement</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Children’s quantity and intensity of training</td>
<td>More</td>
<td>Less</td>
</tr>
</tbody>
</table>
### Benefits

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Early Specialization (i.e. Specialization and Deliberate Practice)</th>
<th>Early Sampling (i.e. Sampling and Deliberate Play)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term sport participation</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Health</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Performance (adults)</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Personal Development</td>
<td>=</td>
<td>=</td>
</tr>
</tbody>
</table>

### Summary
A Personal Assets Framework for Sport

- Dynamic Elements
  - Personal Engagement in Activities
  - Quality Relationships
  - Appropriate Settings

- Changes in Personal Assets (4C’s)
  - Competence
  - Confidence
  - Connection
  - Character

- Outcomes (3P’s)
  - Participation
  - Performance
  - Personal Development

![Diagram of A Personal Assets Framework for Sport]

Developmental Activities

1. Youth-driven or adult-driven
2. Intrinsic or extrinsic value

(Côté, Erickson, & Abernethy, 2013)
Developmental Activities

**Adults**
- **RATIONAL LEARNING**
  - Prototype Activity: Deliberate Practice
- **EMOTIONAL LEARNING**
  - Prototype Activity: Play Practice

**Extrinsic Value**
- **INFORMAL LEARNING**
  - Prototype Activity: Spontaneous Practice

**Youth**
- **CREATIVE LEARNING**
  - Prototype Activity: Deliberate Play

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**Quality Relationships**

**Appropriate Settings**

1. **Entry into sport**
   - High deliberate play
   - Low deliberate practice
   - Several sports

2. **Early Specialization & Investment**
   - High deliberate practice
   - One sport

3. **Recruitment Years**
   - High deliberate play
   - Low deliberate practice
   - Several sports

4. **Investment Years**
   - High deliberate practice
   - Low deliberate practice
   - One sport

5. **Drop out**

*(Côté, 1999; Côté Baker, & Abernethy 2007; Côté & Fraser-Thomas 2007,)*

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**Performance**
- Participation
- Personal development

**Performance**
- Participation
- Enjoyment

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Conclusion

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Evidence-based policies for youth sport programmes
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1. Discourage early specialization in one sport

(Côté & Hancock, 2014)

2. Regulate length of season to 3 to 4 months and a maximum of 6 months

(Côté & Hancock, 2014)
3. Limit lengthy travel to organized competitions

(Côté & Hancock, 2014)

4. Introduce “grassroots” sport programs that focus on trying different sports

(Côté & Hancock, 2014)
5. Do not implement a selection process of more “talented” children until the specialization years

(Côté & Hancock, 2014)

6. Provide healthy competitive opportunities, but do not over-emphasize winning and long-term outcomes such as championships

(Côté & Hancock, 2014)
7. Allow children to play all positions in a given sport

(Côté & Hancock, 2014)

8. Promote deliberate play and spontaneous practice within and beyond organized sport.

(Côté & Hancock, 2014)
9. Design play and practice activities that focus on fun and short-term rewards

(Côté & Hancock, 2014)

10. Understand children’s needs and do not “over coach”

(Côté & Hancock, 2014)
Personal Engagement in Activities and the DMSP
What We Know

- A mix of youth-led and adult-led activities during childhood creates unique socialization settings, motivational climate, and learning experiences.
- Optimal development results from children and youth engaging in various play and practice activities for different reasons.
- Diversification and deliberate play are less likely to result in boredom, burnout, and dropout.
- A mix of different sports, youth-led and adult-led activities builds on implicit and explicit learning.
- Increasing deliberate practice is important after the sampling years for achieving elite performance in adulthood.

Thank You