



UNIVERSITÄT
BAYREUTH

COMPETITION
PERFORMANCE & TRAINING
Department of Training & Movement Science

Bayreuth Opera House

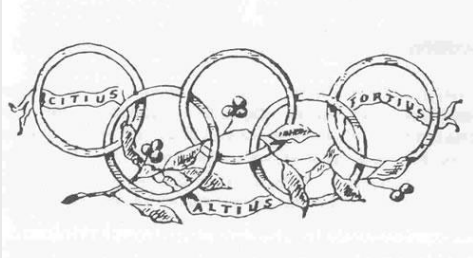
**Coaching Children and Young Athletes –
Preserving and Encouraging Children to Engage in
Sport**

Challenges and Solutions

**Bilateral German-Israeli Symposium
Tel Aviv, 2016, November 22nd-23rd**



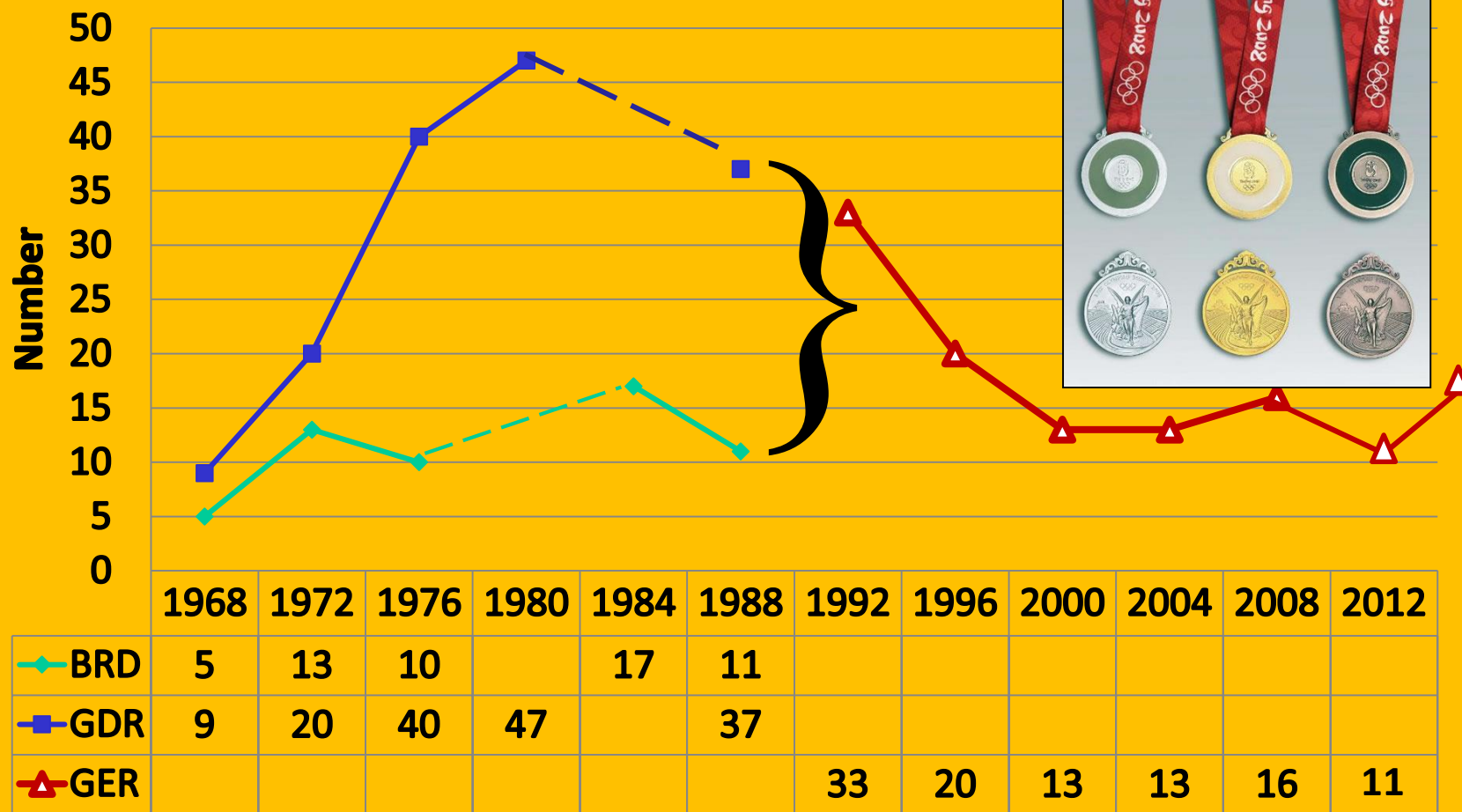
*Richard Wagner
(1813 – 1883)*



German Standing in Elite Sport: Always worse !?



Gold medals 1968-1988 und 1992-today





CHALLENGES

CHALLENGES

- **[1] Early Recruiting**
- [2] *Binding in Sport*
- [3] *Motivating for Training*
- [4] *Supporting in School*

SOLUTIONS

- [1] *Early Screening*
- [2] *Forming the Personality*
- [3] *Educating the Athlete*
- [4] *Counseling the Athlete*



Challenge # 1 – Early Recruiting & Training Initiation

Rowing – A ($n = 42$)
Rowing – C ($n = 170$)

Weightlifting – A ($n = 9$)
Weightlifting – C ($n = 49$)

Boxing – A ($n = 26$)
Boxing – C ($n = 52$)

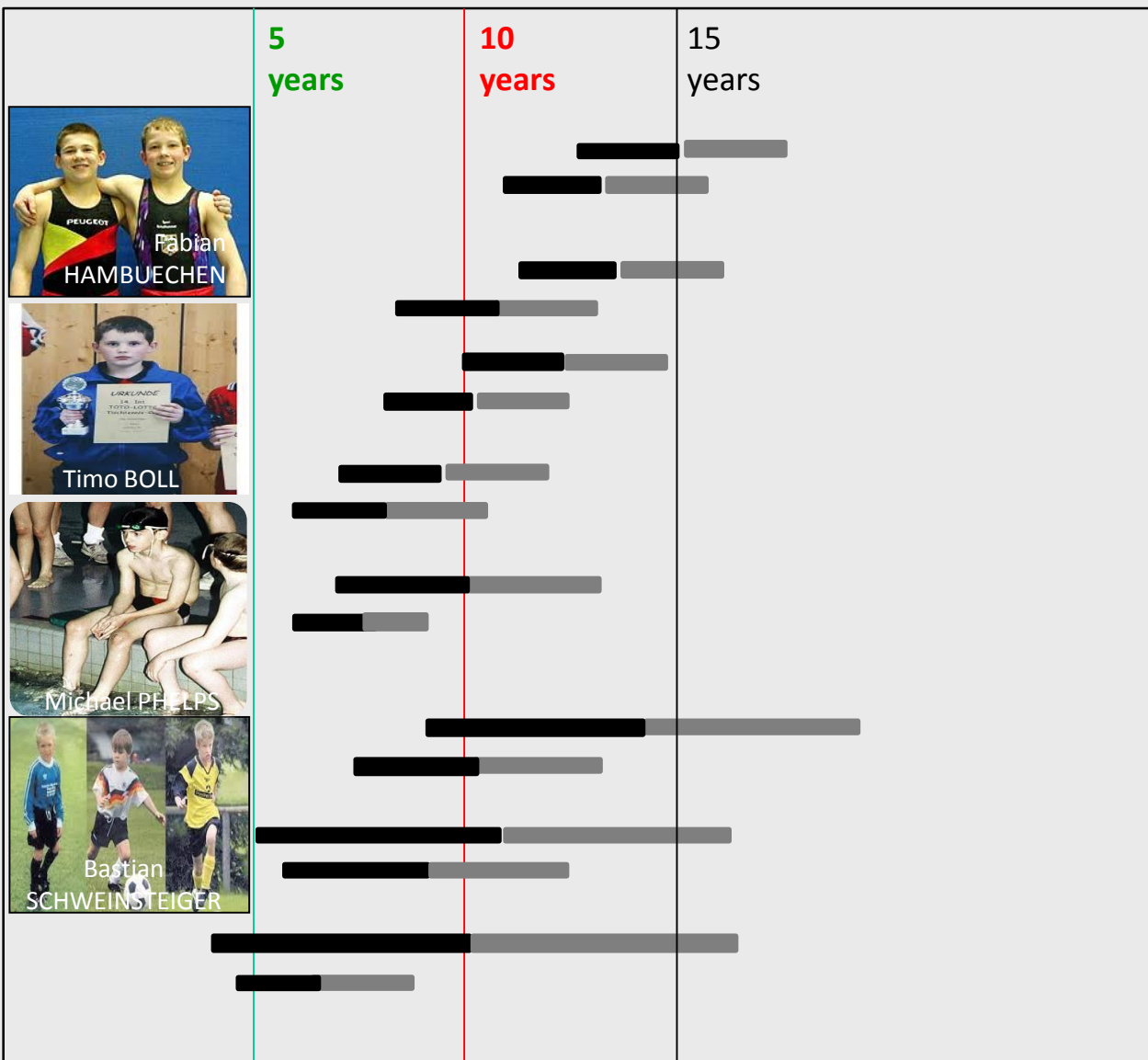
Tabletennis – A ($n = 14$)
Tabletennis – C ($n = 71$)

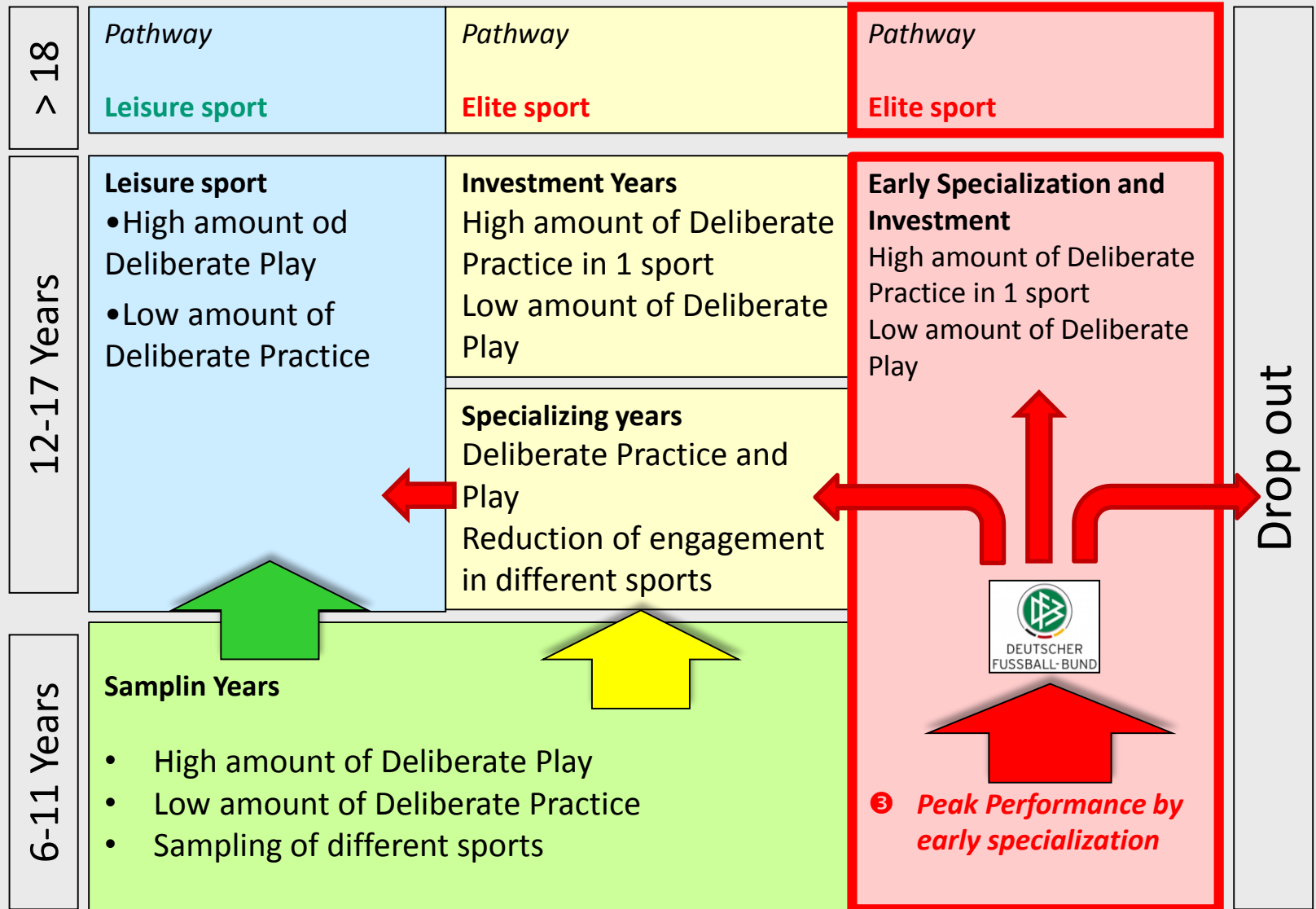
Trampoline – A ($n = 23$)
Trampoline – C ($n = 24$)

Basketball – A ($n = 28$)
Basketball – C ($n = 175$)

Judo – A ($n = 13$)
Judo – C ($n = 22$)

Icehockey – A ($n = 9$)
Icehockey – C ($n = 79$)







Youth development structure in German football (conducted by the German Football Association, DFB)

Step 4 Top-level football
(18 YEARS PLUS)

Step 3 Elite promotion
(15-20 YEARS)

Step 2 Talent development
(11-18 YEARS)

Step 1 Basic training
(3-10 YEARS)



350 Province team players

e.g. U12 (top 4% out of $\approx 150,000$ club players):
 ≈ 5000 players at 366 DFB competence centers
 ≈ 800 players at 51 youth academies

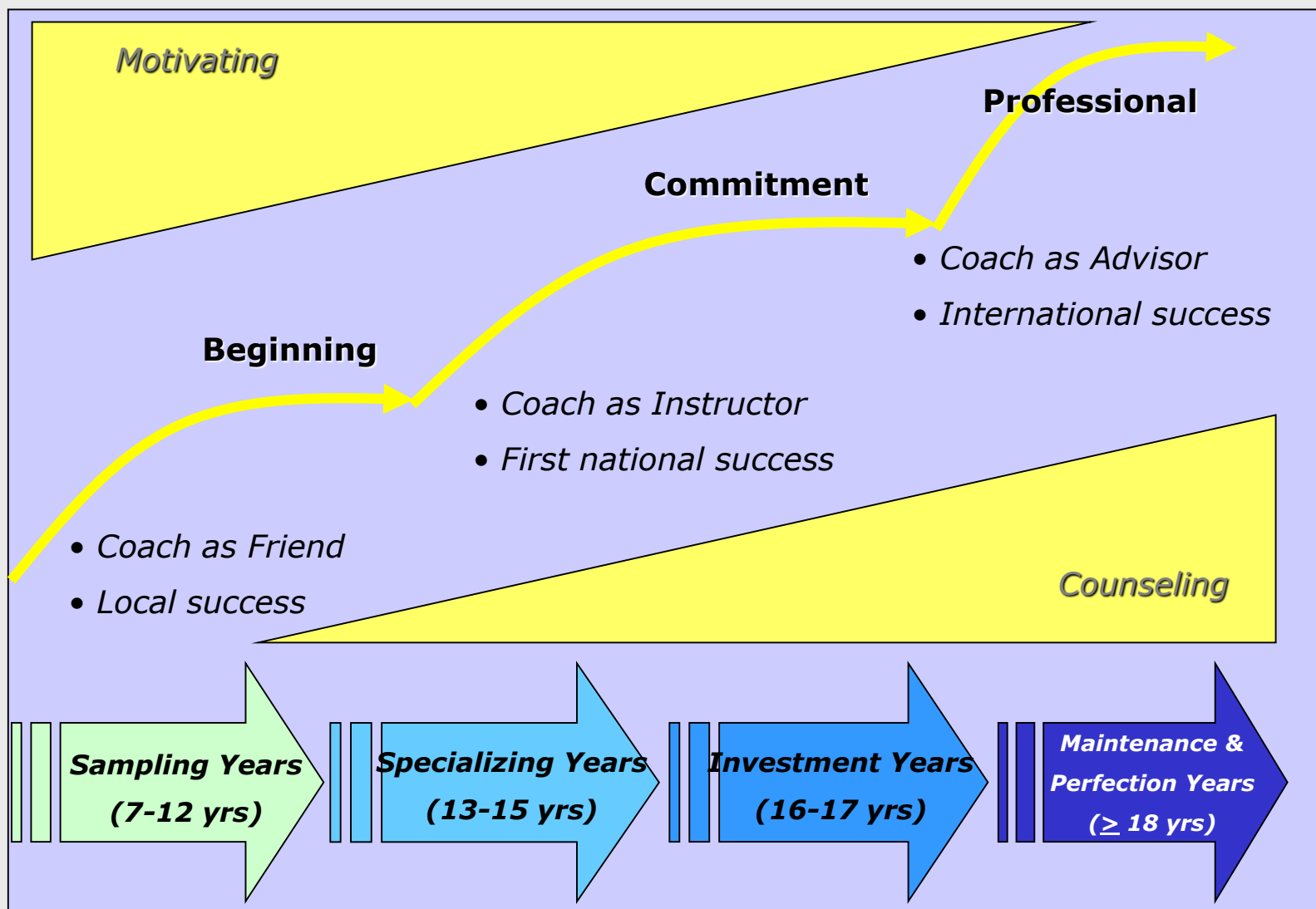
(simplified after DFB, 2014)

CHALLENGES

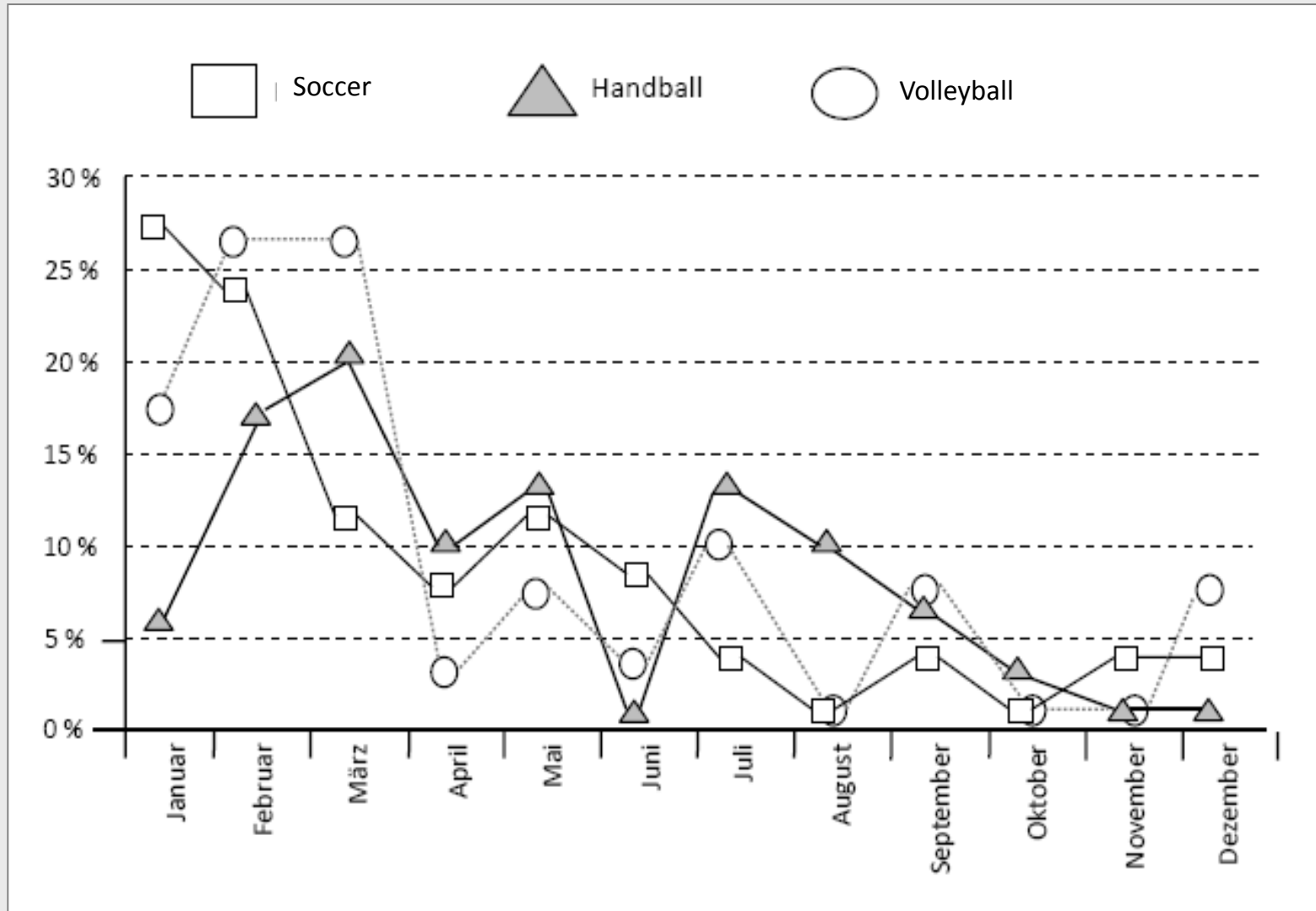
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SOLUTIONS

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Challenge # 2 – Binding of the Youngsters

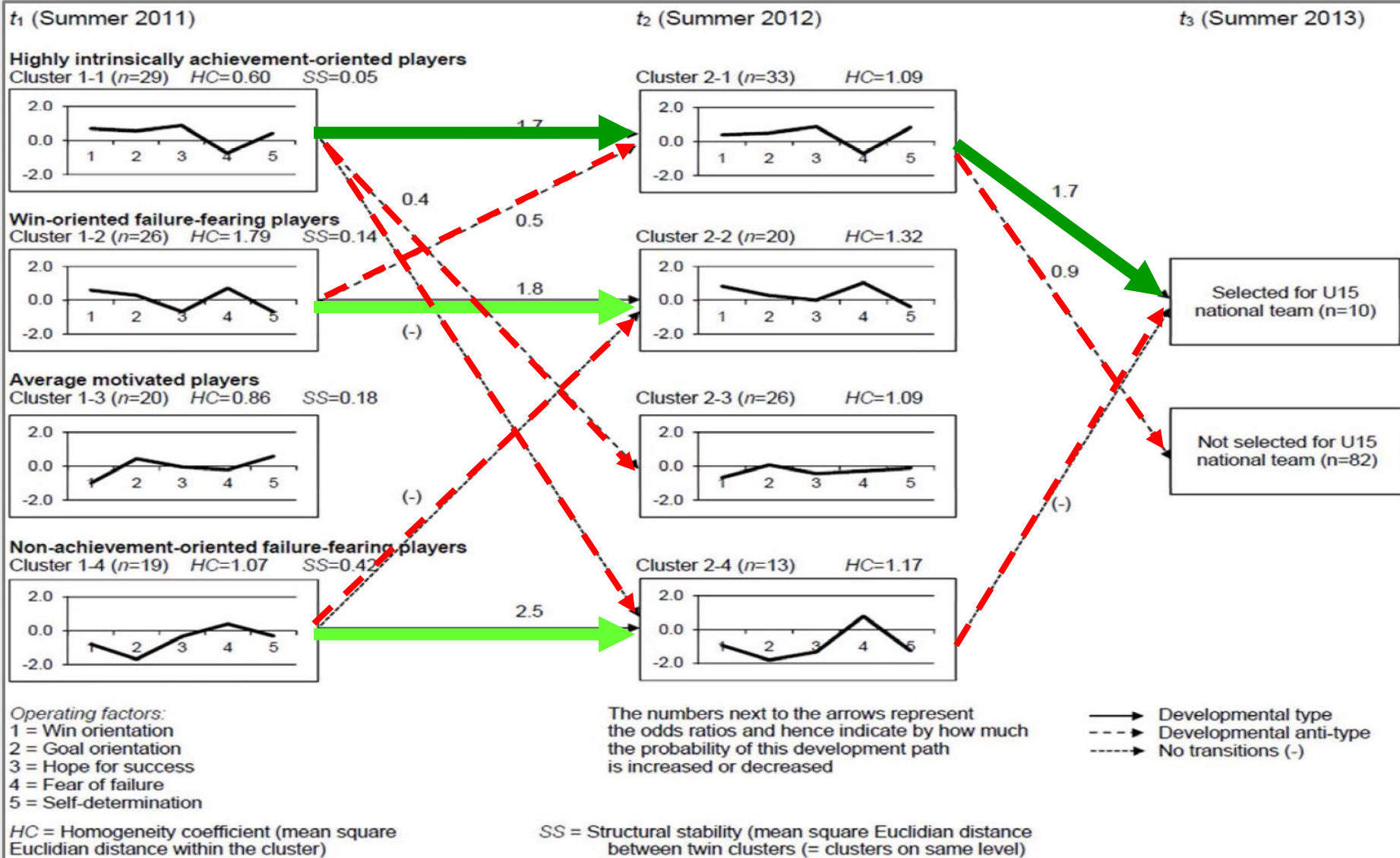


CHALLENGES

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SOLUTIONS

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SOLUTIONS

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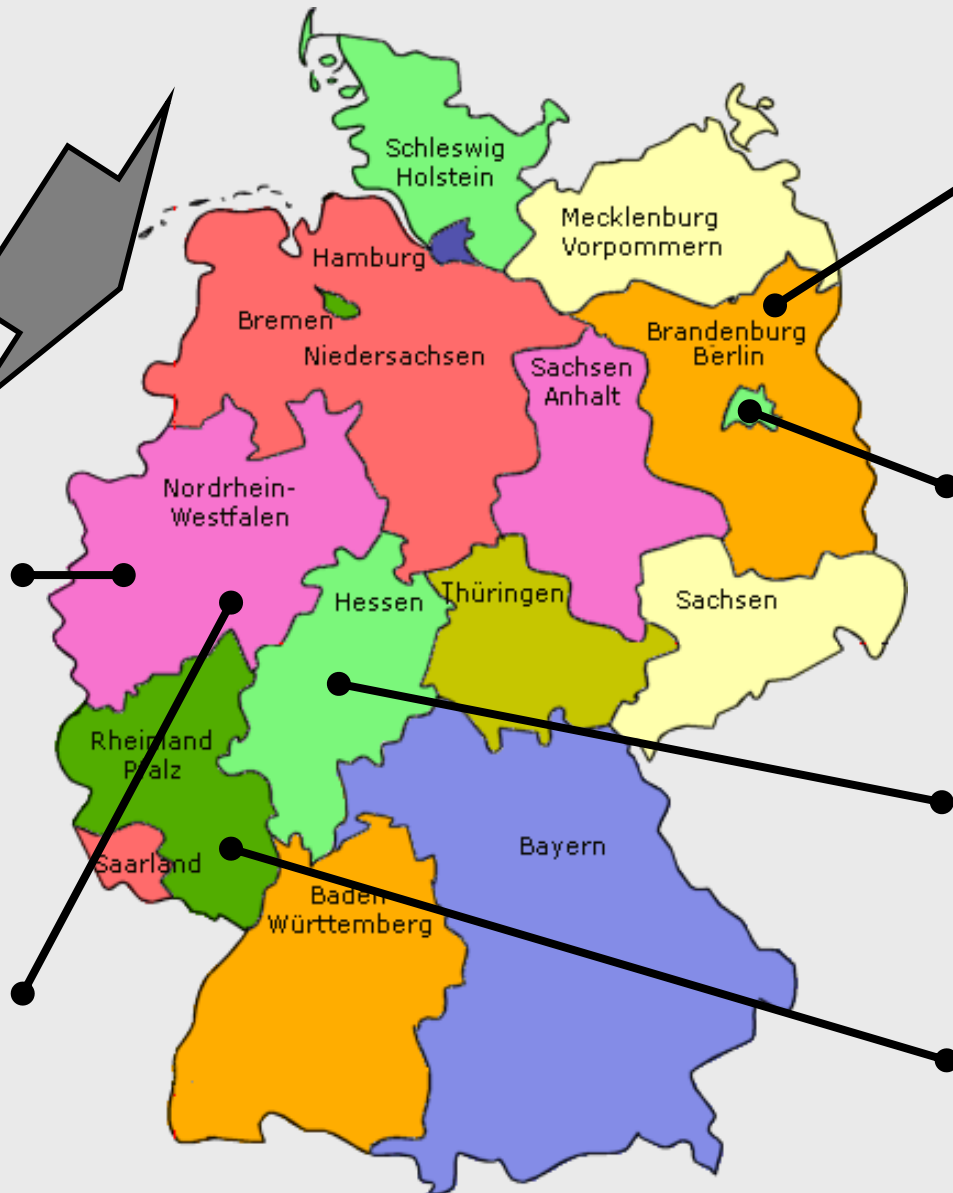
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Solution # 1 Early Talent Screening and Talent Orientation



Studie zur Gesundheit von Kindern
und Jugendlichen in Deutschland





German Motor Test 6-18 plus 3 Tests

Motor Tests	Motor Abilities
6-Min-Run	Aerobic Endurance
Standing Long Jump	Speed Strength
Push-Ups (40 s)	Strength Endurance
Sit-ups (40 s)	Strength Endurance
20 m Sprint	Running Speed
Balancing (30/45/60 mm bar)	Coordination
Sideward Jumping (15 s)	Coordination
Bend and Reach	Flexibility
Ball Throw (80 g)	Coordination/Speed Strength/Techique
Complex Reaction Run (Buzzer-Test)	Perception & Coordination/Speed
Handgrip Strength Test	Maximum (isometric) Strength

Motor Tasks and Motor Abilities (according to Bös et al., 2009)

Opening&
Personal data



Warm-up



20 m Sprint



Standing Long Jump
Sideward Jumping
Bend and reach
Push-ups
Balancing
Sit-ups
Ball throw
Complex Reaction Test
Handgrip



6-min Run



URKUNDE

Herzlichen Glückwunsch
zur erfolgreichen Teilnahme am Fuldaer Bewegungs-Check 2010



Name: Schule: Florenberg-Schule
Vorname:

Aufgrund Deiner herausragenden Leistungen wirst Du in den Talentpool der Sportregion Fulda aufgenommen.

Hierzu gratulieren wir Dir herzlich und laden Dich zu unserer zweiten Testphase im Herbst 2010 mit einem gesonderten Informationsschreiben ein.



Leistung	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%
Körpergröße	124	125	126	127	128	129	130	131	132	133
Broca-Index	1	2	3	4	5	6	7	8	9	10
Body Mass	14,5	14,6	14,7	14,8	14,9	15,0	15,1	15,2	15,3	15,4
Balancieren	1	2	3	4	5	6	7	8	9	10
Hinund-Her	1	2	3	4	5	6	7	8	9	10
Standweite	1	2	3	4	5	6	7	8	9	10
20-m-Sprint	1	2	3	4	5	6	7	8	9	10
Bauchaufzüge	1	2	3	4	5	6	7	8	9	10
Liegestütze	1	2	3	4	5	6	7	8	9	10
Rumpfbeuge	1	2	3	4	5	6	7	8	9	10
6-min-Lauf	1	2	3	4	5	6	7	8	9	10

Im obigen Diagramm zeigen die schwarzen Balken Deine Leistung im Verhältnis zu Deiner Altersgruppe in %. 100 % markieren die beste Leistung 0 % die schlechteste. Die Zahlen darunter geben die jeweilige Leistung in der gemessenen Einheit an.

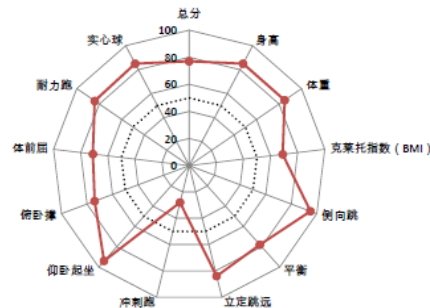
Deine sportartbezogene Talentperspektive wird im Anschluss an den im Herbst stattfindenden Test eingeschätzt.



证书

Lei Jin

NO.2 Zheng Li School



50分 (虚线) 表示所有参与测试者的平均测试成绩。

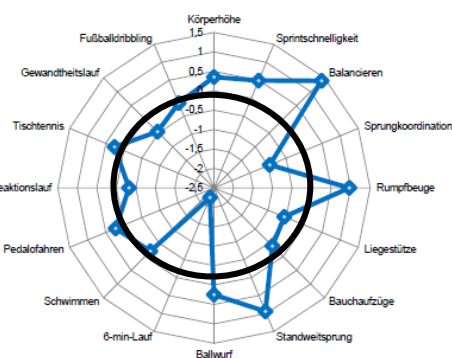
成绩点距离中心越远说明该项测试成绩越好，例如：80分表示，该测试成绩在所有参与测试者中排名前20%。



URKUNDE

Herzlichen Glückwunsch
zur erfolgreichen Teilnahme am Fuldaer Bewegungs-Check 2013

Fee Alma Göttenauer
1. Sieger
Domschule Fulda



Du solltest es mit Tischtennis und Skilauf probieren –
Wir wünschen dir viel Erfolg dabei!





Solution # 1 Early Talent Screening and Talent Orientation

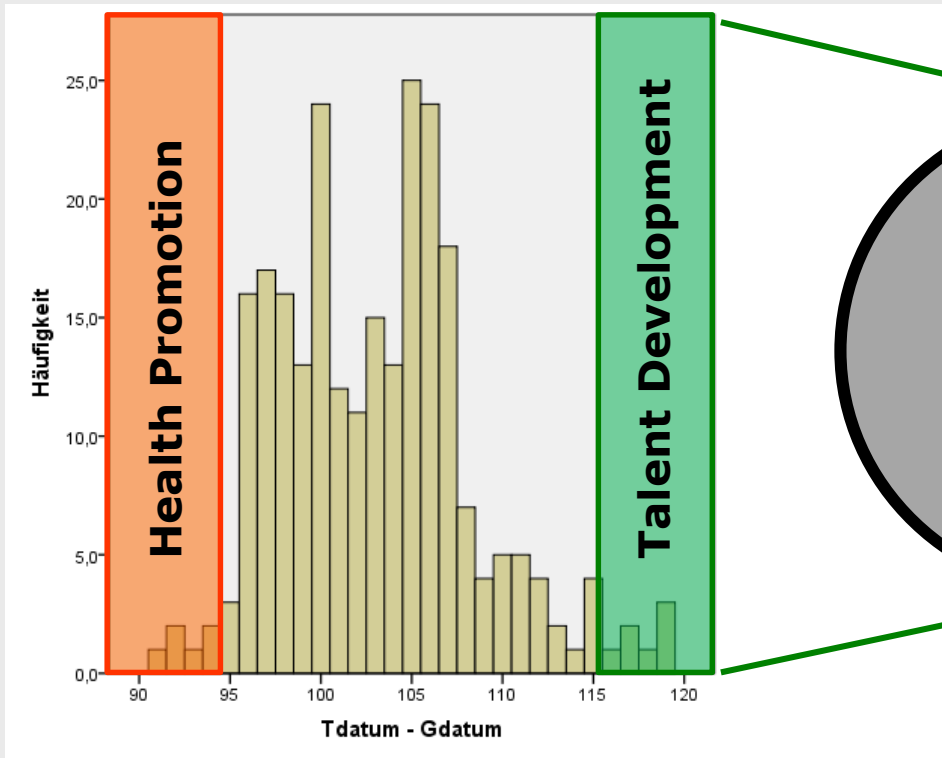


**Movement-Check
2010-2017**



**Talent-Check
Best 15 percent**

**Winners
Ceremony**



**10,000 Children
(2010 – 2016)**

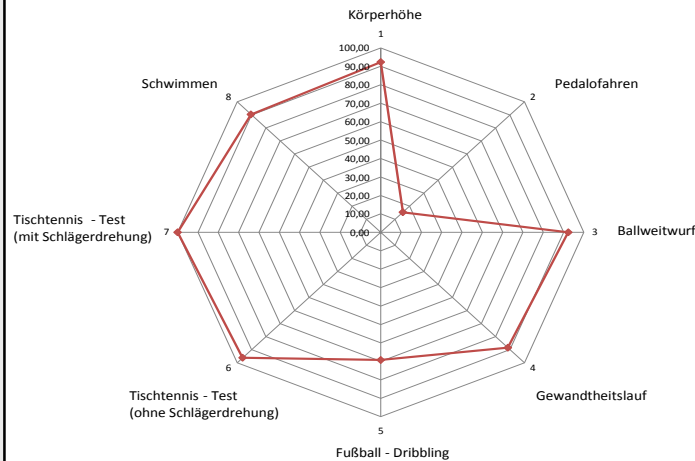
**1,000 Children
(2010 – 2016)**



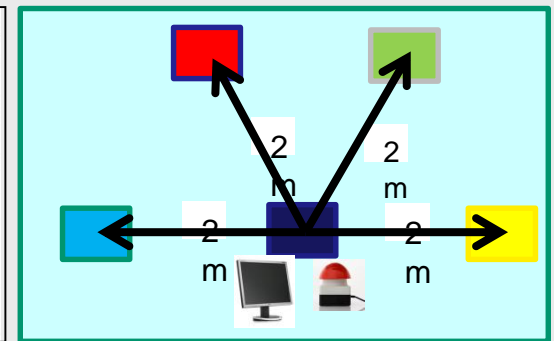
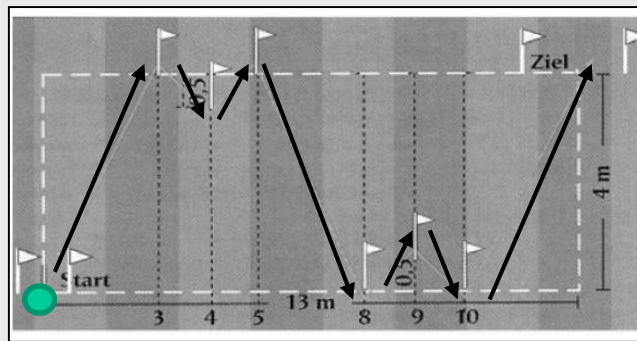
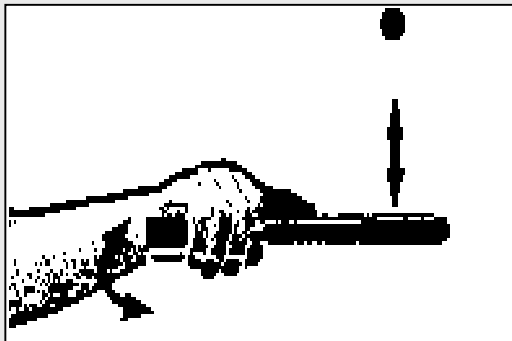
Body Height
Body Weight
Body Mass Index

Fulda Movement-Check 2010-2017

Step 2: Talent-Check



Madeleine Keck



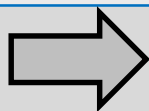


Validation – Step 1

Validation – Step 2

Validation – Step 3

Base Population
2010-2013



Target Population
2016

7-/8-/9-years
(U9)

11-,12-, 13-, 14-years
Olds (U12-U15)

Talent
Pool



Youth
Elite



20-years Olds

Stage 1: Talent Screening &
Talent Orientation

16-/17-/18-years Olds
(U19)

Juniors
Pool

Base
Population
2016

>20-years Olds

Elite

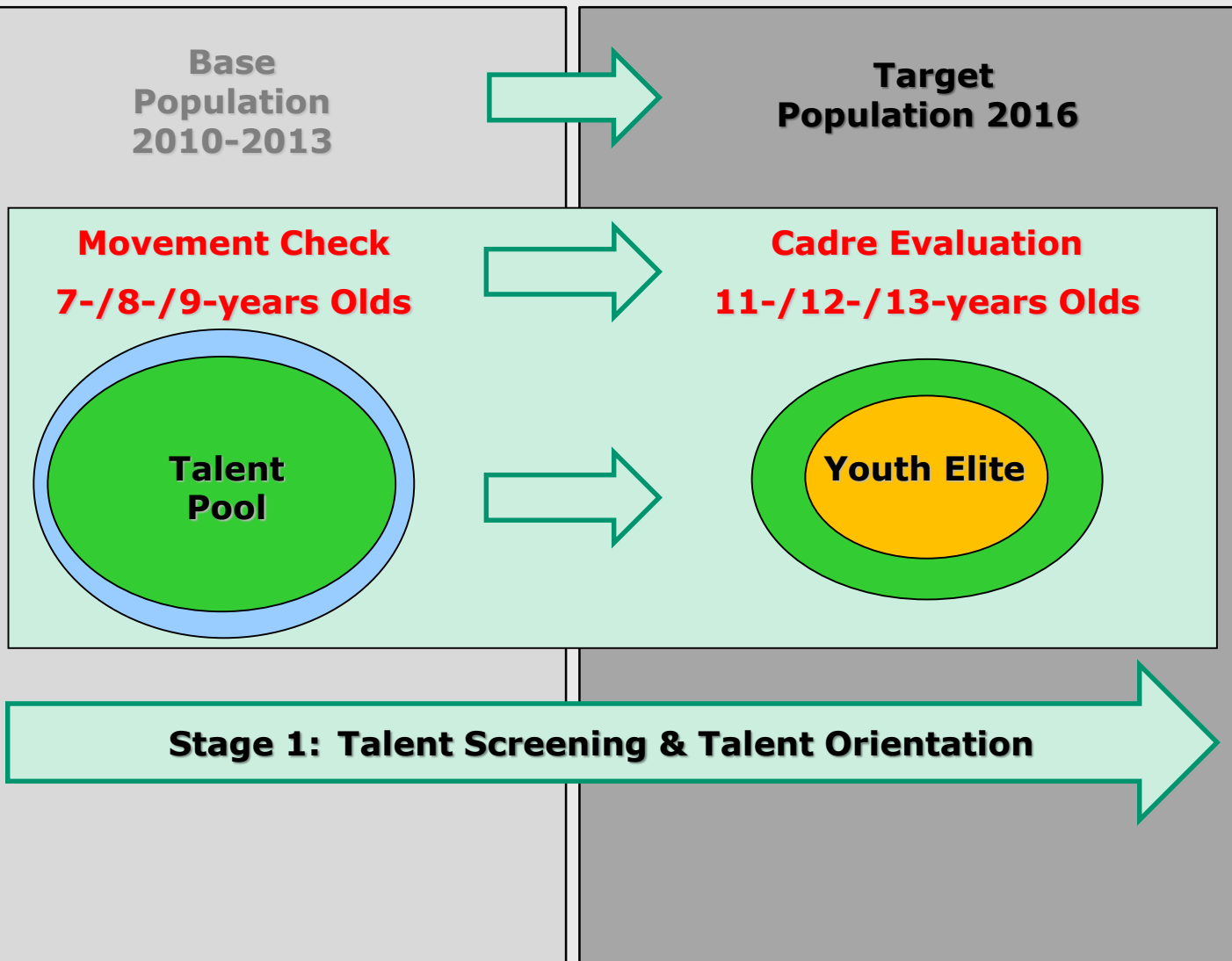
Target
Population 2024

Stage 2: Talent Selection
Talent Transfer

Stage 3:
Talent Confirmation

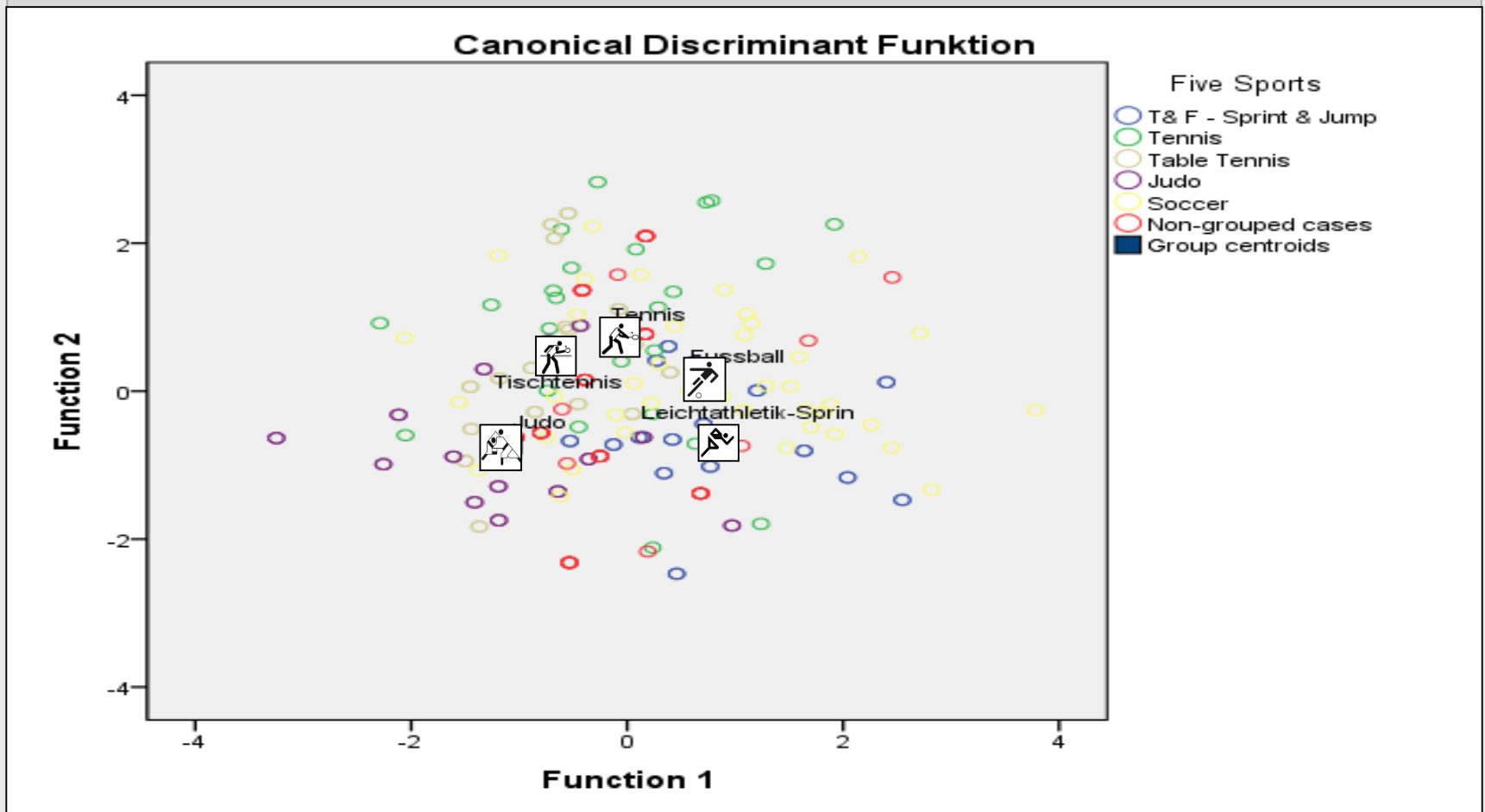


Validation – Step 1



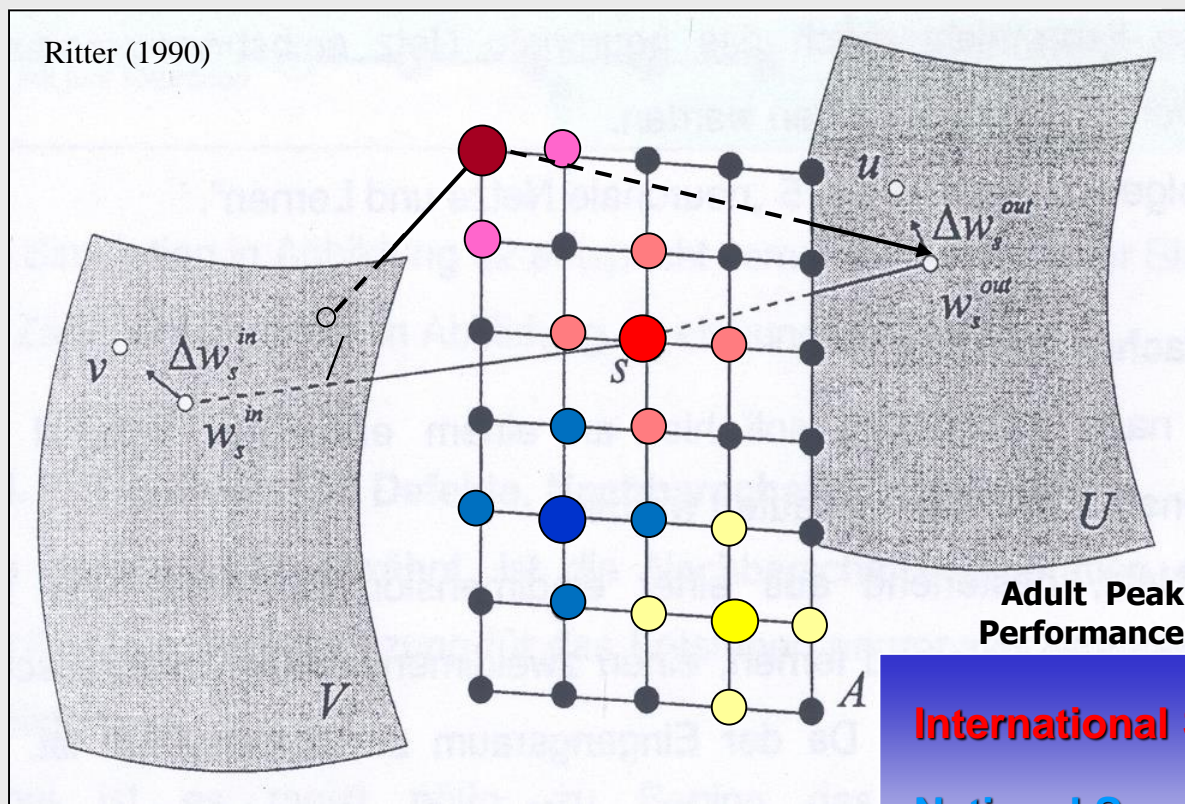
Linear and Nonlinear Classification

- **Discriminant Analysis (Cross-Validation – 11 Variables – Weighted: 39,5 Percent)**
- Self-Organizing Kohonen Feature Map („Leave-one-out“-Procedure)
- Multilayer Perceptron (Holdout: 10 percent)



Linear and nonlinear Classification

- Diskriminant Analysis (Cross-Validation)
- **Self-organizing Kohonen Feature Map („Leave-one-out“-Method)**
- Multilayer Perceptron (Holdout: 10 percent)



Juvenile Talent Make-up

International Success

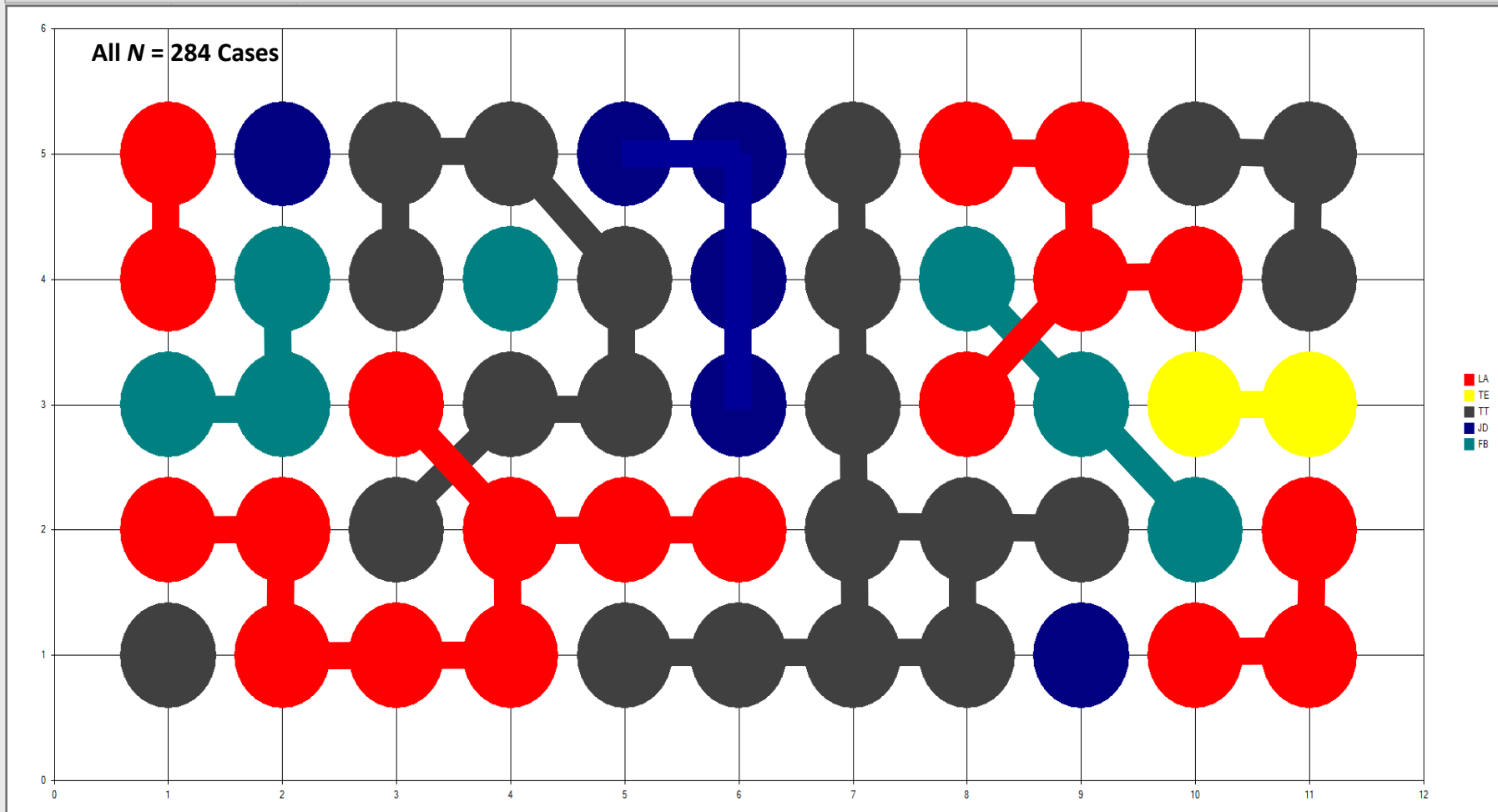
National Success

Regional Success

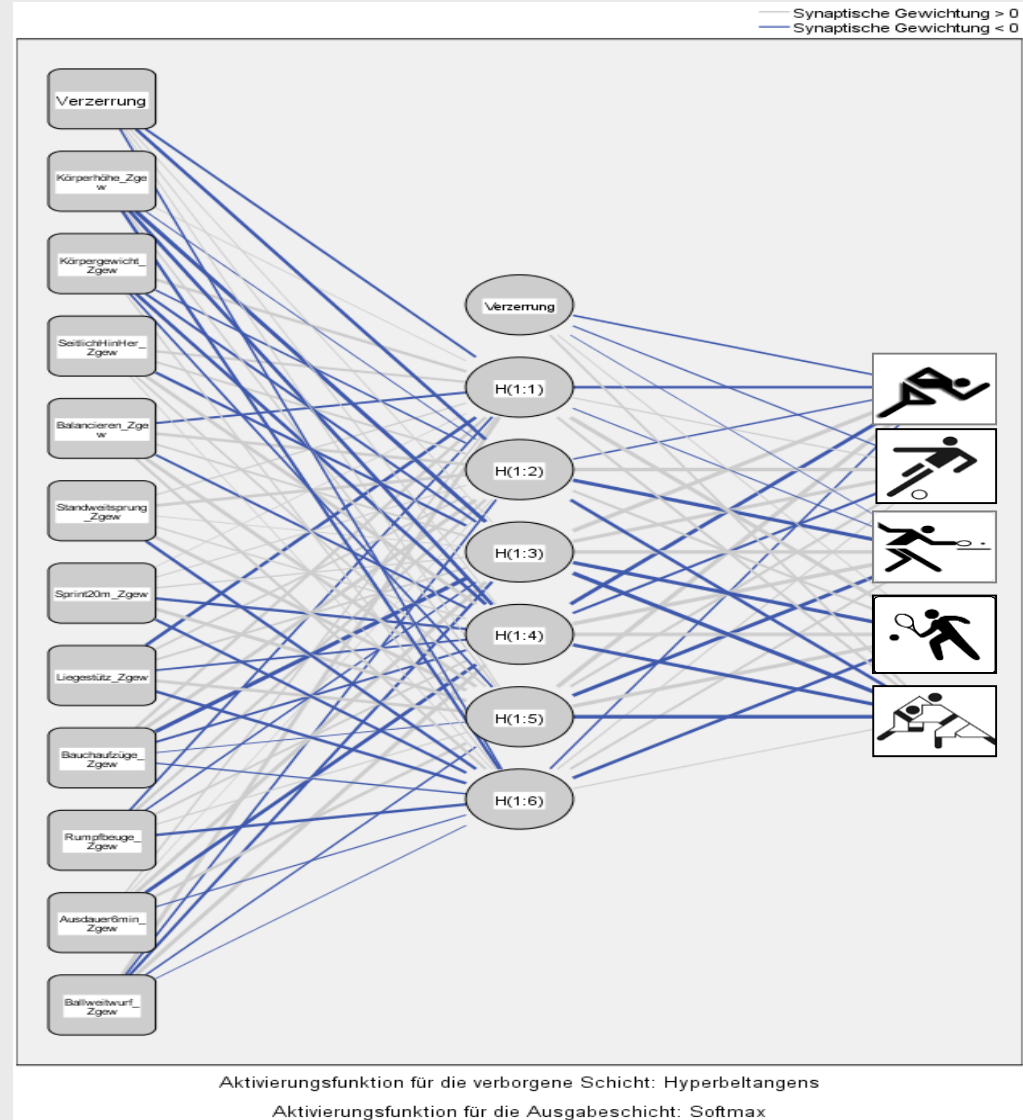


Kohonen Feature Map Analysis

Leave-One-Out – 11 Variables – Weighted: **28.87** Percent



**Multilayer Perceptron
Analysis**
(Training 75 % – Test 15 % –
Holdout 10 %)
11 Variables – Weighted:
44.66 Percent



CHALLENGES

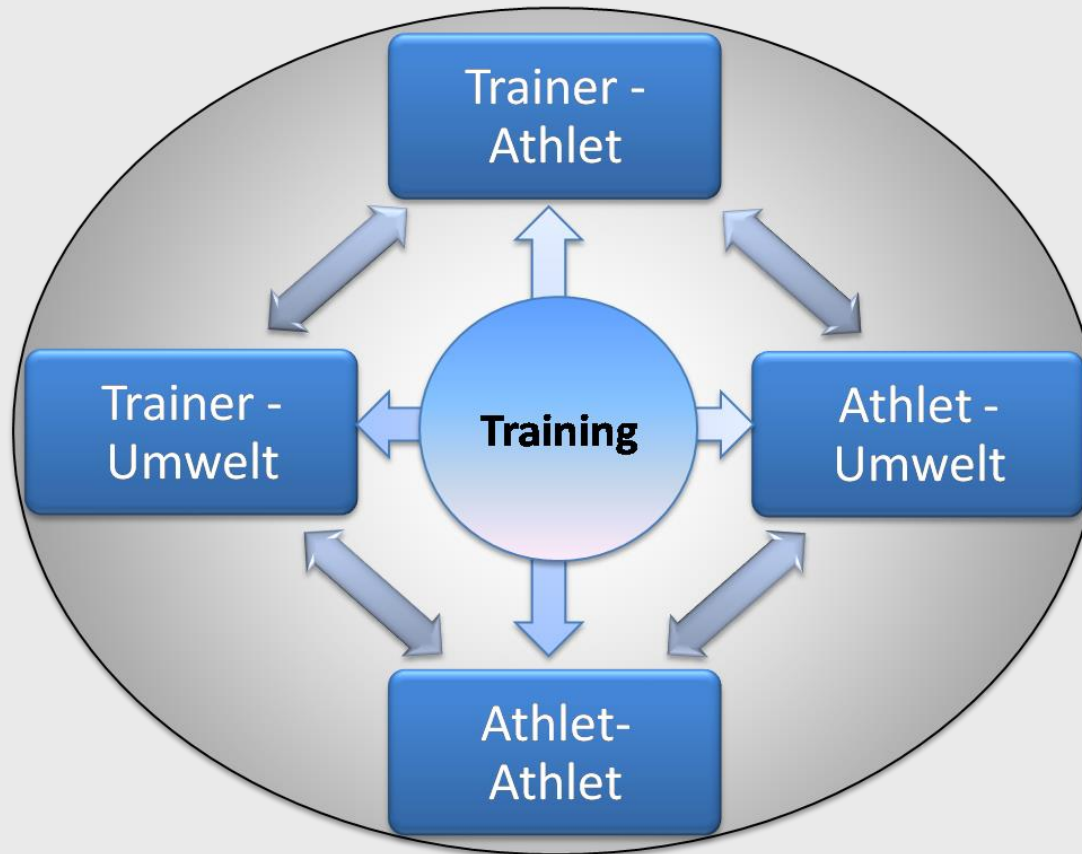
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SOLUTIONS

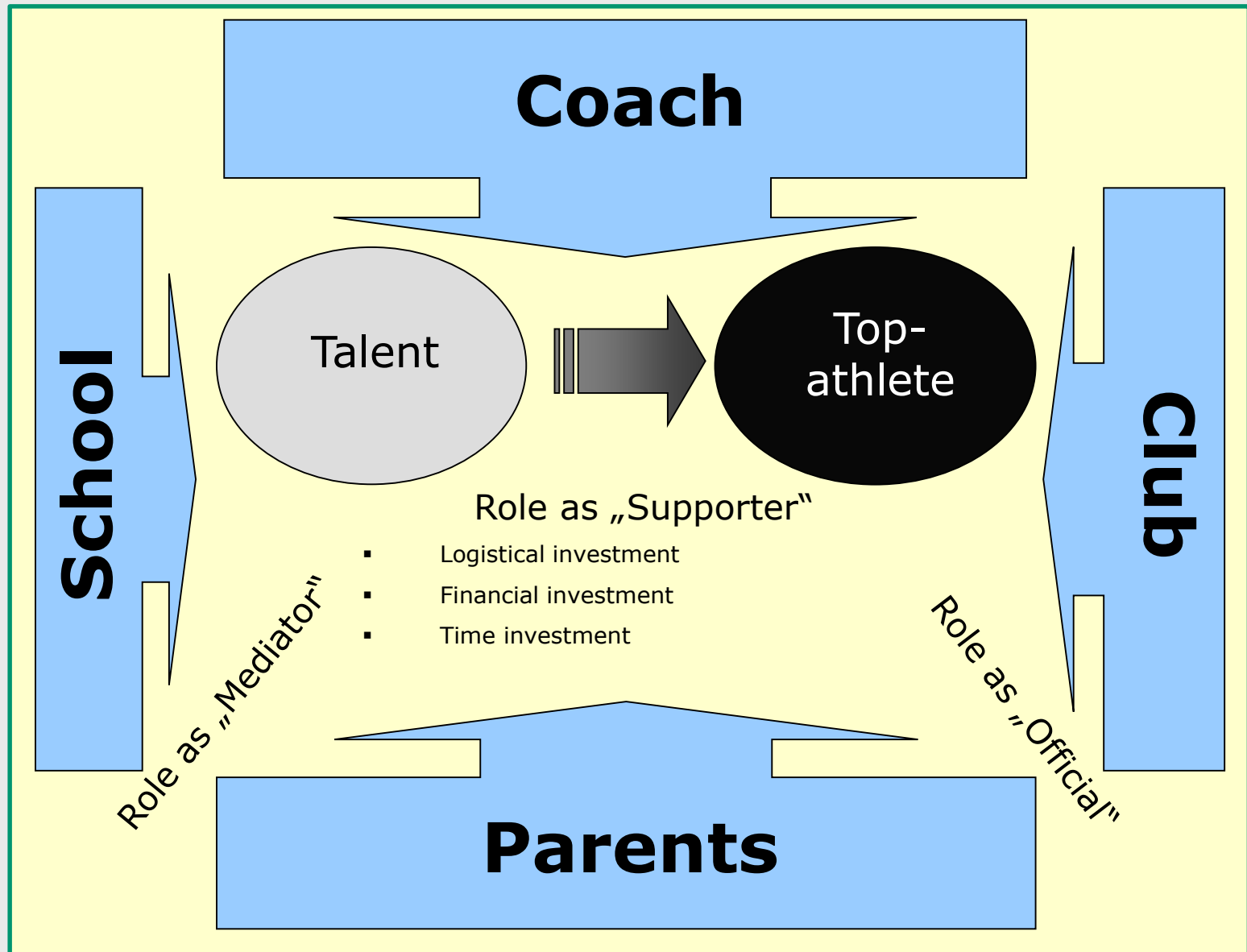
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Solution # 2

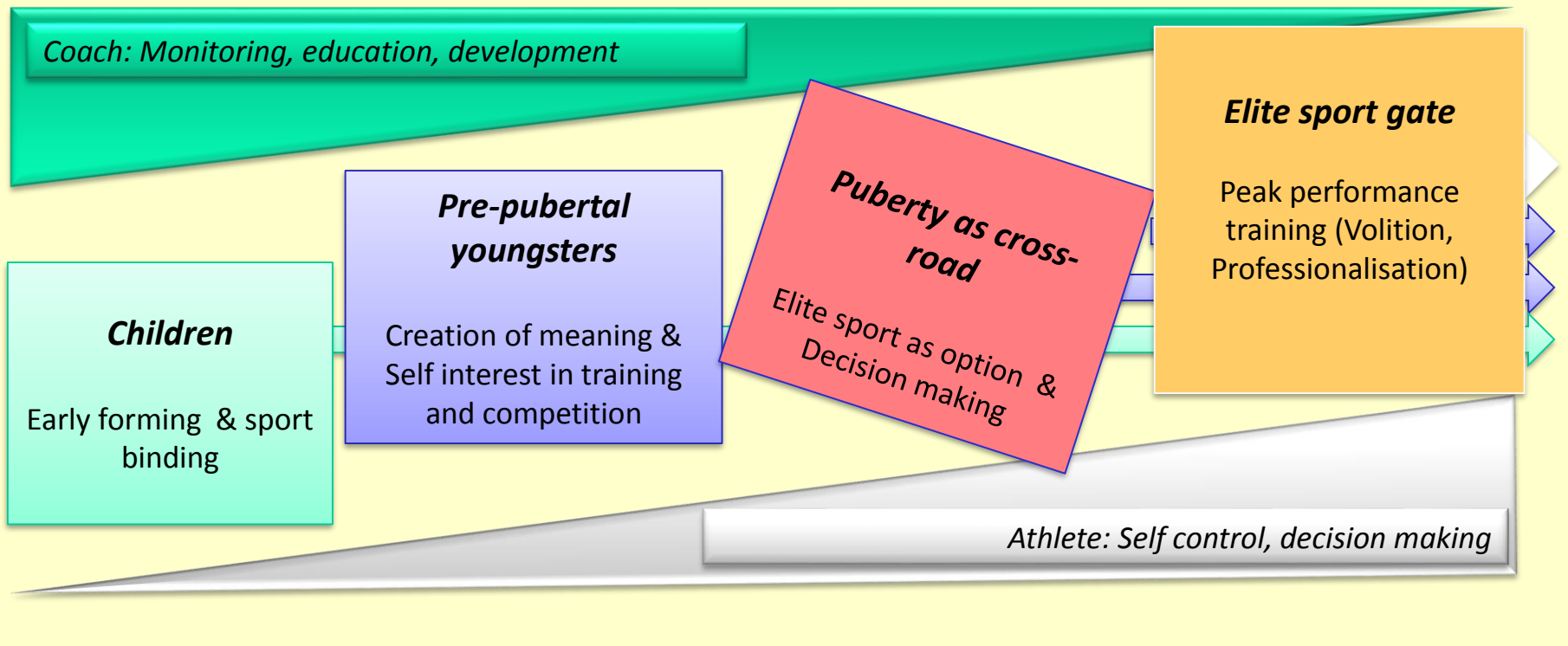
Forming the Personality



Solution # 2 Forming the Personality



Coach-Athlete-Relationship between Monitoring and Self-regulation



ENVIRONMENT

- Training facilities
- Local community

INTRAPERSONAL CATEGORIES

Volitional Components

- Longterm-Focus
- Internal locus of control
- Commitment & Load susceptibility
- Competitiveness

Personal Dispositions

- Talent, Giftedness, Luck
- Personal traits

INTERPERSONAL C.

- **Coach-Attachment**
- External Relations
- Feedback

TRAINING

- **Coach-Quality**
- Technique (Tactics)
- Training load

LIFESTYLE

- Unidimensional

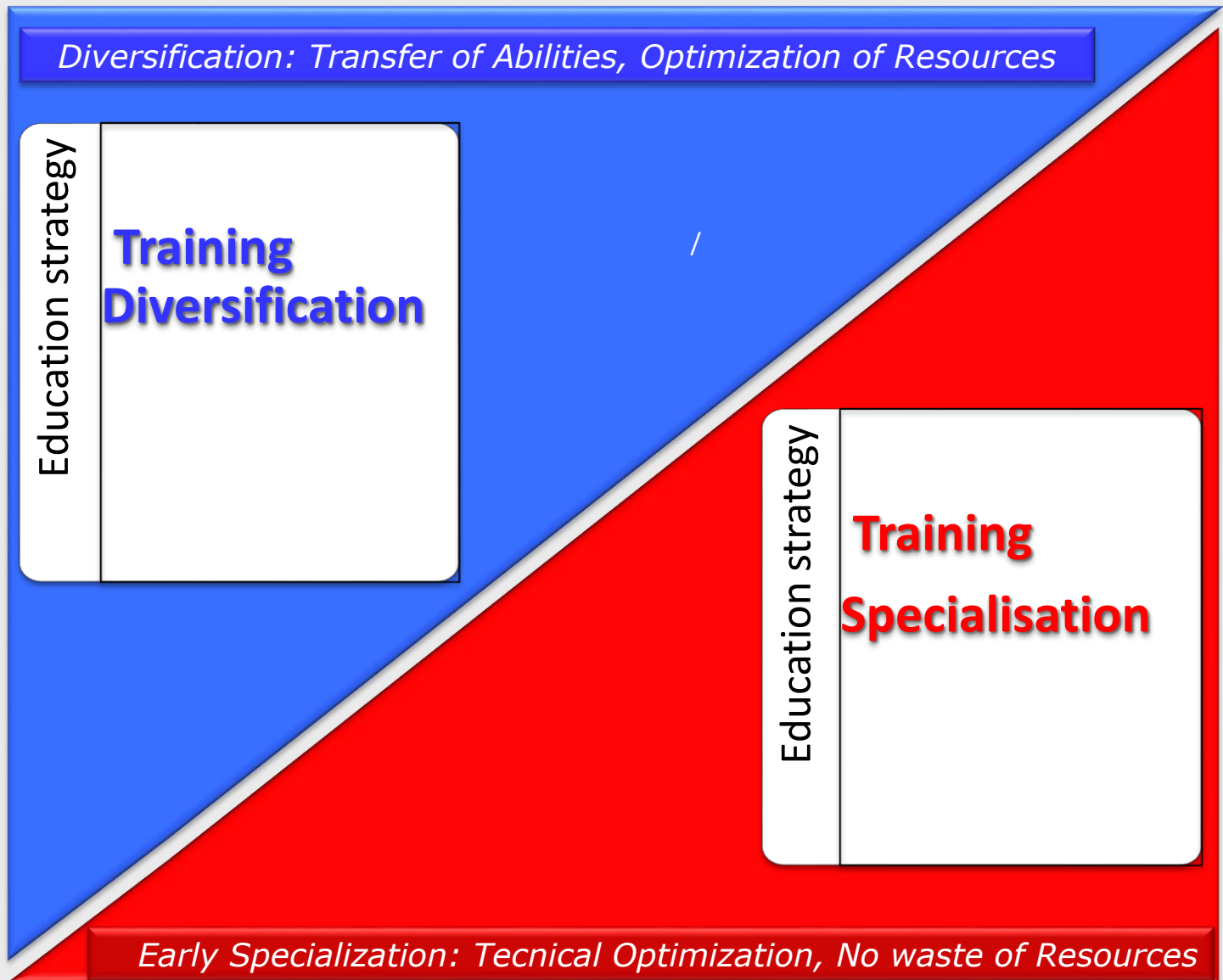
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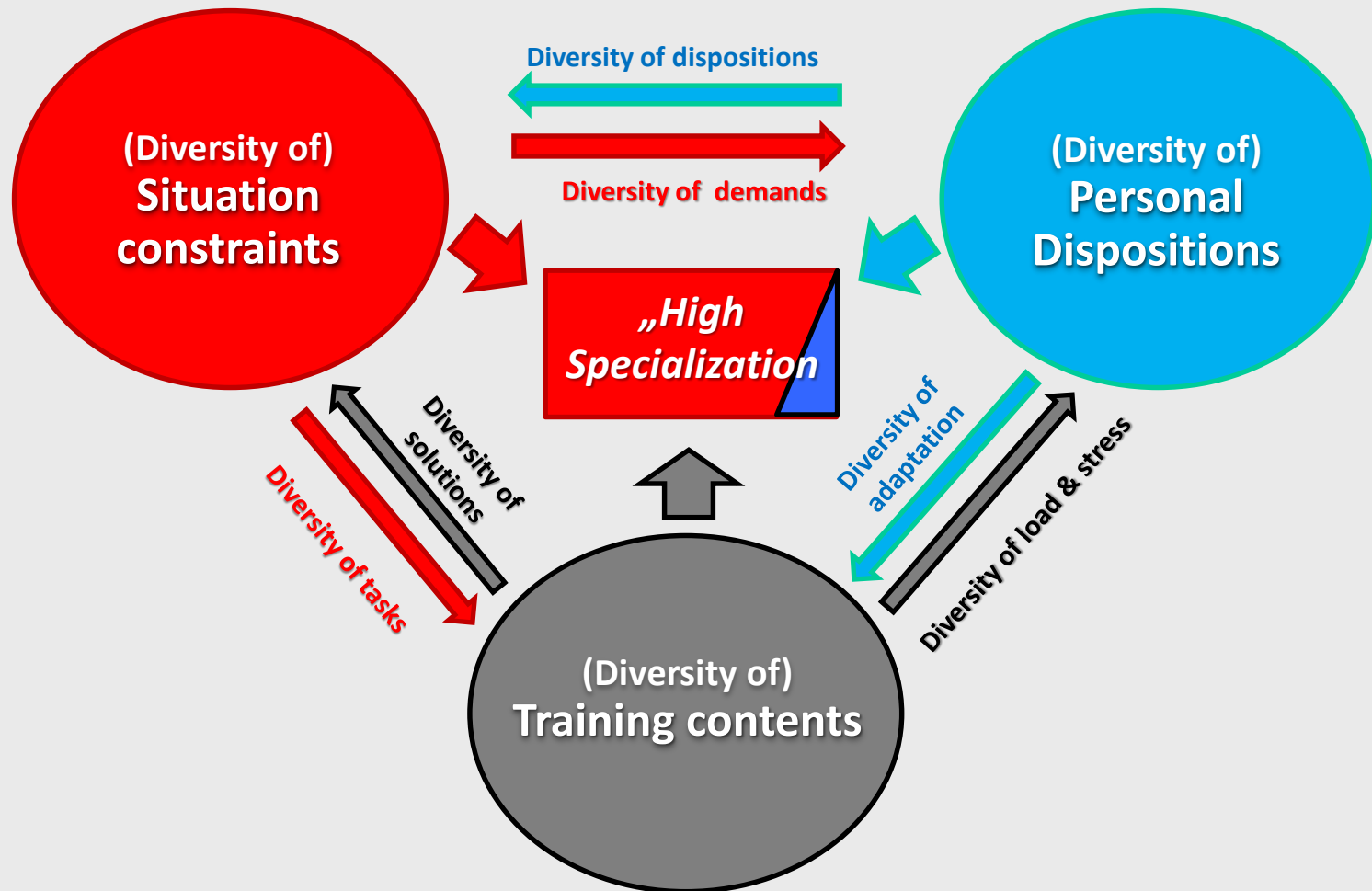
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Sustainability of Youth Training



„Mono-structure“ | **Soccer: „Multi-structure“**

„Specialized (one-sided) talent“ |
Player Schweinsteiger: **„Multi-Talent“**

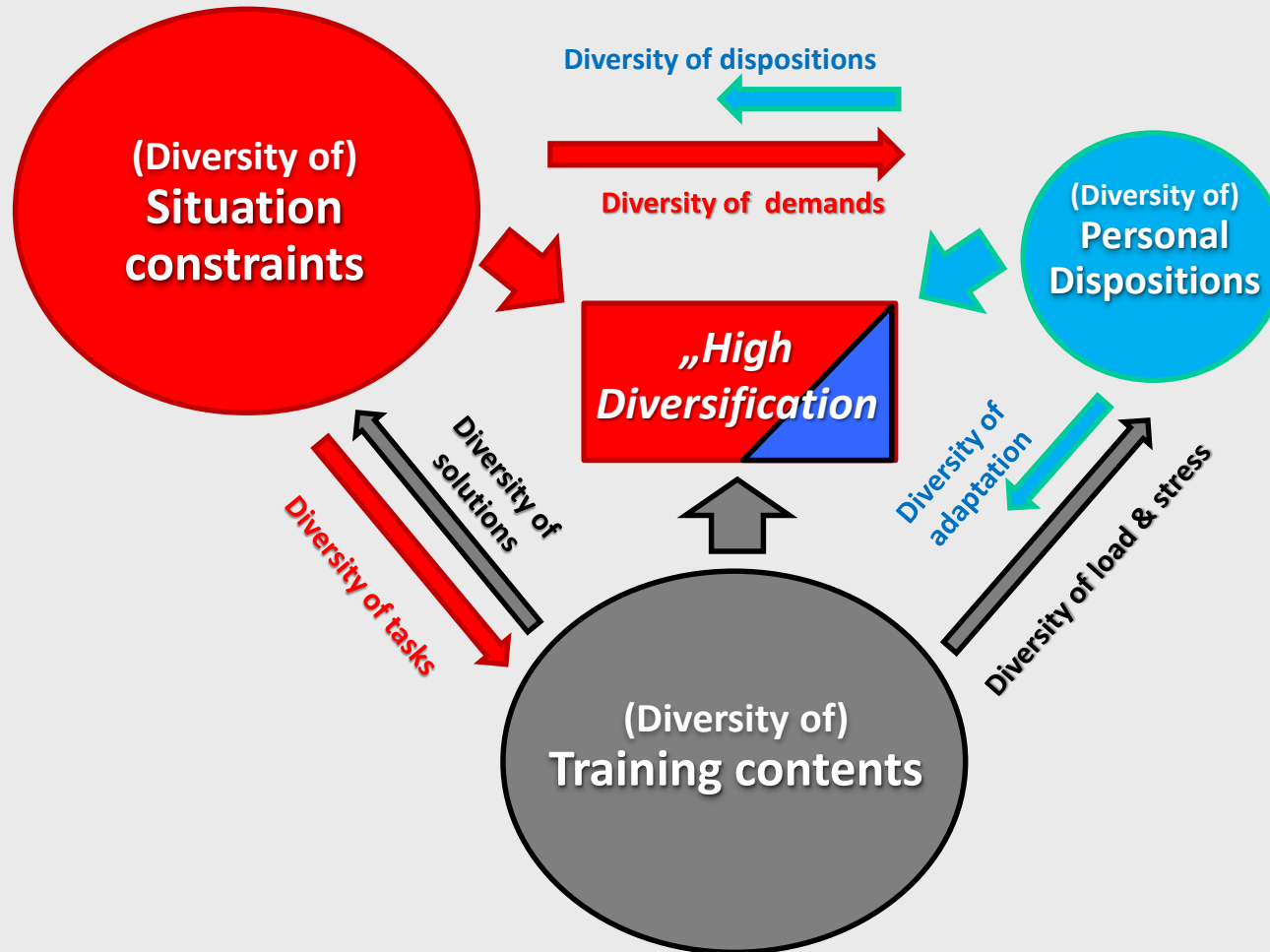


Lower „Training diversification“ | Higher **„Training specification“**

(Hohmann, Singh & Voigt, 2013; 2014)

„Mono-structure“ | **Soccer: „Multi-structure“**

„Special (one-sided) Talent“ | „Multi-Talent“



Somewhat more „Training diversification“ | Somewhat less „Training specification“

Initial performance (up to 12 years)

Average
players

Football
abstainers

Poly-sportive
players

Poly-sportive club
players

Specialized club
players

Adult level of soccer
performance

Level 1

Level 2

Level 3

Level 4

x -3.4 (Antitype)

x 1.5

x 1.4

x 2.1

x 2.0

(Zibung & Conzelmann, 2012)

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Solution # 4 Counseling the Athlete

