Chinese Physical Education Teachers' Specialized Content Knowledge of Soccer

Yaohui He , East China Normal University,
Phillip Ward , The Ohio State University,
Xiaozan Wang, East China Normal University,
Weidong Li, The Ohio State University.

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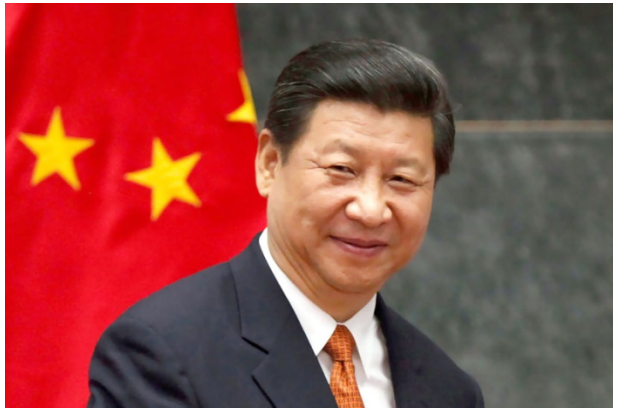
SHAPE America Boston 2017 national convention & expo

Background



In 2011, president Xi Jinping established three goals for Chinese soccer:

1. To **qualify for the World Cup**,
2. To **host the event** and,
3. To **win it**.

（*President Xi's Great Chinese Soccer Dream，2011，* http://www.zwgl.com.cn/cn/readinfo.asp?id=696&bid=735&nid=8533）

Policy Outcomes

- Promote the **popularization of soccer** in schools, **making soccer** part of the national K-12 **physical education curriculum**.
- **20,000 soccer-themed schools** are to open by 2020, and the number will increase to **50,000** by 2025.
- **50,000** PE teachers or Part-time teachers will be trained as soccer teachers by 2020.

(Chinese Soccer reform and development program, 2015，http://www.gov.cn/zhengce/content/2015-03/16/content_9537.htm)

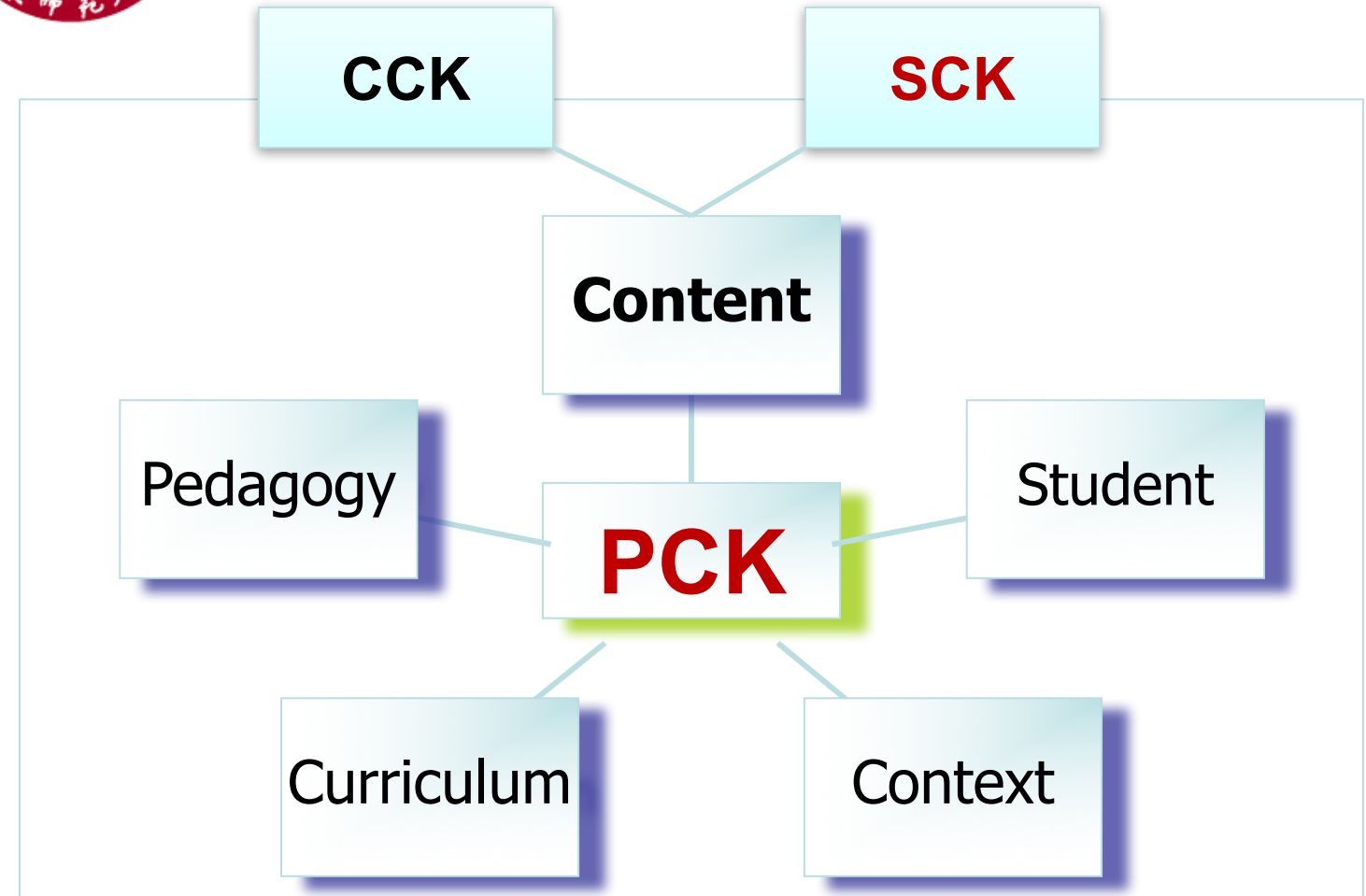
Professional Development of Teachers

Content Knowledge: Key for Successfully Teaching Soccer

How to best improve the effectiveness of soccer teaching?

A first step is to determine what SCK teachers know.

A Conceptual Framework for Content Knowledge



Grossman (1990); Ball, Thames & Phelps (2008)

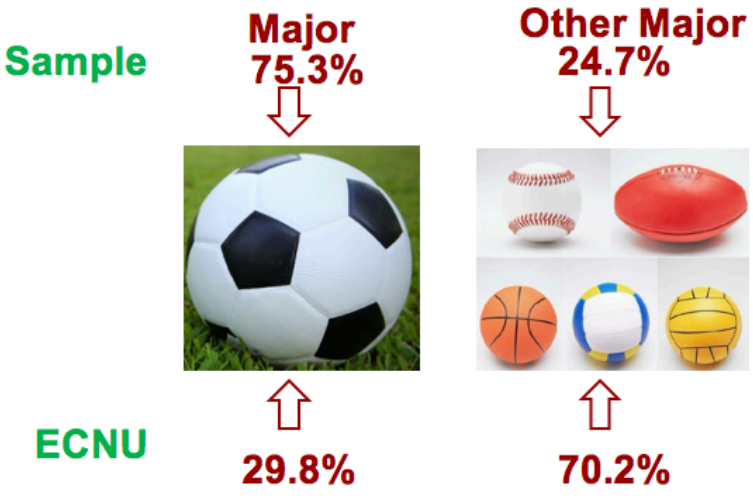
Research Aims

- To determine the depth of soccer SCK of Chinese secondary physical education teachers using content maps.
- To examine the extent to which demographic variables would predict teachers' SCK scores.

Methods

Participants

- 384(87%) middle and high school teachers in China selected from five provinces and one city.
- 75.3% of teachers had taught soccer, 24.7% had not, but reported they wanted to teach soccer.



We expected any result we obtained to reflect a better than typical representation of secondary school teachers in China.

Demographic Questionnaire

Variables Hypothesized to Influence SCK

Number of Workshops Attended

Years of Teaching Soccer

Years of Teaching PE

Years of playing soccer

Gender

Degree

School

Young Child

Young Teacher

Major

Age

Years of Coaching

Number of Lessons taught

Teaching rank

Old Teacher

Instruments

Continuous Variables

Years of Teaching PE

Years of Teaching Soccer

Number of Lessons taught

Years of Coaching

Number of Workshops Attended

Years of playing soccer

Age

Categorical Variables

Gender

School

Degree

Rank Position

Major

Demographic Variables

Ed. Background	#	%	School	#	%
Junior college	13	3.4	Middle	292	76.0
Bachelors	334	87.0	High	92	24.0
Masters	37	9.6			
Gender	**#**	**%**	**Major**	**#**	**%**
Male	372	96.9	Soccer	169	44.0
Female	12	3.1	Others	215	56.0

Demographic Variables

Age	#	%	Teaching rank	#	%
20-25	36	9.4	3rd-grade teacher	15	3.9
26-35	170	44.3	2nd-grade teacher	171	44.5
36-45	156	40.6	1st -grade teacher	158	41.1
≥ 45	22	5.7	Senior teacher	40	10.4

Years of teaching	#	%	Years teaching soccer	#	%
1-5	94	24.5	0	95	24.7
6-10	85	22.1	1-5	184	47.9
11-15	82	21.4	6-10	47	12.2
16-25	102	26.6	11-15	21	5.5
≥26	21	5.5	16-25	34	8.9
			≥26	3	.8

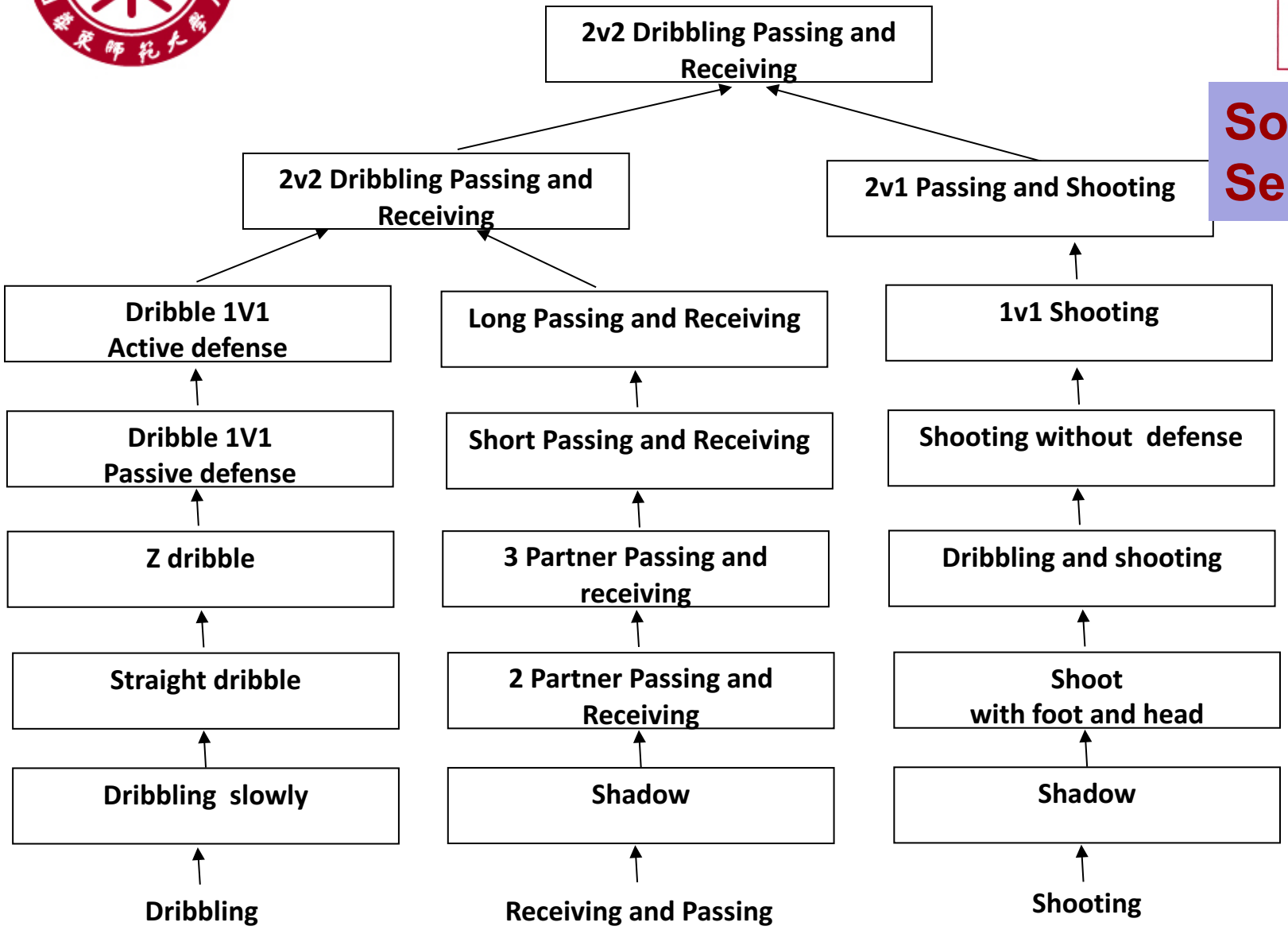
Demographic Variables

Years playing soccer	#	%	Years coaching soccer	#	%
0	44	11.5	0	135	35.2
1-5	92	24.0	1-5	178	46.4
6-10	55	14.3	6-10	38	9.9
11-15	49	12.8	11-15	13	3.4
16-25	110	28.6	16-25	18	4.7
≥26	34	8.9	≥26	2	.5
# of soccer lessons taught Last year	**#**	**%**	**# of soccer workshops attended**	**#**	**%**
0	116	30.2	0	143	37.2
1-20	123	32.0	1	90	23.4
21-100	104	27.1	2	62	16.1
≥101	41	10.7	3	26	6.8
			4	63	16.4

Content Map

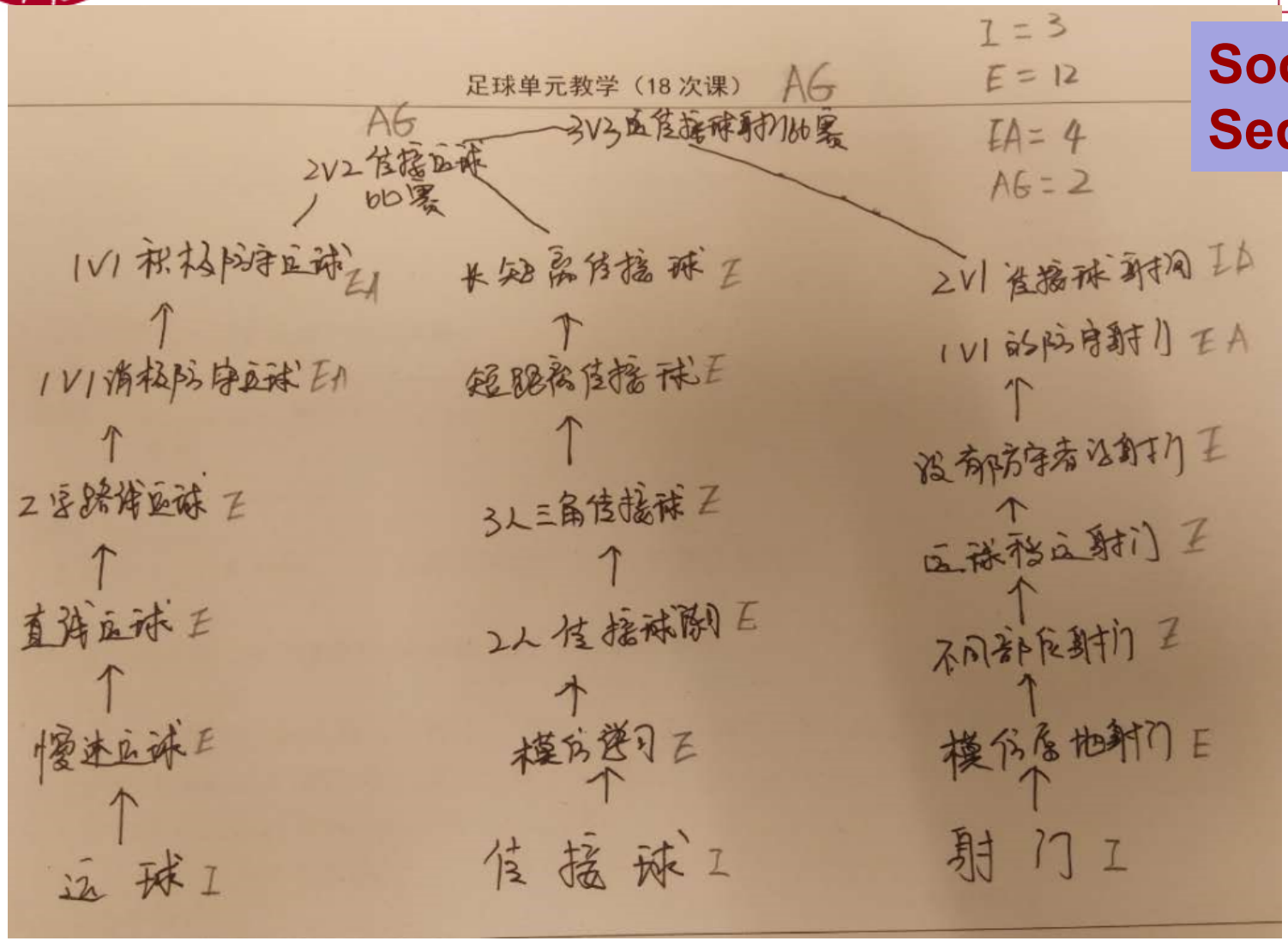
Content Map

Soccer Sequences



Content Map

Soccer Sequences



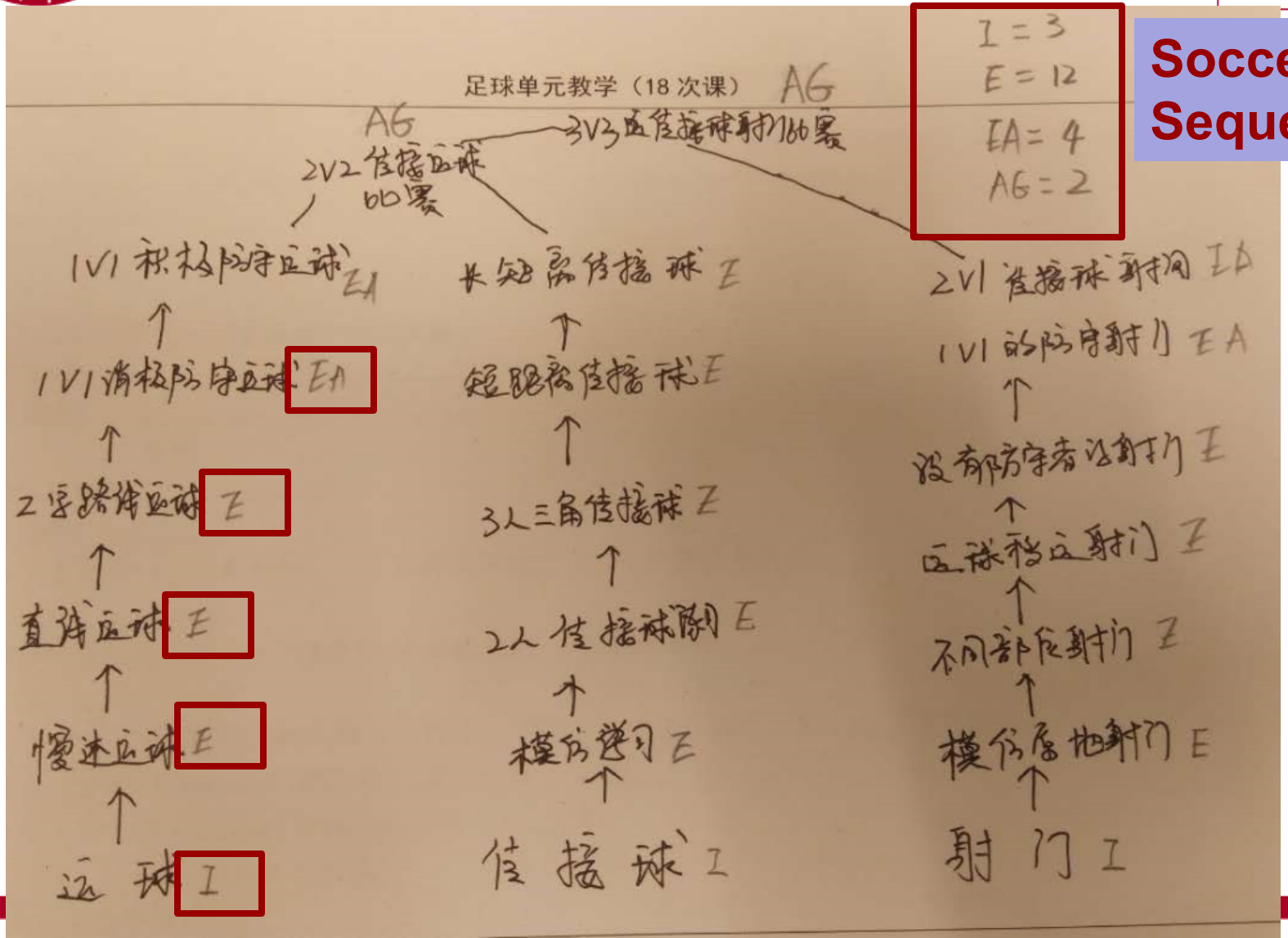
Content development

Variables	Definition
Informing task(I)	The initial task in the progression of a skill and which are can not be classified under the other categories.
Extending task (E)	A task that increases the level of difficulty of a previous task by adding elements (e.g., part to whole), changing or adding a new dimension (e.g., distance, space, speed, target area) or adding more variety.
Extending -application task(EA)	An extending task occurring in context of a game-like environment where the purpose is to apply the task in a game.
Refining task(R)	A task that expresses additional focus on the quality of performance.
Refining application task (RA)	A refining task occurring in context of a game-like environment where the purpose is to apply the task in a game.
Applying non-game task(AN)	A task that centers on assessment of form or on how to use the movement, rather than just how to do the movement.
Applying task-Game (AG)	A task that uses the content in a game. For which the particular focus is not specified.

Modified from Rink's (1979) Content Development Framework

Content Map

Soccer Sequences



Depth of Content Development

$$\frac{E+EA+R+RA+AG+AN}{I}$$

(Ward et al., 2017)

$$\frac{6\ E+4\ EA+1\ R+1\ RA+2\ AG+2\ AN}{4\ \text{Informing tasks}} = 4.0$$

$$\frac{2\ E+1\ EA+0\ R+0\ RA+1\ AG+0\ AN}{4\ \text{Informing tasks}} = 1.0$$

Coder Training

- Two experienced PE. teachers were trained as coders to evaluate the content maps.
- The coders learned the terms and definitions of 7 different content development tasks.
- Coders took a 21 item test that required them to match 46 descriptions of tasks with 100% accuracy.
  - The coders repeated training until they obtained100% accuracy.

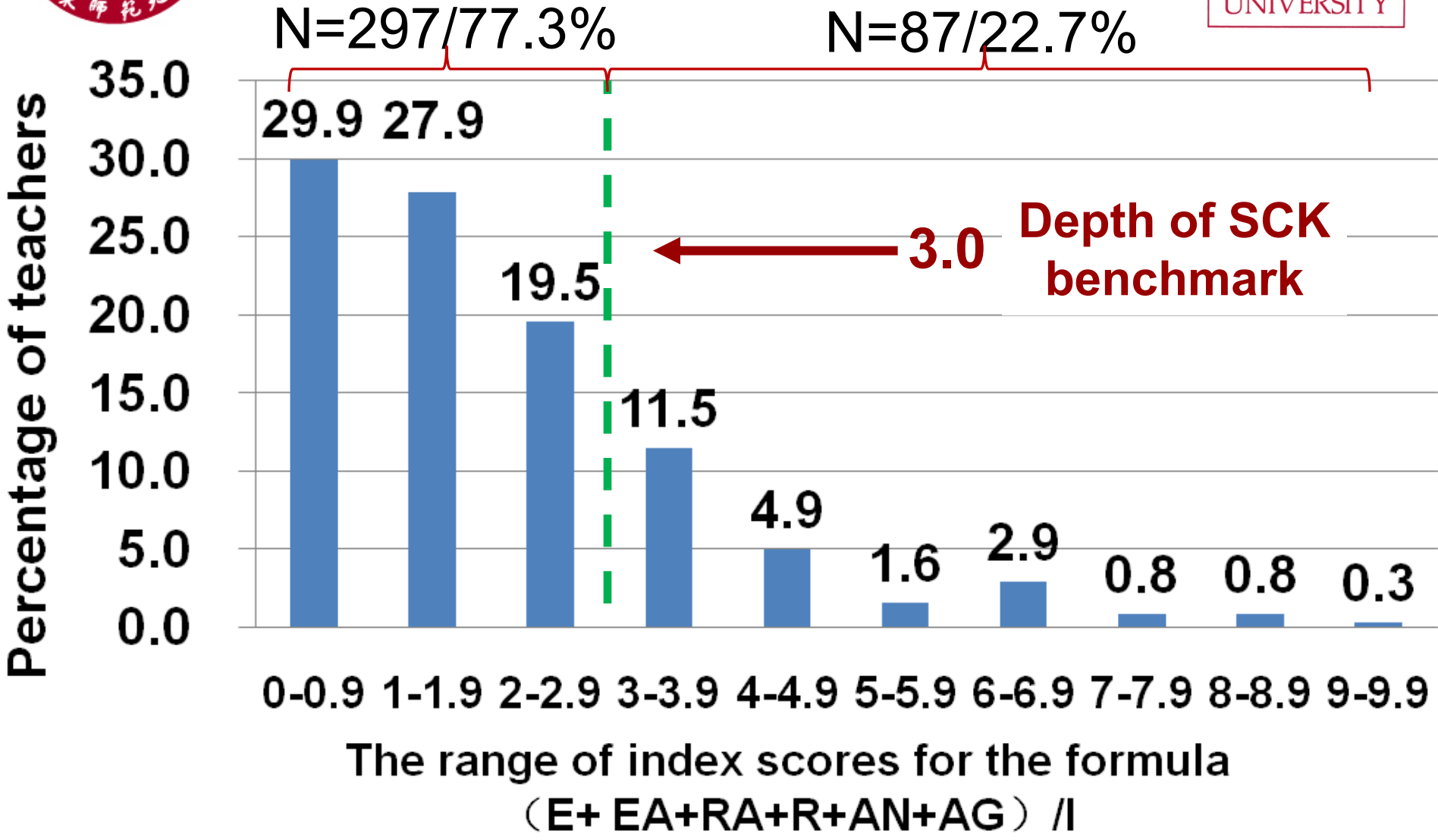
Inter-observer agreement

- Inter-observer agreement was conducted on 53.1% (N= 204/384) of randomly selected content maps.
- The mean agreement was 96.7% (range, 85.0-100%).

Data Analysis

- We used a General Linear Model with SCK score as a dependent variable and 12 demographics as independent variables to analyze the data.
- Then a Post hoc ANOVA to examine the difference in SCK by ranking.

Results


N=297/77.3%
N=87/22.7%
Percentage of teachers
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
29.9
27.9
19.5
11.5
4.9
1.6
2.9
0.8
0.8
0.3
3.0
Depth of SCK benchmark
0-0.9
1-1.9
2-2.9
3-3.9
4-4.9
5-5.9
6-6.9
7-7.9
8-8.9
9-9.9
The range of index scores for the formula
（E+ EA+RA+R+AN+AG）/I

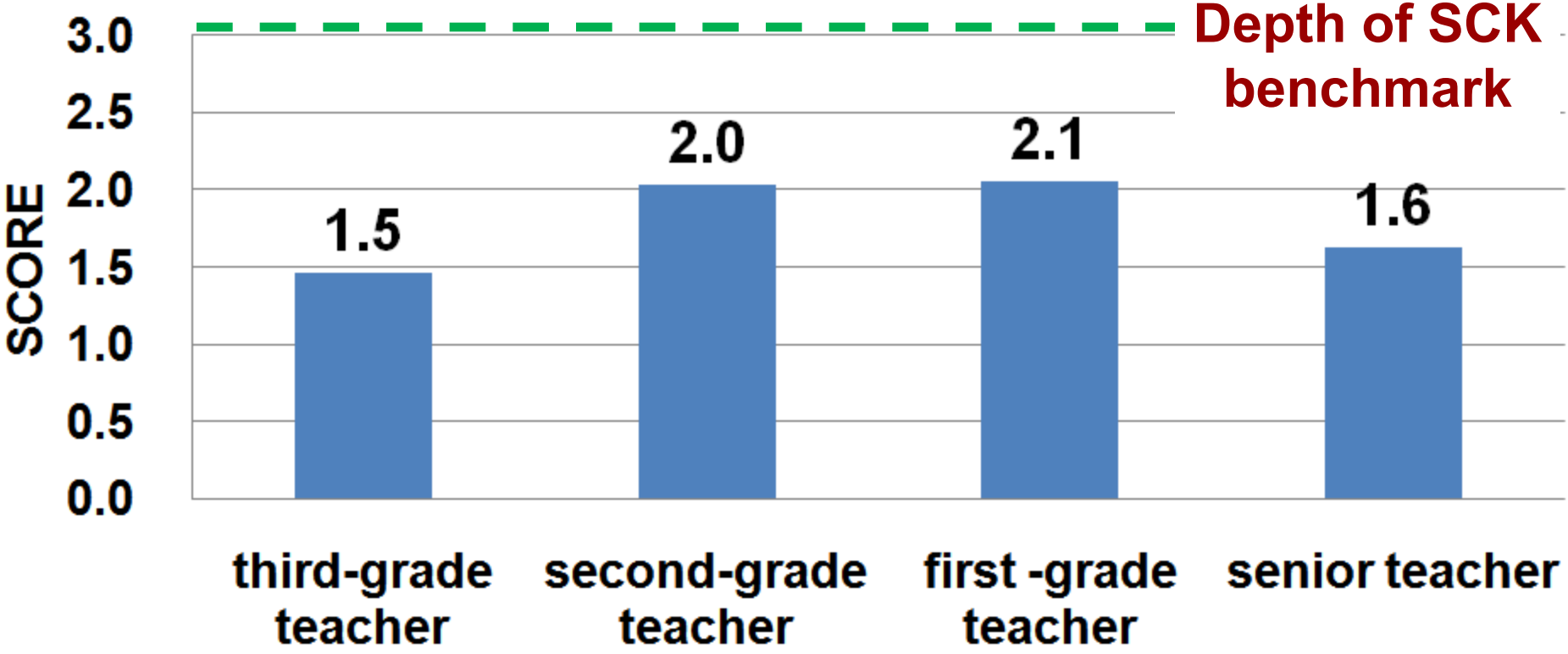
Results

- The General linear model analysis showed that teachers' ranking position, $F(3, 369) = 3.20$, $p < .02$, and years of teaching experience, $F(1, 369) = 8.65$, $p < .004$, would significantly predict the index score.

Results

- The post hoc analysis showed that teachers with a 1st grade rank scored marginally better than those with a 3rd grade rank ($p < .046$).

Results



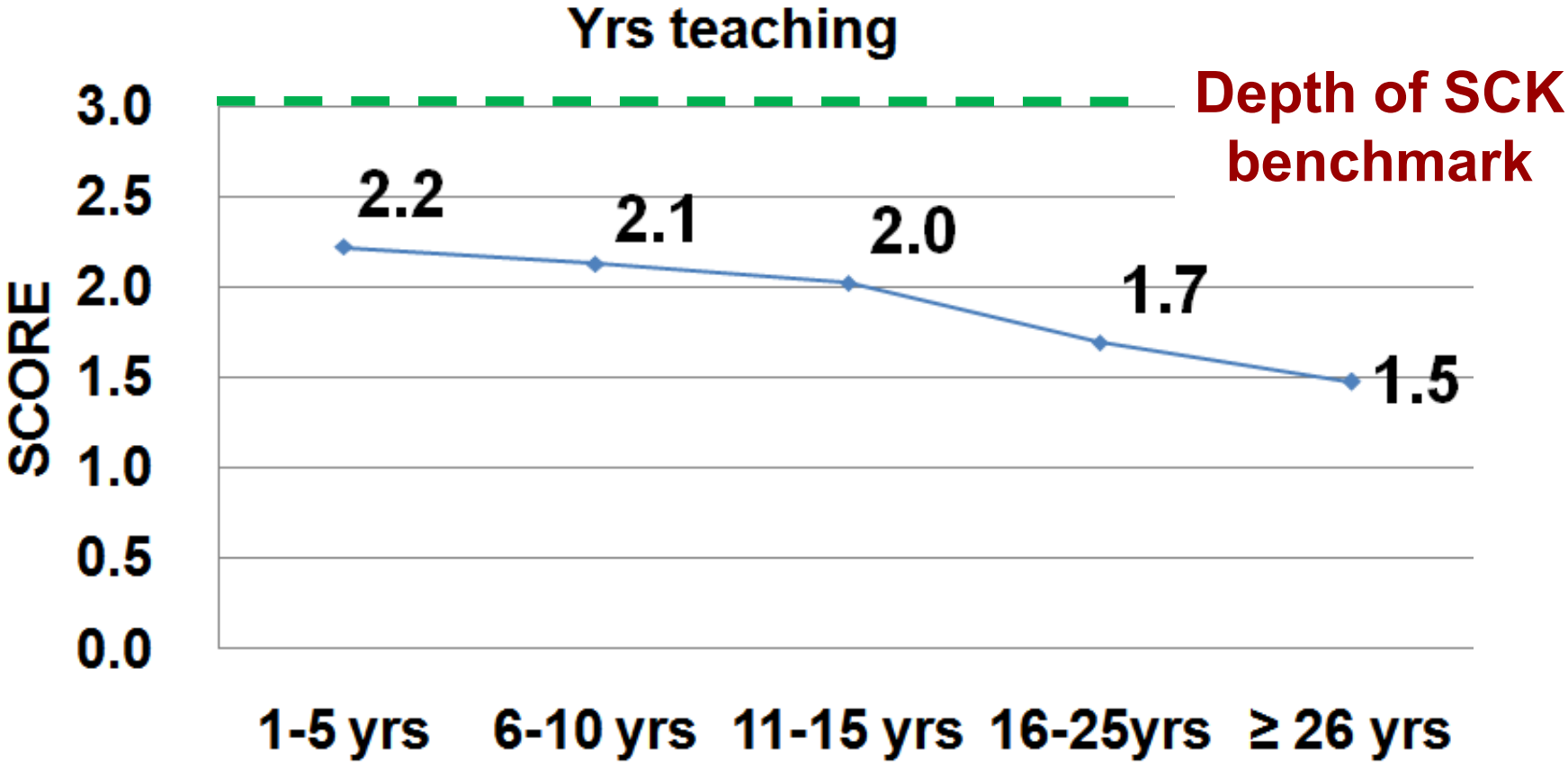
Low Rank teachers ⟷ **High Rank teachers**

SCK index scores shown by teacher Rank

Results

- The General linear analysis showed teachers' years of teaching experience negatively predicted their scores on the content map test, $r(384) = -.17$, $p < .0008$. teachers with more years of teaching experience scored less on the content map test.

Results



SCK index scores shown by teaching experience

Results

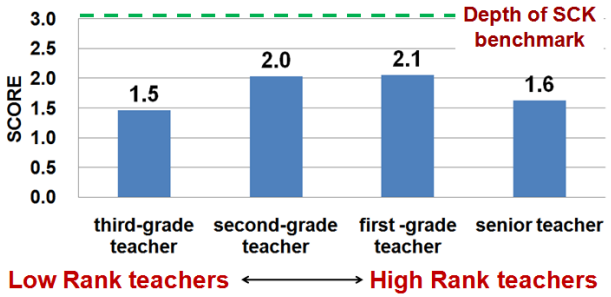
- The remaining demographic variables failed to significantly predict the index score.
- The model accounted for 11% of the total variance in the transformed index score.

Conclusions

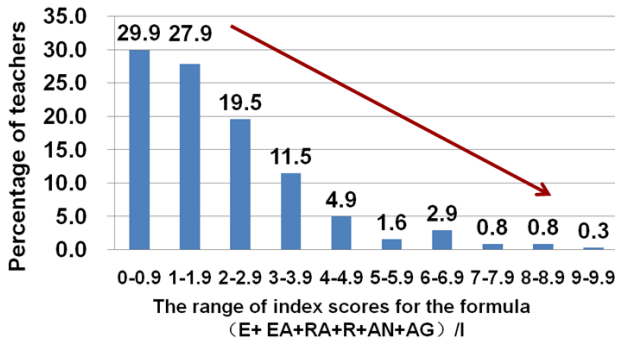
➢ Our findings showed that SCK was not predicted by the majority of demographic variables. Even though ranking and teaching experience predicted SCK, the strength of relationships was weak and not meaningful.

a. An inspection of teachers' rank and SCK suggests that there may be a curvilinear relationship between these two variables.

b. Teaching experience: We found a decline over time in scores.

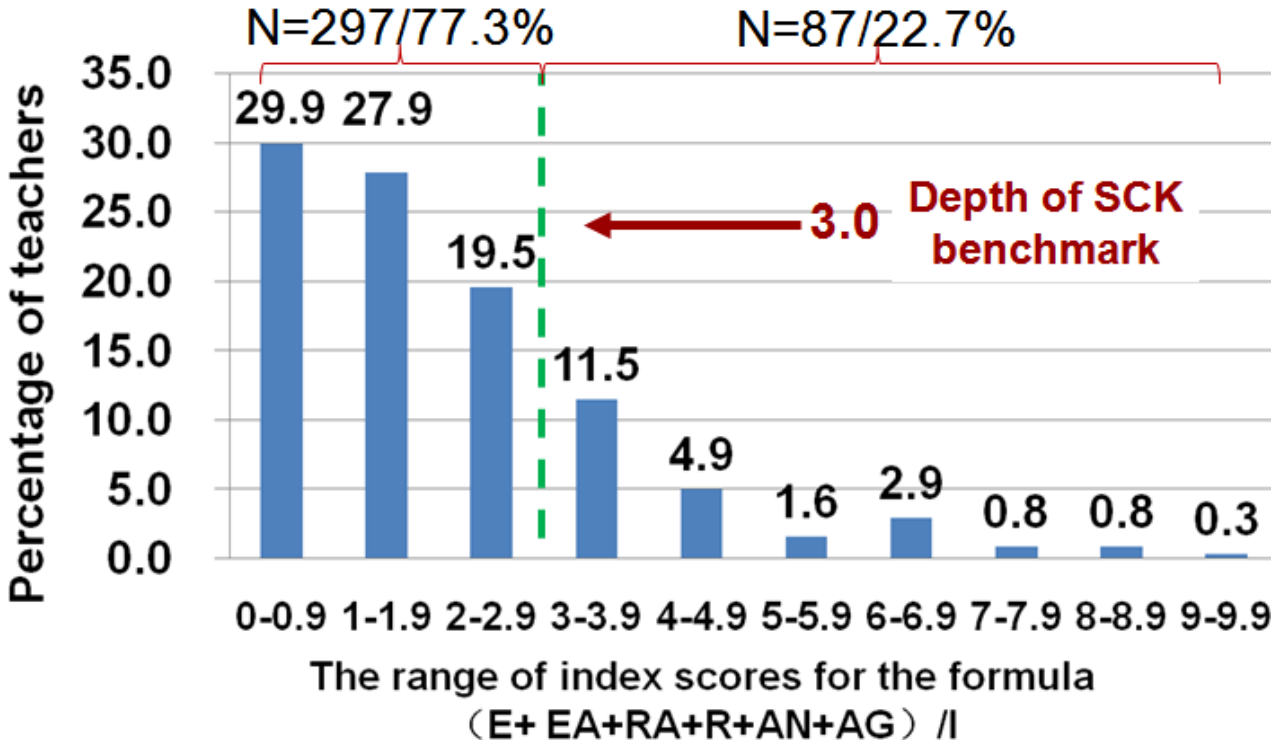


SCK index scores shown by teacher Rank



Conclusions

- **A majority of Chinese Soccer teachers in this study had low SCK.**



Past Research on Content Development

Teaching Behavior through Various Levels of Field Experiences

J.L. Gusthart
University of Saskatchewan
and
Judith Rink
University of South Carolina

1983 JTPE

Content Development Patterns Over a 2-Year Period as Indicated From Written Lesson Plans

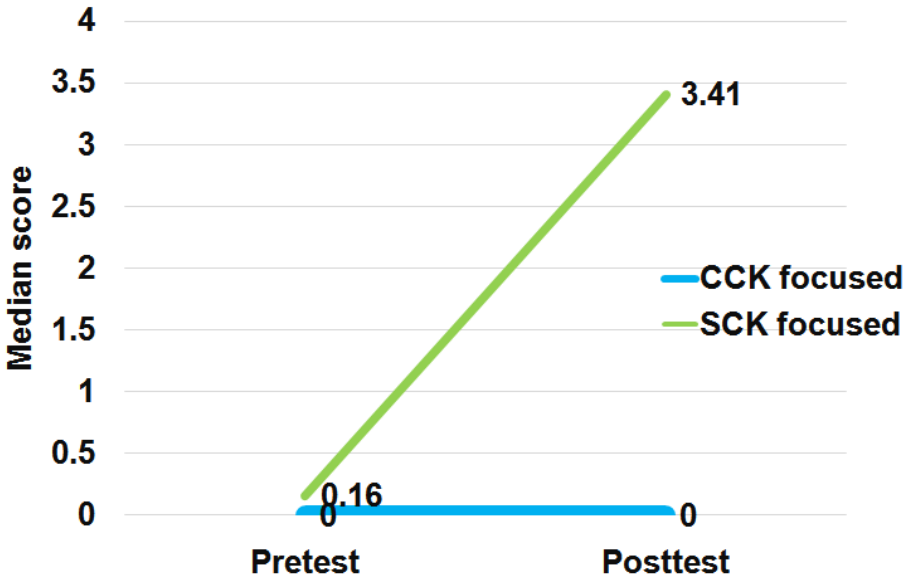
Kate R. Barrett and Ann Sebren
The University of North Carolina at Greensboro
Anne M. Sheehan
Altamahaw-Ossipee Elementary School

1991JTPE

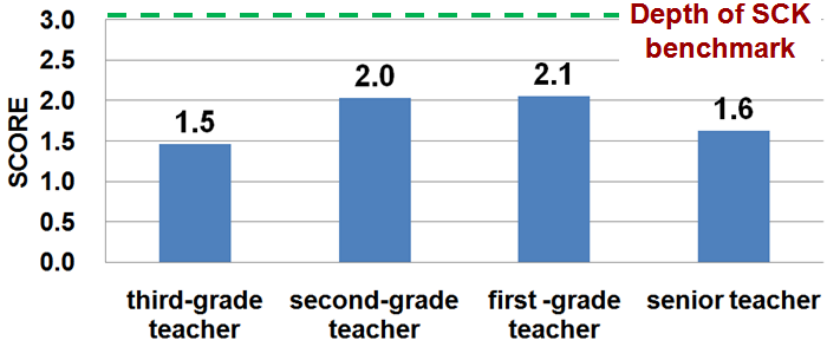
- A decline in refining and extending tasks as students progressed through the methods classes and student teaching.
- A decline in refining and extending tasks as the teacher progressed from student teaching to teaching

Conclusions

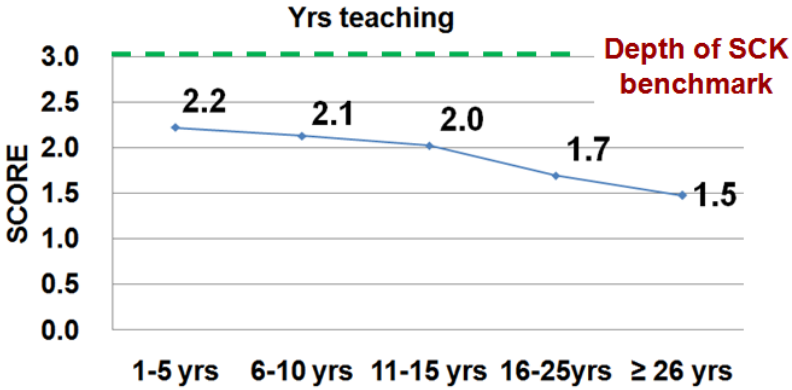
- **SCK need to be specially taught.**



(Emi et al., 2017)



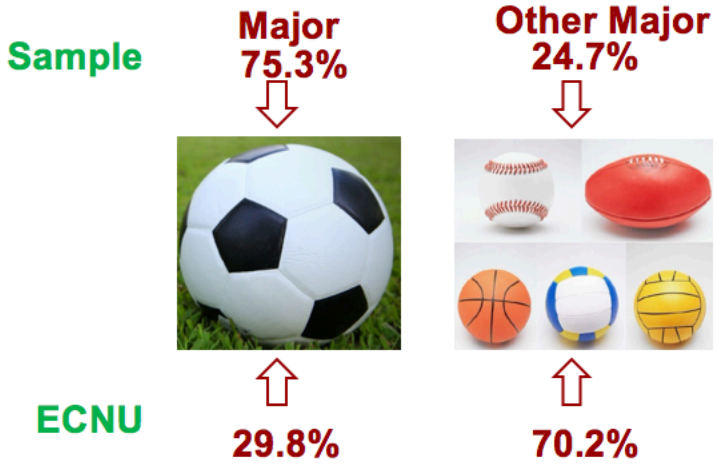
SCK index scores shown by teacher Rank



SCK index scores shown by teaching experience

Limitations

- This study is limited to the characteristics of our sample.



- To the extent that the content map represents SCK that they would actually use in teaching.

Future Research

- **Focus on teacher education curricula and professional development programs to teach SCK.**
  - To determine the effects of different approaches to teach SCK.
- **Explore the relationship between CCK and SCK..**
  - Is there a relationship between knowing CCK and performing CCK, and SCK?
  - What CCK is a functional for teaching SCK

Thank you.

Questions and comments?

Learning to Teach Physical Education Research Program Web site: http://u.osu.edu/ltpe/