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Early Reflections on Infusing TPSR Ideas and Strategies at Korea Science Academy of KAIST for the Gifted

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Why I'm Here

- To share early reflections,
- To raise questions,
- To learn from your experiences

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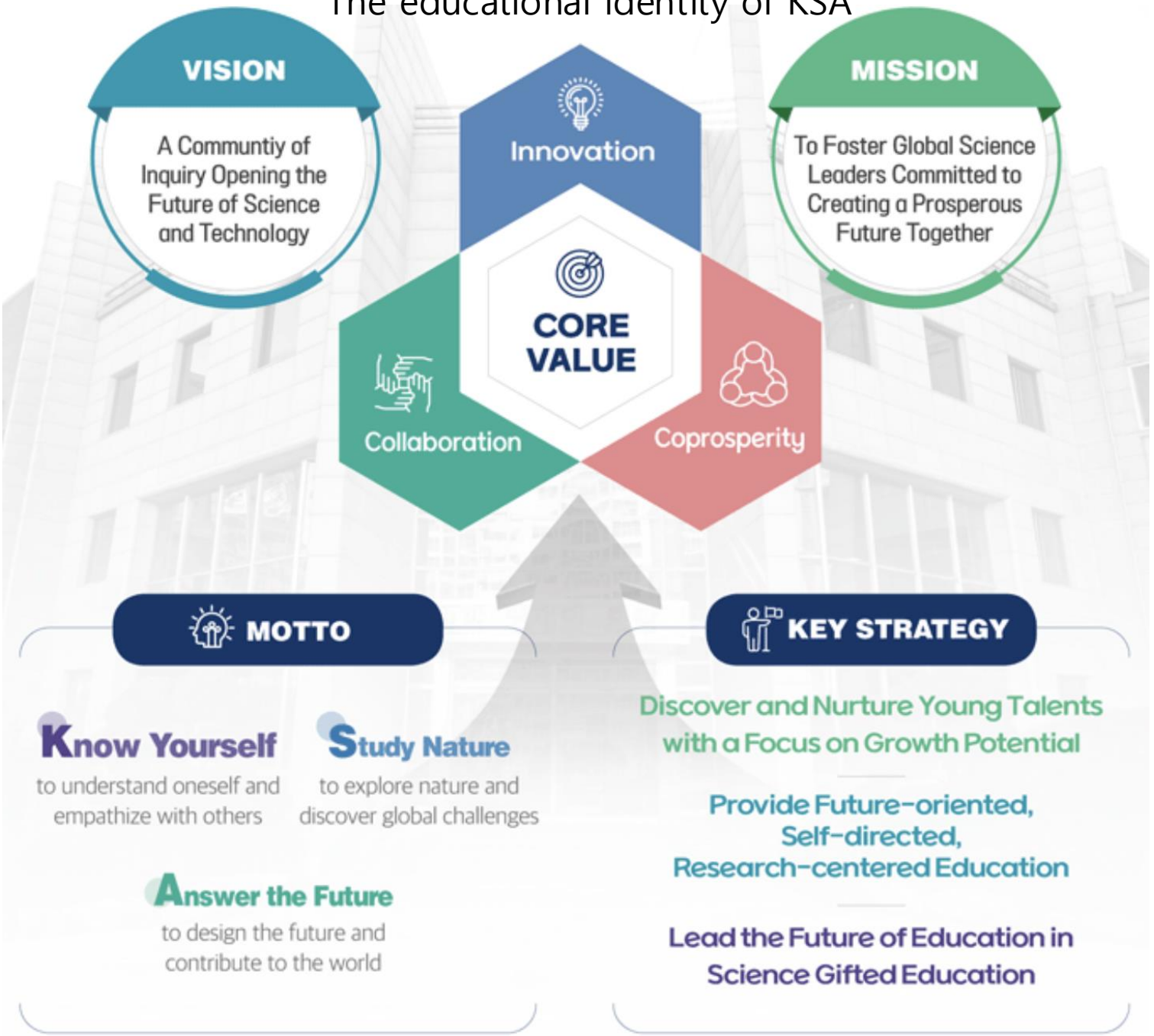
Where I Teach: the context

- The First National Science Academy in Korea for the Gifted (since 2003)
- The Only Secondary School under the Ministry of Science and ICT
- The Home of Future Scientists Growing with KAIST

*Korea Advanced Institute of Science and Technology (KAIST) like MIT in Korea

The educational identity of KSA

Here's what defines who we are at KSA



Core Educational Pillars

Customized Curriculum	Student-centered, interdisciplinary, and research-driven education tailored for gifted learners
Creative Research	Emphasis on self-directed inquiry and creative thinking through structured research experiences
Globalization	Development of global competence through international exchange, English-medium instruction, and global collaboration
Leadership	Cultivating responsible, empathetic leaders through community service, mentorship, and problem-solving programs

Customized Curriculum

Creative Research

Globalization

Leadership

These values, mottos, and pillars shape the educational environment in which I began exploring TPSR

Why TPSR at KSA

- **Perfectionism & Fear of Failure**
  Many students experience loss and frustration for the first time
- **Emotional & Social Gaps**
  Despite high cognitive skills, emotional and social development is still maturing
- **Collaboration & Communication Demands**
  KSA emphasizes teamwork, self-directed learning, and global leadership
- **Dorm Life & Social Belonging**
  Students live away from home and need new community, trust, and connection
- **Responsibility as a Skill**
  TPSR fosters self-direction, empathy, and respect—essential life skills

Where possibly TPSR is Practiced

- **Zero period Taekwondo** (M-F, 30 minutes)
- **Regular PE classes** (once a week, 45 minutes)
- **Student-led sports clubs** (11 clubs)
- **In-school sports league**
- **Sports and Cultural Exchange with other schools** (every year)
- **Academic Advising Meeting** (1 homeroom teacher with 10-12 students)

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What Is Expected from PE at KSA?

- **Engaging and Active PE Classes**
  Fun, inclusive activities that promote physical movement and positive peer interaction

- **STEM-Integrated PE Classes**
  Using movement and sports to explore scientific concepts and foster inquiry

- **Competency-Based Assessment**
  Aligned with the school motto—*Know Yourself, Study Nature, Answer the Future"*—to support whole-person development

Infusing TPSR Ideas and Strategies at KSA

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Daily Academic Advising (AA) Meetings

as the most accessible and consistent space for TPSR practice

Introduce the acronym "TARGET" to guide discussion on life skills and personal growth
T: Time management
A: Attendance, Achievement, Affection, Appreciation, Aspiration…
R: Responsibility, Respect…
G: Gratitude, Generosity, Growth…
E: Effort, Empower, Encourage, Excel, Enlighten, Embrace…
T: Transfer → how to apply & seek support…
→ Students contributed their own interpretations of each letter based on real-life needs and values

Light physical activities to build connection and activate body and mind before going to class

Peer support system for international students
(1:1 student buddy assignment with a sense of responsibility)

Gradual shift of leadership – I led the first several weeks, then students took turns leading

Instead of just discussing values, we *lived* them—every morning (M-F)

This became a platform where TPSR was no longer abstract but part of our daily rhythm

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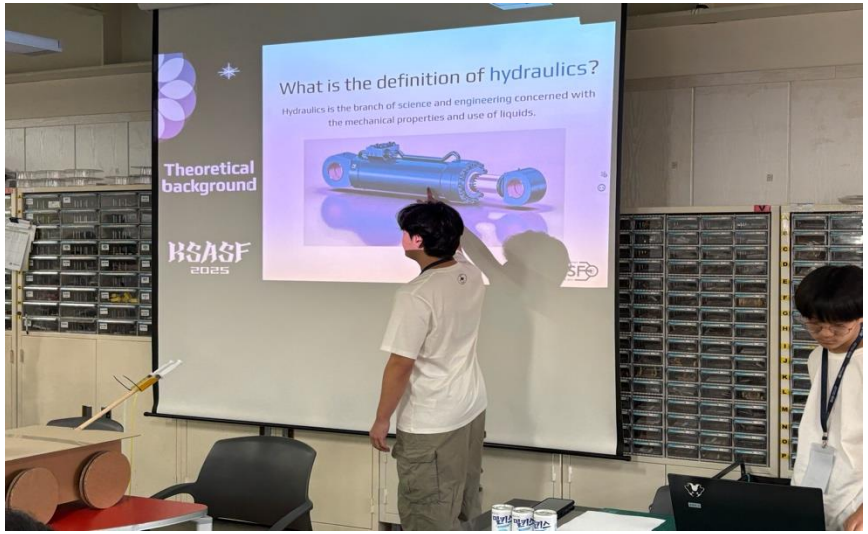
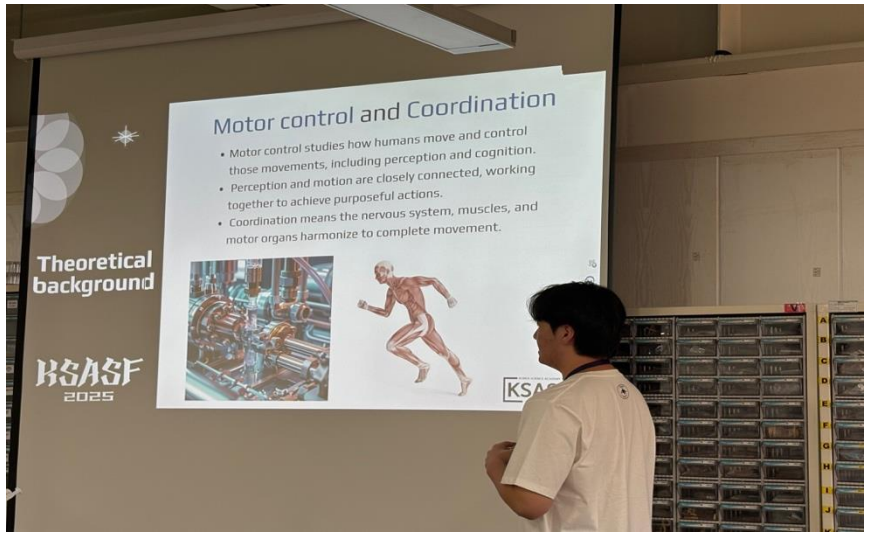
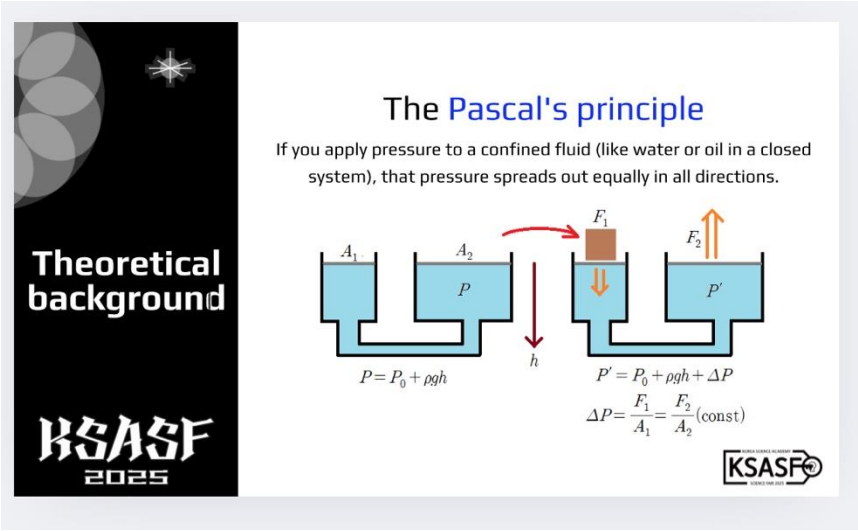
Student-led design project for KSASF

Students applied **kinesiological principles** and **STEM concepts** to create a **hydraulic marble maze** and **robotic arm**







TPSR values were embedded throughout:

- **Leadership** in guiding team direction
- **Helping** one another through challenges
- **Respect** for roles, opinions, and time
- **Responsibility** for completing tasks and representing the school

Students experienced **empowerment through meaningful contribution**,
and saw how TPSR connects beyond PE—into science, creativity, and real-world problem-solving

TPSR is not just what we teach—but how we define, design, and evaluate learning

Embedding TPSR into PE Competency Design for KSA

TPSR as a foundation for designing KSA's PE subject-specific competencies

– Values (e.g., respect, effort, leadership, self-directed)

– Principles (e.g., empowerment, transfer, integration, relational teaching)

– Strategies (e.g., self-reflection, student directed, decision-making capacity)

Developed **competencies aligned with TPSR**, such as:

Key Competencies to Be Developed Through KSA Physical Education

1. **Growth mindset Competency**
   (e.g., challenging unfamiliar tasks, learning from failure, embracing uncertainty)
2. **Problem-Solving Competency**
   (e.g., critical thinking, conflict mediation, strategy revision, correcting performance errors)
3. **Collaboration Competency**
   (e.g., setting shared goals, teamwork, joint decision-making, shared responsibility)
4. **Interpersonal Competency**
   (e.g., empathy, respect, communication, conflict resolution, care for others)
5. **Health Management Competency**
   (e.g., consistency in health behaviors, exercise regulation, stress relief, recovery, healthy routines)
6. **Emotional Regulation Competency**
   (e.g., calming nerves, anger management, emotional recovery after mistakes, positive acceptance)
7. **Self-Regulation Competency**
   (e.g., resilience, goal setting, time management, self-awareness, personal growth)
8. **Creative Thinking Competency**
   (e.g., developing tactics, modifying rules, inventing new games, diverse challenge strategies, creative use of equipment)
9. **Sococultural Competency**
   (e.g., understanding diversity, respecting tradition and culture, recognizing individual strengths and differences)

PE subject-specific competency (draft)

파일 수정 보기 삽입 서식 데이터 도구 확장 프로그램 도움말

A1 | Proposed competencies

	A	B	C	D	E
1	**Proposed competencies (under develop)**	**Definition**	**How students can earn credit**	**Examples I**	**Examples II**
2	**Growth Mindset Competency**	The ability to embrace challenges, persist through difficulties, and view effort and failure as part of the learning process. This competency fosters openness to unfamiliar tasks, initiative in learning, and flexible thinking in physical activities. It reflects a learner's belief in the potential for growth through practice and reflection.	Students earn credit for this competency by actively challenging themselves in unfamiliar tasks, showing persistence through setbacks, and demonstrating an openness to feedback and personal growth throughout various physical education activities.	**Showing Resilience After Setbacks:** Student recovers quickly from a poor performance or a minor injury during an activity, returning to participation with a positive attitude and renewed focus. They don't let a mistake or a temporary physical discomfort discourage them from continuing to engage and strive for improvement.	**Viewing Mistakes and Failures as Learning Opportunities:** Student responds constructively to errors or unsuccessful attempts during an activity. For instance, after missing a shot in basketball, they might ask the teacher or a peer for advice, immediately try to adjust their technique based on feedback, or consciously reflect on what went wrong to improve the next attempt, rather than expressing frustration or blaming others.
3	**Problem-Solving Competency**	The ability to identify, analyze, and effectively resolve a range of physical and interpersonal challenges encountered within dynamic physical activity and sport environments. This involves the application of analytical thinking, critical evaluation, creativity, and effective decision-making.	Credit is awarded when students consistently demonstrate the ability to analyze performance situations, adapt strategies, and resolve challenges in both individual and team settings, including thoughtful engagement with peer or tactical conflicts.	**Manage evolving game situations:** Students demonstrate the ability to adapt to changing tactics, opponents' actions, or unexpected events during play, such as adjusting a defensive strategy when the opposing team changes their attack formation or recognizing when to transition from offense to defense.	**Modify strategies in real-time:** Students are able to make immediate adjustments to their personal technique or team plans based on feedback from the environment or outcomes of their actions, for instance, switching from an overhead clear to a drop shot in badminton because the opponent is too far back, or altering a passing route based on a defender's position.
4	**Collaboration Competency**	The capacity to work effectively with others toward shared goals through communication, mutual responsibility, and coordinated action. In PE, this includes team strategy execution, shared decision-making, and cooperative task completion in game or fitness contexts.	Students demonstrate this competency by contributing to team success through communication, mutual responsibility, and shared decision-making, as observed in cooperative tasks, games, or peer-supported learning situations.	**Cross-Disciplinary Sports Analytics Project:** Students collaborate on projects that integrate STEM knowledge with PE goals, such as designing systems to track and analyze team performance metrics (e.g., developing an app for real-time stats) and using these insights to collaboratively enhance physical outcomes.	**Interdisciplinary Collaboration for Equipment Innovation** Students demonstrate collaboration competency by working in interdisciplinary teams (e.g., physics, computer science, and physical education) to design, prototype, and apply a ball launcher for tennis, badminton or table tennis. The machine is developed to support skill development (e.g., receiving, returning, footwork, forehand/backhand stroke) and used in real PE settings. Credit is earned when students contribute to planning, building, and applying the

Real challenges:

Cultural, institutional, or pedagogical barriers to implementing TPSR

Category	Key Barriers
Cultural	Competitive mindset, low interest in movement
Institutional	Limited class time, grade-focused evaluation culture, crowded school life
Pedagogical	Pressure to integrate too many competencies

"Recognizing these cultural, institutional, and pedagogical challenges helped me take a more thoughtful and adaptive approach to infusing TPSR into our educational context at KSA"

Next steps:

- Having ideas for infusing TPSR *not just for* gifted students *but with* them (empowerment angle)

For example:
Designing and discovering TPSR *with* them—through projects like brain-based movement studies that connect emotion, cognition, academic achievement, and school life.

This reflects true empowerment

Reflects **Don Hellison's** philosophy:

"No silver bullets. Only thoughtful practice."

Facing the reality that implementation is **messy but meaningful**
We find what works for our unique students and context

I have more ideas for infusing TPSR at KSA—I'll be happy to share them throughout the conference

I’d also love to hear your thoughts and insights—they would be incredibly helpful to me :)

Thank you

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Key Implementation Strategies: Embedding responsibility in physical activities rather than teaching separately
Gradual empowerment progression from teacher-directed to student-directed
Relational approach recognizing students' strengths, individuality, voice, and decision-making capacity
Assessment through self-reflection and student empowerment