

Thesis Project Portfolio

PIKL (Paddle Integrated Kemper Logic)

(Technical Report)

**Shifting Priorities: The Impact of Name, Image, and Likeness on College Football
Recruitment**

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

In response to pickleballs growing demand and lack of current technology in the sport, my capstone project, Paddle Integrated Kemper Logic (PIKL), addressed this technological gap through the design of a smart pickleball paddle. Despite the sport's rising popularity, players previously had no tools to objectively measure swing performance or track improvement. The paddle integrated piezoelectric force sensors and an inertial measurement unit (IMU) to capture real-time performance metrics. A connected computer program analyzed and visualized swing metrics, such as force, speed, and impact location, to help players enhance their skills. Although PIKL was engineered to enhance player development and bridge the technological gap in pickleball, the project also raised broader questions about its societal impact. Introducing this type of technology in to pickleball raised concerns related to fairness and accessibility. As with any emerging technologies, PIKL demonstrated that technology must be evaluated not only for what they do, but for how they influence the experiences and values of those they affect.

In parallel, my STS research examined how the implementation of Name, Image, and Likeness (NIL) policies in college football have transformed the recruiting landscape. The SCOT framework was applied to analyze how different stakeholders, including athletes, coaches, universities, collectives, and governments, interpret and influence NIL. To investigate these interpretations, I conducted qualitative interviews with three key stakeholders from the UVA football program and supplemented these conversations with academic research and public statements. The findings showed that NIL shifted recruiting from a relationship-based process to a transactional model, where financial incentives and playing time became the top priorities outweighing long-term development and program loyalty. Stakeholders expressed concern over the growing influence of agents, the lack of centralized regulation, and increased disparities between football programs. All interviewees advocated for reform such as revenue sharing and collective bargaining to reestablish fairness, regulation, structure, and

sustainability. When considered together, my capstone project and STS research revealed a shared pattern: even well-intentioned innovations and policy can reshape priorities, disrupt norms, and create new challenges. PIKL enhanced access to personalized performance feedback, but risked privileging certain players. Similarly, NIL gave athletes more control over their personal brand but destabilized traditional recruiting practices. Both cases emphasized the importance of designing and implementing technologies and policies with careful attention to their human and social dimensions. Future solutions should prioritize equity, long-term development, and inclusive access to ensure that innovation and policy truly serve the stakeholders it intends to support.