**Title: Xprize meets KickStarter: A Literature Review**

**1. Introduction**

**Purpose of the Review:**  
This literature review looks at how combining prize competitions and crowdfunding could create a new way to support innovative ideas. Prize competitions, like those run by Xprize, offer large rewards to encourage people to solve big challenges facing the world. Crowdfunding, as seen on platforms like Kickstarter, allows individuals or groups to raise money directly from the public to bring their ideas to life. Our review explores how a mix of these two models could work, where innovators can launch challenges to solve important problems, and the public can support both the challenges and the best solutions through donations, investments, or pre-orders.

**Scope and Project:**  
The review is organized around a few main ideas. It starts by looking at the history of prize competitions and crowdfunding, examining how they developed and the impact they’ve had. Next, it explores how these two models could be combined into one platform, and what challenges or gaps might come up. Finally, it looks at how this approach could make it easier for more people to get involved in innovation, regardless of their background or resources. By mixing prize competitions with crowdfunding, this model aims to create a space where big ideas get the support they need to make a real difference.

**2. Background and Context**

**Foundational Concepts:**  
The idea of combining prize-based competitions with crowdfunding brings together two powerful approaches to supporting innovation and problem-solving. Prize competitions like those hosted by Xprize encourage inventors and organizations to tackle large-scale issues by offering cash rewards for successful solutions. Crowdfunding platforms like Kickstarter, on the other hand, allow creators to pitch projects to the public and collect funds directly from people who want to support or invest in their ideas. Key concepts for our platform include prize-based challenges, crowd-driven funding, and community engagement. Together, these concepts aim to make innovation accessible to a wider range of people and resources.

**Historical Overview:**  
Prize competitions have a long history, dating back to challenges like the Longitude Prize of the 18th century, where cash rewards were offered to solve significant scientific or technological problems. Modern competitions, such as the Xprize, continue this tradition by tackling issues like space exploration, clean energy, and healthcare innovation. Meanwhile, crowdfunding has gained popularity more recently, with platforms like Kickstarter launching in 2009. Some platforms, like GoFundMe or Indiegogo, overlap in purpose but focus more on community-backed funding than on formal competitions.

**3. Key Themes in the Literature**

**Theme 1: Leveraging crowdsourcing for team elasticity: an empirical evaluation at TopCoder**

* **Summary of Findings:** Crowdsourcing software tasks on platforms like TopCoder allows rapid task completion through a large pool of skilled workers. Findings reveal that 59% of workers respond within 24 hours of a task posting, and 24% of early registrants submit tasks, with 76% of these meeting acceptance criteria. Crowdsourcing contributed to a 1.82x schedule acceleration on average, showing significant potential for reducing project timelines.
* **Key Debates:** Despite the advantages, there are concerns about the variability in worker reliability and skill levels, as well as the potential for low-quality submissions. Additionally, questions remain on how best to measure worker performance fairly and avoid system manipulation or "gaming."
* **Methodologies:** The research employs empirical studies, including task response and submission analysis, to assess worker availability, reliability, and the overall benefits of crowdsourcing for agile and flexible software development.

**Theme 2: A Pedagogy that Uses a Kaggle Competition for Teaching Machine Learning: an Experience Sharing**

* **Summary of Findings:** This paper presents a 7-step teaching model that incorporates Kaggle competitions to teach machine learning. The approach successfully increased student motivation and engagement, allowing them to apply advanced techniques and gain a deeper understanding of the subject matter.
* **Key Debates:** While the model proved effective, discussions centre on the balance between competition and collaboration among students, as well as the potential stress or pressure that competitive environments might introduce in the learning process.
* **Methodologies:** The research is based on the authors' teaching experiences and employs qualitative assessments of student engagement and understanding, demonstrating the benefits of gamified learning and social interaction in the educational process.

**Theme 3: A** **Crowdfunding Success Prediction: An Empirical Study On Indiegogo Platform**

* **Summary of Findings:** This study focuses on reward and donation-based crowdfunding on Indiegogo, proposing a decision tree model to classify projects as successful or unsuccessful. The analysis identifies key features that contribute to project success, providing valuable insights for entrepreneurs seeking to raise funds.
* **Key Debates:** While crowdfunding offers a promising financing option, debates continue regarding the sustainability of this model, the effectiveness of different fundraising strategies, and the potential risks of project failure and financial loss for backers.
* **Methodologies:** The research utilizes a decision tree approach to analyse various submitted projects on Indiegogo, examining the factors that lead to successful fundraising efforts and guiding entrepreneurs in their campaign strategies.

**4. Methodological Approaches**

**Common Methodologies:**  
Research on platforms like TopCoder and Indiegogo mainly uses practical analysis methods, such as case studies, data analysis, and machine learning models. These methods help researchers look at how well workers perform, what makes projects successful, and how effective crowdfunding strategies are.

**Strengths and Weaknesses:**  
Practical analyses give clear evidence and insights into how users behave and what outcomes they achieve, but they can be limited by the data that is available and its quality. Case studies provide detailed examples of specific projects, but their findings might not apply to every situation. Data analysis can show trends and patterns but might miss the more personal aspects of why people get involved.

**Trends in Methodology:**  
There is a growing trend to use mixed methods, which combine numbers and statistics with stories and detailed case studies. This approach aims to give a fuller picture of what happens in crowdsourcing and crowdfunding, helping to develop better predictions and strategies for success.

**5. Gaps and Limitations in the Literature**

**Identify Gaps:**  
There are few studies that look into the long-term costs of using crowdsourcing platforms or how these platforms adapt to new trends, such as remote work or changes in user behaviour. Research on the long-term sustainability of crowdfunding projects is also limited.

**Limitations:**  
Current literature often lacks comparative studies that analyse different platforms or types of crowdfunding and crowdsourcing. Additionally, the fast-paced changes in technology can quickly make findings feel outdated.

**Opportunities for Further Research:**  
Expanding the platform to include more diverse challenge categories, catering to various industries and societal needs. Integrating advanced technologies such as artificial intelligence and machine learning to enhance project evaluation and matchmaking processes. Developing partnerships with educational institutions and research organizations to foster innovation and collaboration.

**6. Applications and Implications**

**Practical Applications:**  
Crowdsourcing and crowdfunding platforms are useful for quickly gathering funds for projects, allowing entrepreneurs to reach a large audience. These platforms can help creators refine their pitches and connect with potential backers, making it easier to bring their ideas to life.

**Theoretical Implications:**  
The findings suggest that effective use of these platforms can enhance project success rates, supporting theories of community engagement and collaborative funding. Understanding user behavior on these platforms can also inform theories about online social dynamics and decision-making in funding contexts.

**7. Conclusion**

**Summary of Key Points:**  
Crowdsourcing and crowdfunding have become significant tools for entrepreneurs, facilitating rapid project funding and collaboration. The effectiveness of these platforms relies on understanding user behavior and key factors that contribute to project success.

**Implications for Future Work:**  
Future research should explore how emerging technologies, such as AI, can enhance the predictive capabilities of these platforms, address challenges related to project sustainability, and investigate the adaptability of crowdfunding strategies in response to changing user needs and market conditions.

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