

Annexation of Crowdsourcing Technique to Aid the Research Pedagogy

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Abstract

The synergistic integration of crowdsourcing into teaching-learning pedagogy is explored in this extensive trialing, which presents a coherent story derived from several dimensions, including mass engagement, collaborative pedagogy approaches, and an experimental project evaluating pedagogical impact on preschool-aged children. The research article explains how crowdsourcing may be revolutionary, highlighting its benefits for information collecting, problem solving, and project execution. Moving from traditional teacher-centric to Student – centered approaches, smoothly transitioning into the field of teaching and learning pedagogy. The study covers the constructivist, collaborative, integrative, reflective, and inquiry-based learning pedagogies. It emphasizes how important pedagogy is in encouraging collaborative learning settings, removing monotony, and accommodating various learning preferences. An experimental project aimed at evaluating the effects of teaching-learning pedagogy on young children in preschool. College students mediated contacts between high school students and non-digitalized preschoolers by using human networks as mediators. The approach demonstrates the viability and effectiveness of crowdsourcing for research in education while emphasizing the need for cautious execution, middleman training, and quality assurance.

Keywords: Crowdsourcing, teaching-learning, Pedagogy, preschool.

1. Introduction

In the ever-changing field of modern education, where new technologies and evolving social dynamics provide a constant threat to established paradigms, creative approaches are always being developed to improve the educational process and foster critical thinking in students. In light of this, incorporating crowdsourcing into pedagogies for teaching and learning offers a viable path toward the transformation of education. The collaborative practice of asking a wide range of people for their ideas, contributions, or expertise is known as crowdsourcing, and it provides a novel way to Involve students, encourage teamwork, and enhance understanding in a variety of subject areas. In order

to provide a thorough framework for the seamless integration of crowdsourcing into educational practices, this paper aims to explore the complex relationship between crowdsourcing and pedagogy. Essentially, the goal of this integration is to use the combined expertise of a wide range of participants in order to improve student learning and provide them the ability to actively participate in their own education. This guide walks readers through the complex process of integrating crowdsourcing into educational environments, covering everything from the first definition of learning goals to the evaluation of results. Educators should strategically use crowdsourcing

to address topics where collective intelligence might improve education by defining defined learning objectives. Additionally, choosing the right platforms—virtual or physical—lays the groundwork for encouraging cooperation and facilitating meaningful engagement among participants. The foundation of this strategy is the development of a welcoming and encouraging environment where students feel empowered to discuss ideas, refute presumptions, and work together to co-create knowledge. In order to promote a climate of mutual respect and common learning goals, the learning community can establish rules for polite discourse and cooperative interaction. In addition, the dissemination of crowdsourcing principles and practical illustrations from many sectors offer learners a more comprehensive comprehension of the possible uses and advantages of this approach. Within the learning community, educators can promote equitable participation and improve group problem-solving and knowledge generation by delegating roles and responsibilities to participants based on their different views and skill sets. Keeping the crowdsourcing process moving forward and resolving any obstacles that may come up need opening up channels of communication and offering constant direction and assistance. Participants are able to evaluate their progress, pinpoint areas for development, and adjust their collaborative techniques through regular feedback sessions and reflection opportunities. In the end, incorporating crowdsourcing into pedagogy for teaching and learning has enormous potential to foster a vibrant and diverse learning community in which students actively engage in critical inquiry, cooperative problem-solving, and knowledge co-creation. Through the utilization of collective intelligence, educators can enable students to become lifelong learners who are skilled at overcoming difficult obstacles and making valuable contributions to society.

1.1 Crowdsourcing

Crowdsourcing goes beyond standard co-located settings in the field of education to create meaningful connections amongst students with different

backgrounds and skill levels. Systems that are cloud-based provide flexibility and scalability while accommodating a large number of students. But using crowdsourcing in the classroom raises practical and moral questions, particularly when it comes to giving contributors meaningful work to do and just recompense. Because of their rookie character, platforms such as Amazon Mechanical Turk might not be appropriate for teaching sophisticated skills due to the novice nature of contributors. Crowdsourcing is the umbrella term for a number of different approaches, each with a specific function in decision-making, idea production, and problem-solving. These approaches include wisdom of the crowd, crowd creation, crowd voting, crowdfunding, solution-focused crowdsourcing, and implicit crowdsourcing. Crowdsourcing adds value by facilitating speedier problem-solving, lowering management strain, bringing in a variety of viewpoints, and offering a wealth of data. Clear communication, precisely stated terms and conditions, and consideration of participants' contributions are necessary for successful execution. In terms of pedagogy, Teaching methods like the flipped classroom, case studies, active learning, Bloom's taxonomy, and peer instruction make education better. The flipped classroom changes how we learn, letting students go at their own speed and giving teachers more time for personal teaching. Given the COVID-19 epidemic, it is highly timely. Furthermore, incorporating crowdsourcing into teaching and learning pedagogies provides a novel and inventive way to engage students, promote teamwork, and leverage collective intelligence. The implementation guide emphasizes the importance of defining learning objectives, choosing appropriate platforms, encouraging teamwork, introducing crowdsourcing ideas, delegating responsibilities, promoting communication, assisting with hands-on application, tracking progress, evaluation, introspection, and continuous development.

1.2 Pedagogy Approach

Teaching Learning Pedagogy most commonly understood as the approach to teaching, is the theory and practice of learning, and how this process influences, and is influenced by, the social, political, and psychological development of learners. Pedagogy, taken as an academic discipline, is the study of how knowledge and skills are imparted in an educational context, and it considers the interactions that take place during learning. Both the theory and practice of pedagogy vary greatly as they reflect different social, political, and cultural contexts. Various pedagogy approaches have been successfully used in teaching-learning. Figure1 depicts the major approaches commonly used in pedagogy learning [1], [2].

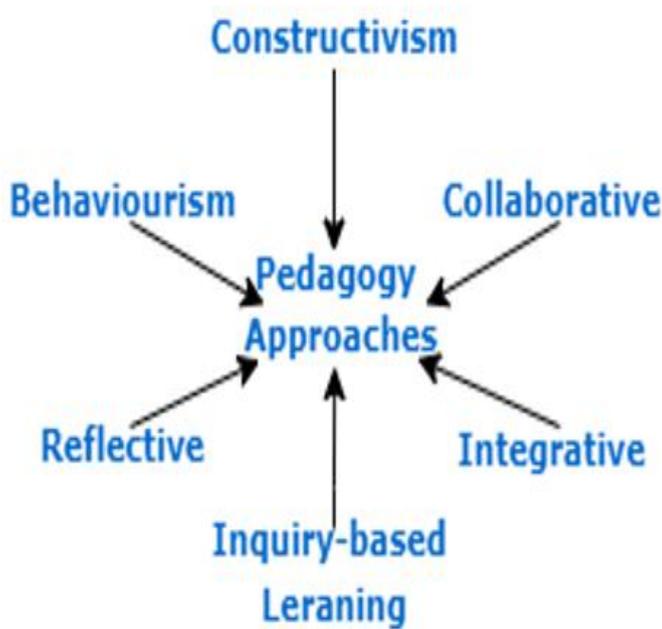


Figure 1 Major Pedagogy Approaches

2. Literature Review

Yuchao Jiang; Daniel Schlagwein; Boualem Benatallah (2018), have systematically reviewed the state of the art of the literature and practices of enhancing learning and teaching through crowdsourcing [3].

Prester, Julian; Schlagwein, Daniel; and Cecez-Kecmanovic, Dubravka, (2019), have explained the Information technology (IT)-enabled, educational

practices and open learning approaches are starting to transform traditional educational institutions [4].

Michael Anderson (2011), has given insights on the challenges faced by Higher education bodies. He has emphasized on how crowdsourcing has played a key role addressing the challenges [5].

Hadeel S Alenezi, Maha H Faisal (2020) have conducted a study on systematic literature review investigating 30 papers from databases: IEEE and ACM Digital Library. After performing the analysis, authors have found that crowdsourcing is utilized in 47.8% of the investigated learning activities, while each of the machine learning and the hybrid solutions are utilized in 26% of the investigated learning activities [6].

Monika Skaržauskaitė (2012), have analyzed the role of crowdsourcing use in educational activities. Author has taken an exploratory look at how educational organizations are using crowdsourcing as part of their activities at the present time, and to suggest how the practice of crowdsourcing may spread to other educational activities as time goes on [7].

3. Methodology

We used a multi-phase approach in our research to successfully use crowdsourcing to collect data from preschoolers (age between 3 to 6 years) who had no prior experience with technology. We used human networks to expedite the data collection procedure to collect the data within a short time span. Data collection steps of crowdsourcing is shown in Figure 2.

Instruction and Group Development:

A two-person team took the lead at first, teaching other UG students who weren't on the study team at first. To preserve objectivity, these people were not made aware of the precise goals of the survey.

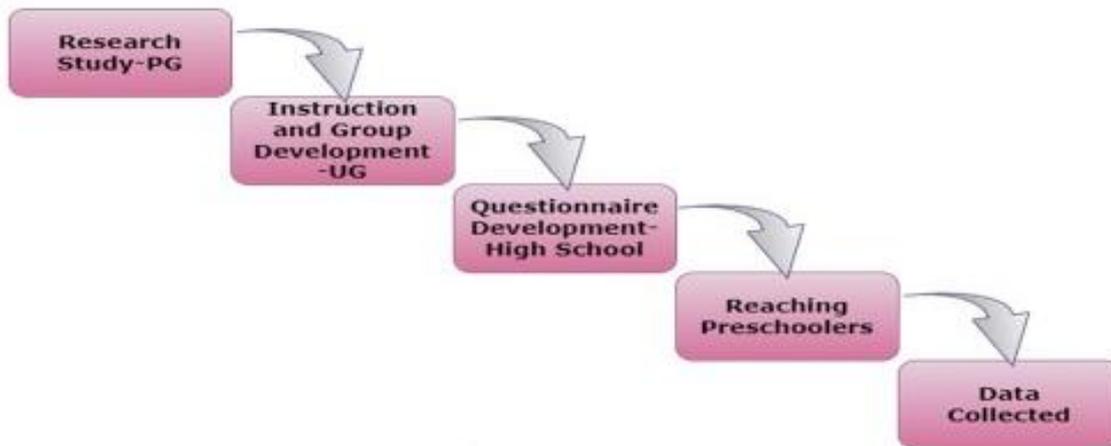


Figure 2 Crowdsourcing Steps for Data Collection

Questionnaire Development:

The enlarged team collaborated to develop an extensive collection of digital surveys. Given that preschoolers have a limited knowledge of technology, these were made to be both age-appropriate and entertaining for them [8], [9].

Reaching Preschoolers:

Within the specified age range, the selected high school students made contact with preschoolers. They conducted oral interviews with the youngsters through in-person interactions, gathering insightful information about their experiences, preferences, and perspectives toward gadgets.

Data Transformation:

A thorough transcription and digital format conversion were performed on the gathered oral data. By taking this step, the data collected from the preschoolers was guaranteed to be correct and prepared for analysis.

Submission to Institutions:

Sending the digitalized data to the appropriate institutions was the last stage. This data collection contains insights obtained indirectly through intermediate high school students in addition to direct replies from preschoolers.

This methodology allowed us to navigate time constraints while efficiently reaching a substantial number of preschoolers indirectly through human networking. The staged approach involving various

levels of students demonstrated the adaptability and scalability of crowdsourcing in educational research. The data collected is poised to provide a nuanced understanding of the perspectives of digitally non-literate preschoolers in the context of teaching and learning pedagogy [10], [11]. [12].

4. Results and Discussion

The experiment aimed to assess the impact of crowdsourcing in teaching-learning pedagogy By utilizing human networks as a tool. The focus was on gathering data from pre-school kids aged 3 to 6 years, who are not digitalized and lack knowledge of gadgets. Due to time constraint A strategy was devised involving college students as intermediaries to reach the target Audience [13].

Data collected:

Through this crowdsourcing approach, we successfully reached approximately 400 pre-school kids without direct contact. The use of human networks facilitated efficient data collection from a diverse range of students at various levels. This method allowed us to gather valuable insights from a target audience that lacks digital exposure. The experiment demonstrated the feasibility and effectiveness of using crowdsourcing, specifically human networks, in collecting data for educational research. The approach not only addressed time constraints but

also reached a broader audience. This method holds promise for future educational research endeavors, emphasizing the importance of incorporating diverse perspectives for a comprehensive understanding of teaching and learning pedagogy [14], [15].

Challenges Faced:

- **Training:** Ensuring that the intermediary students were adequately trained without revealing the survey's purpose posed initial challenges.
- **Quality Control:** Monitoring the accuracy and consistency of data collection through oral surveys required meticulous oversight.

Conclusion

In brief, using crowdsourcing into pedagogy for teaching and learning offers a potent and novel strategy that makes use of collective intelligence to solve problems, generate ideas, and complete tasks. This approach has proven effective in a variety of industries and provides benefits like speed, cost savings, and access to a wide range of knowledge. The experiment demonstrated the feasibility and effectiveness of using crowdsourcing, specifically human networks, in collecting data for educational research. The approach not only addressed time constraints but also reached a broader audience. This method holds promise for future educational research endeavors, emphasizing the importance of incorporating diverse perspectives for a comprehensive understanding of teaching and learning pedagogy. In conclusion, the integration of crowdsourcing with pedagogy for teaching and learning offers a dynamic and cooperative framework for learning. Even though crowdsourcing has many advantages, it's important to carefully navigate the difficulties and ethical issues. Teachers can leverage the potential of crowdsourcing to foster student participation, critical thinking, and a feeling of community by modifying the approach depending on past experiences and lessons learned.

Acknowledgement

The authors thank the managements of Dayananda Sagar College of Arts Science and Commerce for facilitating us in carrying out this research work.

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