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Challenges of Peer Instruction in an Undergraduate Student-Led Learning Community: Bi-Directional Diffusion as a Crucial Instructional Process

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ABSTRACT

This journal is entitled Challenges of peer instruction in an undergraduate student-led learning community: bi-directional diffusion as a crucial instructional process. The research paper discusses the benefits and challenges of learning communities (LCs), which offer learners opportunities to engage in authentic learning experiences within real-world or simulated professional communities. The research paper gathered data through interviews, Slack conversations, field notes, and artifacts related to StandUp, a socio-technical system. The study aimed to understand how students and peer-instructors influenced the implementation and advocacy of StandUp within the teams.The study examined the engagement of student leaders in implementing the StandUp practice, revealing unexpected patterns that existing theories could not predict. The findings suggest a bi-directional diffusion process in Student-Led Learning Communities (SLLCs), in which peer-instructors and students mutually influence each other"s decisions to advocate and participate in practices. The paper investigates the instructional processes that emerge when peer-instructors attempt to teach students an authentic project management practice in student-led learning communities (SLLCs). The researchers propose a bi-directional diffusion model to describe instructional processes in SLLCs, highlighting the challenges peer-instructors face in persuading students to engage in disciplinary practices and the influence students have on peer-instructors.

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1. INTRODUCTION

This journal is entitled Challenges of peer instruction in an undergraduate student-led learning community: bi-directional diffusion as a crucial instructional process. This journal was written by Spencer E. Carlson, Daniel G. Rees Lewis, Elizabeth M. Gerber, and Matthew W. Easterday. This journal was published by Springer in 2017. This paper discusses the emergence and spread of student-led learning communities (SLLCs) within universities, focusing on how these communities address the challenges of motivating students to learn new problem-solving practices. The paper discusses the role of extracurricular, undergraduate Student-Led Learning Communities (SLLCs) such as Design for America (DFA) in engaging students in real-world problem-solving. DFA and similar SLLCs involve student teams working on product or service design projects with partner organizations. The paper provides an example of a DFA team addressing hospital-acquired infections through user research and the development of a portable hand hygiene dispenser.

It also highlights the coordination of SLLC chapters across the U.S. by a small national office. The paper notes that these SLLCs have a student-led structure with support from a small national office. The research paper discusses the benefits and challenges of learning communities (LCs), which offer learners opportunities to engage in authentic learning experiences within real-world or simulated professional communities. LCs involve students working together to tackle disciplinary challenges and advance their collective knowledge and skills in various domains such as history, mathematics, language arts, natural sciences, technology, computer science, and education. Despite their effectiveness in promoting learning, LCs face challenges in terms of instructional cost and teacher orchestration demands. The paper highlights that community-based learning strategies are laborand qualification-intensive, which poses a barrier to widespread adoption of LCs due to educational institutions' reluctance to hire additional instructors to meet these demands.

This paper, highlights the challenge of ensuring that students in SLLCs are motivated to learn and apply new problem-solving practices, as they may stick to their existing abilities and not fully engage in the community's practices. This paper explores how peer-instructors in SLLCs act as change agents to spread disciplinary practices among their peers, using persuasive communication and social influence. The process of diffusion is described as an iterative cycle consisting of knowledge, attitude, decision, and implementation phases, influenced by effective change agents. The paper suggests that peer-instructors' diffusion attempts may result in high- or low-fidelity implementation of practices, with low-fidelity implementation being successful if adapted to suit the specific context.

2. METHODOLOGY

The research paper gathered data through interviews, Slack conversations, field notes, and artifacts related to StandUp, a socio-technical system. The study aimed to understand how students and peer-instructors influenced the implementation and advocacy of StandUp within the teams.

3. RESULTS AND DISCUSSIONS

The study examined the engagement of student leaders in implementing the StandUp practice, revealing unexpected patterns that existing theories could not predict. The findings suggest a bi-directional diffusion process in Student-Led Learning Communities (SLLCs), in which peer-instructors and students mutually influence each other's decisions to advocate and participate in practices. Students' participation in StandUp was determined by their perception of its value in achieving social, learning, and performance goals. Peer-instructors struggled to persuade students to participate, relying more on social influence than on promoting learning and performance benefits. Students' lack of understanding and negative attitudes towards StandUp led them to resist the practice, influencing peer-instructors to stop advocating for it. Ultimately, students' decision not to implement StandUp was

driven by their perception of its value in achieving their goals. Students' limited knowledge and negative attitudes towards StandUp led to their rejection of the practice.

Critical Analysis

Strengths

The paper explains quite completely the theory and problems of student-led learning communities (SLLCs). The author also provides suggestions regarding the implementation of student-led learning communities (SLLCs).

Weaknesses

The study is limited to examining only a single case of an SLLC, which may limit the generalizability of the findings. The authors suggest that future work should involve multiple cases to refine theoretical claims.

Personal Reflection

Based on the review of the journal article, it was found that the relationship and effectiveness of the implementation of student-led learning communities (SLLCs) in supporting learning programs was found. With the existence of Student-led learning communities (SLLCs), it can help students develop thinking and creativity as well as a spirit of leadership and independence in carrying out work.

4. CONCLUSIONS

The paper investigates the instructional processes that emerge when peer-instructors attempt to teach students an authentic project management practice in student-led learning communities (SLLCs). The researchers propose a bi-directional diffusion model to describe instructional processes in SLLCs, highlighting the challenges peer-instructors face in persuading students to engage in disciplinary practices and the influence students have on peer-instructors. The study reveals that peer-instructors struggle to persuade and scaffold students in implementing the project management practice and to persist in their advocacy when students resist.

The findings suggest that interventions could support peer-instructors in effectively teaching their peers and advocating for disciplinary practices. The bi-directional diffusion model has implications for teaching students to apply what they learn in real-world contexts and emphasizes the importance of persuasion in learning environments. Overall, the study indicates that SLLCs could provide undergraduates with opportunities to develop problem-solving abilities by working on meaningful, real-world problems.

REFERENCES

Carlson, S. E., Rees Lewis, D. G., Gerber, E. M., & Easterday, M. W. (2018). Challenges of peer instruction in an undergraduate student-led learning community: bi-directional diffusion as a crucial instructional process. *Instructional Science*, *46*(3), 405-433.