

Implementing Student Information Systems in High Schools: An Embedded Single Case Study

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Abstract

This study explores perceptions and alignment of a student information system implementation in 2 urban public high schools with Roger's theory of diffusion. Stakeholders included principals, deans, teachers, counselors, clerical personnel, and parents. Findings aligned with Roger's stages of organizational change and stakeholders noted issues that helped and hindered implementation.

Problem

In the United States, technology is provided to K-12 schools in the form of hardware, software, and technical support. However, **a lack of technology integration** in the K-12 educational system, particularly at the classroom level, continues to be a problem.

Purpose

The purpose of this case study was to explore how the implementation of a student information system in two urban public high schools aligned with Rogers' theory about the diffusion of innovations and how stakeholders perceived that implementation.

Procedures

Participants

- Two volunteers were selected from each category (administration, teacher, support, and parents).
- Each person participated in an interview and follow-up interview as well as completing 3 reflective journals.

Principle Sources of Data

- Documents
- Oral questionnaires and interviews
- Reflective journals

Research Questions

Central Research Questions

How does the implementation of a student information system in an urban public high school align with Rogers' diffusion of innovations?

How do stakeholders perceive the implementation of a student information system in an urban public high school?

Related Research Questions

1. What roles do stakeholders play in the interpersonal network during the diffusion process for technology integration?
2. What factors do stakeholders perceive as influencing systemic change in the diffusion process for technology integration?
3. What perceptions do stakeholders have about the effective implementation of a student information system?
4. How does stakeholders' use of the student information system influence their perceptions of the diffusion of innovations process for technology integration?
5. What elements of the implementation process do stakeholders perceive as helping or hindering the adoption of the student information system software?
6. What do documents reveal about the implementation of a student information system in an urban public high school?

Findings

Key Concepts in the Research

- **Training** and **professional development** are critical in preparing stakeholders to effectively use technology for educational purposes.
- The availability of **reliable resources** during the implementation process is critical to the integration process.
- **Communication** and **feedback** to disseminate innovations are needed throughout the educational community.
- **Creating learning communities** is important to effectively integrate technology effectively.

Data Analysis

Level 1 Analysis

- Coding and category construction for each source of data for each unit of analysis
- Coding steps for an inductive analysis and line-by-line coding to construct the categories for the interview and reflective journal data for each unit of analysis.

Level 2 Analysis

- Analyses to discover the major patterns, themes, and relationships that emerged.
- Major themes and discrepant data that emerged from the data analysis formed the findings or results of this single case study.

Relevant Literature

Alignment with Rogers' diffusion of innovations:

Agenda-setting Reigeluth et al. (2009) - Change begins with district-wide belief shared with others
Matching Sahin and Thompson (2007) - Technology should be compatible with stakeholder needs
Restructuring Hawe et al. (2009) - Stakeholder feedback should be used to adjust the implementation process
Clarifying Murphy et al. (2007) - All stakeholders need to learn how to use technology
Routinizing Lei (2010) - Conditions for computing includes adequate technical support

Stakeholder perceptions of the implementation:

Insufficient Communication hinders adoption, Frankelius (2009) - Innovators need to sell their vision to promote change
Insufficient Training hinders adoption, Munson et al. (2011) - Teachers feel prepared when they are provided with training before the start of the academic year
System issues hinder adoption, Conley and Enomoto (2009) - System issues hinder efficiency

Limitations

Sample

- Participants had minimal experience in the system due to the small number of volunteers.
- Some categories were not represented.
- A limited number of parents willing to participate.

Conclusions

To integrate technology fully, organizations must focus on:

- **Accountability measures** to make sure that stakeholders use the technology
- **Training** to ensure that the technology is used correctly
- A **peer network** to enable stakeholders to receive assistance when needed to create joint ownership and problem solving communities.

Social Change Implications

Policies: encourage the development of district policies that mandate topic specific ongoing professional development for all stakeholders in order to facilitate more effective use of the student information system.

Practices: support the creation of organizational practices and routines to integrate technology tools at each level of the educational system and prompt the creation of feedback mechanism for system improvements.

Home: prompt parents to demand the availability of school-to-home technologies and prompt educators to design a plan that incorporates technology into family life.

Dissertation Committee

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