

# Applying Innovation Theory in Observing Emerging Technology Acceptance

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**Abstract**—Technology always leads people toward the future through the way of accepting technology for resolving problems. It is important for us to understand the emerging technology acceptance behavior in order to promoting technology innovation.

The core of promoting emerging technology such as solar energy and cloud computing is empowering people with the acceptance belief, intention, and behavior. There is a need to identify expected behavior for the emerging technology acceptance. In the education world, learning should be carried out with personal construct and performing certain behavior. Innovation theory provides well organized examination on behavior observation in people using technology to extend their ability to gain control and innovation. The purpose of this study was to identify the expected behavior based upon innovation theory. The expected behaviors of each key-component of innovation were identified and evaluated by invited experts.

**Keywords**—Technology Education, Emerging Technology, Innovation Theory, Behavior Observation

## I. INTRODUCTION

IN the education world, learning should be carried out with personal construct and performing certain behavior. Innovation theory provides well organized examination on behavior observation in people using technology to extend their ability to gain control and innovation. Copying with emerging technology, innovation should be represented in the learning content changing[1-3].

To the technology educators, introducing emerging technology in formal education is the essential responsibility. In Taiwan, High-Scope Project encourage high-school teacher to design new curriculum to integrating emerging into classroom learning. When curriculum changing, what behavior should be expected? There is a need to figure out the answer for assisting teachers to promote curriculum reform and foster innovation[4, 5].

The purpose of this study was to identify target behaviors could be observed based upon innovation theory.

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## II. PROBLEM FORMULATION

Educational reform should be observed. Behaviors response to innovation of curriculum needs to be identified. Observed behaviors of innovation should be index and measured. For further understanding innovation, there is a need to identify characteristics of innovation and innovators' behavior change. In fig. 1, the concept of this study was shown.

Technology education is a subject area of common education and provides learner the opportunity of accepting technology. Innovative technology grows everyday and the information and knowledge of technology expands, too. Systems of technology in some areas are even exploded, such as energy & power technology and information & communication technology.

In science education, how to integrating emerging technology into formal education becomes a concern. Education reform acts in Taiwan pointed out this trend and raised a “High Scope Curriculum Development” project to foster teachers to design material and learning activities of emerging technology.

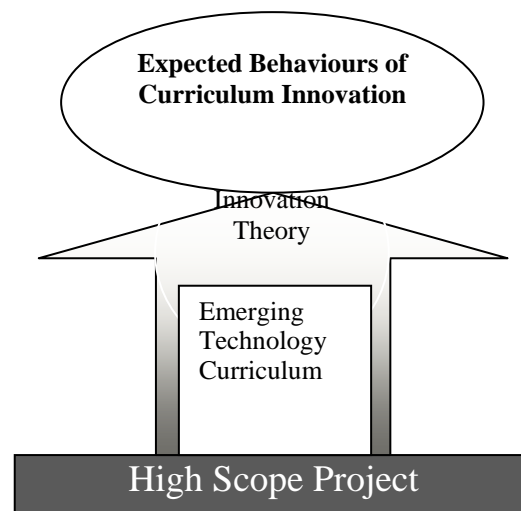


Fig. 1 Concept of this study

### A. Innovation Theory

It is in general agreement that the adoption of technology is a more complex process than the technical superiority of a product[6-13].

The common foundations through which theorists study the

adoption and development of new ideas is commonly known as Innovation Theory or Diffusion Theory. In its fundamental form, diffusion is defined as the process by which an innovation is adopted and gains acceptance by individuals or members of a community.

Diffusion Theory represents a complex number of sub-theories that collectively study the processes of adoption. Perhaps the first famous account of Diffusion research was done in 1903 by French sociologist Gabriel Tarde [14]. Tarde plotted the original S-shaped innovation curve as he believed that most innovations have an S-shaped rate of adoption. Through the slope of the S-curve, Tarde could identify those innovations with a relatively fast rate of adoption (steep slope) versus those with a slower rate (gradual slope). Since Tarde, the S-slope has become important for those studying the adoption of ideas, especially those found in business.

Ryan and Gross [10] published their seminal study which described the diffusion of hybrid seed among a group of Iowa farmers. At the time of the study, U.S. farms were slowly becoming business enterprises rather than family subsistence units. As corporations entered into the business of agriculture, so did the concerns of higher productivity, efficiency, competitiveness and agricultural innovations. Ryan & Gross wanted to study the process in which innovations in agriculture were adopted. They discovered that diffusion was “a social process through which subjective evaluations of an innovation spread from earlier to later adopters rather than one of rational, economic decision making.” [11] At the time, this was a new perspective on the diffusion process and emphasized the effect of social factors on adoption.

Ryan & Gross [10] also noted that the rate of adoption among those studied followed an S-curve when plotted on a cumulative basis over time. This supported the work of Tarde reported 40 years previously, and renewed interest in Diffusion Theory. Additionally, Ryan and Gross [10] classified the Iowa farmers into five adopter categories. These categories included: innovators, early adopters, early majority, late majority and laggards.

Diffusion of Innovations, as a synthesis of over 3800 diffusion theory publications. While much of his theory emanates from rural sociology, his established framework has been used in diverse areas such as business and marketing, anthropology, public health, and of course, education. Rogers defines diffusion as “the process by which an innovation is communicated through certain channels over time among members of a social system” [9]

Key to Rogers’ [9] definition of diffusion is the presence of four elements in the diffusion of innovation process. These elements include the following:

1. The Innovation: an idea, practice(s) or objects that is perceived as new by individuals or a group of adopters.
2. Communication Channels: the means by which innovations move from individual to individual, or group to group.
3. Time: the non-spatial interval through which the diffusion events occur. These events include the innovation-decision process, the relative span of time for the individual or group

to adopt the innovation and the innovations’ rate of adoption in a system.

4. A Social System: a set of interrelated units that are engaged in joint problem solving activities to accomplish a goal or goals.

He has developed five variables which affect the adoption rate of any particular innovation. These include 1) perceived attributes of innovations (discussed earlier), 2) type of innovation-decision, 3) communication channels, 4) nature of the social system, and; 5) extent of change agents’ promotion efforts. Rogers’ model could help a researcher to consider the basic forces which affect both adoption rates, and the factors which may lead to the rejection of an innovation. However, in its own simplicity, which may be ironically its strength, it is limited in explaining complex human systems. A schematic description of this model is shown below in Fig.2.

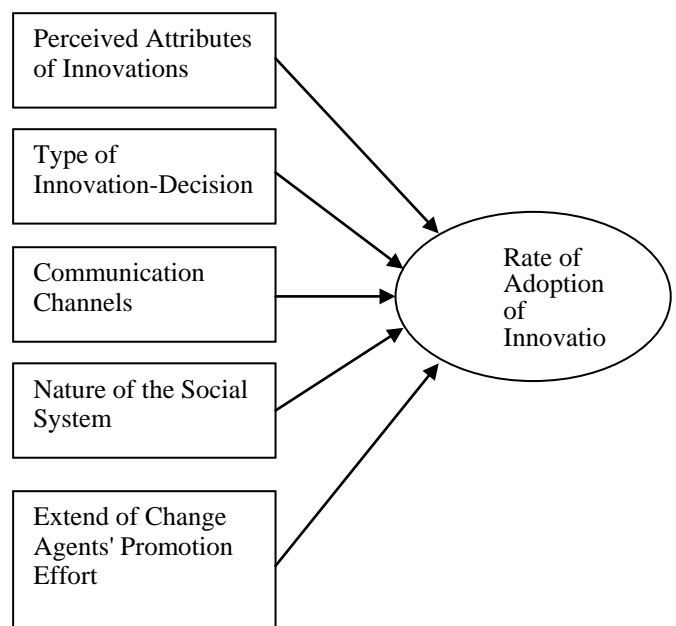


Fig. 2 Variables Determining the Rate of Adoption of Innovations

### B. General Educational Change Theory

One of the most acclaimed authors regarding school change and reform is Michael Fullan. Fullan has many books and articles over the past decade and has become a popular voice and renowned expert on the topic.

Fullan & Miles [15] developed seven propositions for success. They present these as the “seven basic themes or lessons derived from current knowledge of successful change”.

1. Change is Learning: Change is a process of finding and adjusting to personal meaning, and therefore is a learning process. As it is a learning process, it needs to be approached with this light.

2. Change is a Journey, Not a Blueprint: Fullan & Miles admit that rational planning models for change cannot address complex human processes. The message here is basically that reformers can plan, but more than likely, they will have to plan again for the unexpected (planning is continuous).
3. Problems Are Our Friends: Problems arise from the change process and these are natural and expected. Reformers must be assertive in identifying, discovering and solving problems (or attempting to solve problems).
4. Change is Resource-Hungry: Reformers must be prepared to the growing costs of the change process. Fullan & Miles warn that to sustain a large-scale change process, often much time is spent on identifying and acquiring additional resources to feed the engine of change.
5. Change Requires Power to Manage It: Here, the authors put forth the idea that change (specifically what they refer to second-order change) in the culture of schools requires a local body to manage it. Fullan & Miles advocate putting school boards and schools in the position of negotiation for the management of change as complex problems often cannot be solved at a distance.
6. Change is Systemic: In understanding systemic change, one must focus on two primary aspects. First, one must look at reform in the development of the many interrelationships within a complex system (curriculum, teachers, students, community, etc.). Second, reform must not focus simply on “structure, policy, and regulations, but on deeper issues of the culture of the system (p. 11). While Fullan & Miles do not explicitly explain how this is done, they emphasize the importance of this complex undertaking.
7. All Large-Scale Change is Implemented Locally: The authors here conclude saying that the six previous postulates cannot be served by bureaucratic decisions made from a distance. They conclude, “any interest in system-wide reform must be accompanied by a preoccupation with how it plays itself out locally” (p. 12).

### III. PROBLEM SOLUTION

In this session, problem solution would be illustrated. The purpose of this study was to identify expected behaviors of innovation in curriculum change for emerging technology. For reaching the study goal, stages of systemic change would be identified for creating foundations of expected behavior.

Based upon both characteristics of systemic change stages and meaning of educational change, expected behaviors were discussed and proposed.

#### A. *The Stages of Systemic Change*

Systemic change is most interested in this study. Fullan & Miles identify stages as followings[15]:

1. the process of understanding one’s current system,
2. identifying and understanding problems,
3. identifying and managing change relevant resources and
4. embarking towards a newly reformed system.

A year after this article, Anderson [16] developed a useful continuum of system change. The continuum highlights the stages of change which include:

1. maintenance of old system,

2. awareness,
3. exploration,
4. transition,
5. emergence of new infrastructure and
6. predominance of new system.

Additionally, Anderson describes how several “elements of change” (e.g., vision, public and political support, teaching and learning changes, etc.) are affected as they move through this continuum.

Anderson (1993) also identifies three specific ways in which this continuum is useful for educators involved in the reform process.

First, the continuum can help to establish a common language or conceptual picture of the process of change and the shared goals. Anderson suggest that this will help multiple stakeholders to understand and participate in the reform process.

Second, the continuum will help to outline and develop a strategic plan. The continuum is generic enough for administrators to “cut-and-paste” their own goals for change, and therefore, allows for a simplistic outline for a better understanding of the next steps to take.

Third, the continuum assists in helping to develop an assessment tool for the reform process. Anderson believes “the matrix can provide the basis for deciding the focus of an evaluation, the type of data to collect, and the modes of analysis for reporting.”

The merit in the matrix and the continuum described by Anderson is demonstrating a simplistic and generic approach toward encourage deep and quality change.

#### B. *The Meaning of Educational Change*

One of Michael Fullan’s [8] newer books, *The New Meaning of Educational Change*, the author has brought the idea of school culture to a greater priority. Additionally, the main premise in this book is Fullan’s insistence that all learning, organizational or individual, is a continual negotiation of “meaning-making”. This updated understanding of organizational learning is in line with contemporary constructivist theory. With this in mind, Fullan also recognizes that for “meaning-making” to occur, the relationships must be improved to create the conditions for change to occur. In a sense, the shift here moves away from linear structural change to the idea of cultural change, and a focus on relationships and values in the smallest of units, in schools and in classrooms.

Through the premise of “meaning-making”, Fullan [8] goes on to develop key ideas throughout this book[8]. Four of these ideas (most relevant to this review) are summarized below:

1. Existing strategies for reform fall short: Fullan criticizes the reformer practice of imitating “best practice” of schools moving forward. He argues that the existing conditions and relationships in each school must change or be addressed in order to move toward reform.
2. The learning organization must serve as a model, not as a cliché: Fullan calls for the creation of authentic learning communities which continually convert tacit knowledge into

explicitly shared ideas. Fullan builds on the ideas of Polyani[17], Nonaka & Takeuchi [18] and Von Krogh, Ichijo & Nonaka[13] as he writes not only about the release of tacit knowledge, but also of the creation of energy in organizations.

3. Education must reemphasize it's strong moral component: Fullan criticizes reform attempts of the 1990's which were focused primarily on efficiencies[8]. Fullan advises reformers to focus on the collective good, to rediscover the close ties that education has with democracy and to understand that reform will happen through the sharing of successes and failures. Schools should share such ideas pertaining to reform for the benefit of all students. Not only should schools share their efforts with other schools, they must also work to improve the larger communities in which the school resides.
4. Change is inevitable, and we must learn to live with it: Change is not going away, thus the best strategy for sustainable change is the formation of professional communities that are able to deal with issues (both minor and major) as they occur.

### C. Behaviors of Innovation

Diffusion theories can provide a powerful lens for the study of integrating emerging technology into technology education. As the processes for adoption of emerging technology into such systems can vary tremendously, it is beneficial to breakdown the expected behaviour of diffusion theories into more easily managed categories.

Macro theories are those concerned with wide-scale reform and the restructuring of educational institutions. Macro theories related to technology adoption are concerned with complete organizational and structural change and less interest is given to change of the individual components. Generally, macro theories represent reform as a top-down process.

At the institutional level, Bates [19] has developed several macro theories regarding the integration of technology into higher education in *Managing Technological Change: Strategies for College and University Leaders*.

In this work, Bates focuses much upon strategic planning and has identified the traditional elements of contemporary strategic plans. These include:

- Mission: What the institution or department does, for whom, and how.
- Environmental scan: Jargon for describing what is happening in the world around you and its likely impact on your activities; another term used for current reality.
- Vision: Often confused with mission statement; used here in a specific sense to mean a concrete description of what it would look like if you fully achieved what you would really like to do (no definite time scale).
- Objective-goals: What you are trying to achieve, in observable terms, over the next three to five years; achievement of these goals would move you closer to the state described in the vision.
- Strategies: Actions to achieve these goals (implementation plan)

-Monitoring: Ways of measuring achievements and adjusting strategies during implementation to keep on track for implementing the objectives- goals. (p. 47)

While Bates [19] emphasizes the importance of strategic planning, he admits that such large efforts are often more than managers or department heads have time and resources to undertake completely. However, Bates goes on to write that it is of utmost importance to for administrative bodies to develop a clear vision for teaching and learning at various levels throughout educational institutions irregardless of whatever commitments these bodies may have to the other components of a strategic plan.

Other examples of Macro-type models include Reigeluth's [20] Third Wave Educational System, The School Year 2000 Project and the New American Schools Development Corporation (NASDC). Such programs are quite similar in their approaches to school reform.

Micro level theories related to educational technology adoption are characterized by focusing on strategies that will lead to an increase of technological adoption and a change on an individual's instructional strategies. Rather than focusing on systemic change, micro level theories are characterized by focusing on smaller units of change (e.g., teachers, principals, students, etc.).

Table 1a grid aligning general goals against a diffusion philosophy

		Goal	
		System Chang (Macro)	Product Utilizations (Micro)
Developer (Determinist)	Top Down Reform		ID Models
	NASDC		Needs Assessment
	Goals 2000		Formative Evaluation Summative Evaluation
Adopter (Instrumentalist)	Bottom Up Reform		Burkman & UOIID
	CBA<		Environment Analysis
	Coalition of Essential Schools		Adoption Analysis Stockdill & Morehouse

(Surrey, 1997)[21]

Surrey [21] developed a useful framework for understanding the variance of theories related to the adoption of educational technologies. Surrey constructed a grid aligning general goals (systemic change vs. product utilization) against a diffusion philosophy (developer based vs. adopter based goals). Within the grid, Surrey places specific innovation adoption theories within the appropriate quadrants. The complete grid is found below.

Surrey's distinction between adopter vs. developer-based philosophies is important here. The author explains[21]:

The goal of a developer based theory is to increase diffusion by maximizing the efficiency, effectiveness and elegance of an innovation. The developer, or architect, of superior technology is seen as the primary force for change[21].

Adopter based theories focus on the human and interpersonal aspects of innovation. Adopter based theories are inherently instrumental in philosophy because they view the end user – the individual who will ultimately implement the innovation in a practical setting, as the primary force for change.

When understanding change and diffusion theory, this differentiation could be an important consideration as it draws a line between the developer of an innovation and the intended adopter. Additionally, the tones of determinist vs. instrumentalist tie well into the previously discussed literature.

Burkman's [22] theory of user-oriented instructional development (UOID) is a relevant model for consideration. Although, Burkman developed the model with instructional designers (ID's) in mind, the developed theory could be useful in other contexts. Burkman's model, which is incidentally influenced by Rogers' [9] diffusion of innovation theory, is paraphrased below as a series of steps.

Step 1: Identify the potential adopter.

Step 2: Measure the potential adopter perceptions.

Step 3: Design and develop a user-friendly product.

Step 4: Inform the potential adopter.

Step 5: Provide post adoption support. [22]

While it may not be apparent from the previous description (i.e., the steps), Burkman's model provided a break in the standard practice of instructional design. Burkman describes three major differences between standard ID practice and that practice represented by the UOID model.

First, designers do not normally measure potential adopters' perceptions of their products or try to use them in establishing product attributes. Second, it is not usual for designers to formulate messages about their products or to select communication channels with the objective of creating favorable potential adopter perceptions. And third, designers do often use adoption and implementation success rates as criteria for evaluating their products.

Perhaps what is most important about this break is that Burkman rejects the idea that the technical superiority of a product is a sufficient condition for its adoption. While product quality is important, the relationships between the developer

and adopter become much more relevant. And ultimately, potential adopters are seen as the primary forces that influence adoption.

Rogers' adopter categories were explored in previous session. These categories included the innovators, early adopters, early majority, late majority and laggards.

Moore [23] examined these categories in relation to the adoption of technological products in business. He came to the conclusion that the critical region between adopters, which will most likely determine whether or not a product is adopted, lies in the gap between the early adopters and the early majority. Expanding on this theory, Geoghegan [24] studied technological adoption in reference to university faculty. In his study, Geoghegan developed specific characteristics in helping to interpret these two categories of adopters within the context of higher education. The table below summarizes these characteristics:

#### Early Adopters

- Technology focused
- Proponents of revolutionary change
- Visionary users
- Project oriented
- Willing to take risks
- Willing to experiment
- Individually self-sufficient
- Tend to communicate horizontally (focused across disciplines)

#### Early Majority

- Not technically focused
- Proponents of evolutionary change
- Pragmatic users
- Process oriented
- Averse to taking risks
- Looking for proven ap
- May require support
- Tend to communicate vertically (focused within a discipline)

The Concerns-Based Adoption Model (CBAM) may also be an important regarding the adoption of innovation. The model, originally developed by Hall & Hord [25], is a macro level theory of diffusion. However, the idea behind CBAM is to allow those facilitating change to better understand the process from the point-of-view of potential adopters.

Therefore, CBAM is an example of a systemic change model, however the processes it utilizes are primarily bottom-up strategies. The basic framework behind CBAM includes what is known as the "stages of concern".

The following table outlines the seven stages of concern and utilizes contextual comments to emphasize the personal approach.

Table 2 Stages of Concern

Stages of Concern	I may be “stuck” if I am saying ...	I’m ready for change and focused on ...
AWARENESS	Everything is fine, so I am not interested	What is it? (reactive)
INFORMATION	I don’t want to do it.	How does it work?
PERSONAL	I can’t do all that!	How does that impact me? What’s my role in it?
MANAGEMENT	I’ll try, but I’m not a believer	How can I master this? How can I fit it all in? What’s the minimum I must do?
CONSEQUENCE	I am not convinced that it’s worth it.	Is it worth it?
COLLABORATION	I have my own way of doing this.	How do others do this? What’s the maximum potential of this?
RE-FOCUSING	Everything is fine.	Is there a better way?

In analyzing these stages, you will notice that the first three are concerned primarily with individual discovery of the specific innovation or idea. These first three steps are generally exploratory. The middle stage, management, focuses on mastery, but there still may not have been a “buy-in” at this point. The final three stages focus primarily on the results or impact of the idea or innovation. Here, the potential adopter will accept or abandon the idea or innovation, or possibly reinvent its use.

*D. Research Design & Findings*

**Research Design**

A agreement survey method was applied in this study. The procedure of this research is listed in the following.

1. Based upon the theory, descriptions of expected behavior were created.
2. Behavior descriptions were verified by invited experts. The overall agreement was 0.84. According to the agreement between experts, the descriptions of expected behavior were concluded.

**Findings**

As schools, districts, and states move through the six developmental stages, six elements of the education system seem to be particularly important. Monitoring these six elements can help us understand an education system's progress.

**Vision:** The vision that people have of an education system and what it should accomplish must change in order for the system to change. Through the stages of development, the number of people from different groups who agree on the shape and purpose of the new system increases.

**Public and Political Support:** As the vision develops and is translated into practice, the support of the public and of the political leadership at all levels of the system must grow. Such support involves a deepening understanding of the what and why of the changes needed. The inclusion of diverse populations appears to be critical in building support.

**Networking:** Building networks that study, pilot, and support the new vision of the education system is essential in establishing lasting systemic change. These networks typically do not rely on the existing bureaucratic structure. They frequently use computers, newsletters, conferences, and personal communications to link people of similar roles across existing organizational lines.

**Teaching and Learning Changes:** Teaching and learning based on the best available research on how people learn is at the core of the new system. Closely related is the perspective that all students need and can learn the higher-level skills of understanding, communication, problem solving, decision making, and teamwork. If changes do not occur in teaching and learning, all the other changes have little value.

**Administrative Roles and Responsibilities:** To achieve change in the classroom, administrative roles and responsibilities need to shift at the school, district, and state levels from a hierarchical structure of control to one of support and shared decision making.

**Policy Alignment:** State and local policy need to be aligned around the beliefs and practices of the new system, particularly in areas related to curriculum frameworks, instructional methods and materials, student assessment practices, resource allocation, and the inclusion of all types of students.

There are six stages of change for integrating emerging technology into formal technology education. In each stage, certain behaviors are expected. Six stages of change characterize the shift from a traditional educational system to one that emphasizes emerging technology, future oriented, technological method approaching and higher levels of achievement for all learners. The six stages are listed with table in followings:

**Maintenance of the Old System:** Teachers and students focus on maintaining the existed system of learning content as originally designed. They do not recognize that the system is fundamentally out of sync with the conditions of today's world. New knowledge about teaching, learning, and

organizational structures has not been incorporated into the present structure.

Table 3 Expected behaviors in the stage of maintenance of old system

Elements of Change Expected Behaviours in Maintenance of Old System	
	Vision reflects:
	Learning based on seat time
Vision in Emerging	Teaching as lecture
Technology	Mandates and inputs
	Education system separate from social service systems
Public and Political	Support taken for granted
Support	Only a concern when finances are needed
	Public informed, not engaged
Networking	Networking seen as insignificant
	Partnerships are one-shot, supplemental
	Emphasis on:
Teaching and	Standard curriculum
Learning Changes	Delivery of Information
	Standardized tests
	Raising scores
	Responsibilities seen as:
Administrative	Diminishing conflict
Roles and	Emphasizing standardization, rules
Responsibilities	Providing information
	Top-down decision making
	Policy emphasizes:
	Textbook selection
Policy Alignment	Standardized teaching, tests
	Comparisons among schools on student achievement
	Hierarchical structure

Awareness: Multiple stakeholders, such as administrators, teachers, parents and students become aware that the current system is not enough, as well as it should, but they are unclear about what is needed instead.

Table 4 Expected behaviors in the stage of awareness

Elements of Change	Expected Behaviours in Awareness
Vision in Emerging	Multiple stakeholders realize need to change
Technology	Strategic plans call for fundamental changes
Public and Political	Policymakers, media discuss need for changes
Support	Public forums on change
Networking	Networking valued
	A critical mass of teachers explore joining networks
	Realization that partnerships need to be longer-term, integral
teaching and Learning	Recognition that current research is not used in
Changes	teaching, and that education problems are due to broad social, economic, technological changes
Administrative Roles and	Administrators recognize need to change roles
Responsibilities	New roles, responsibilities discussed
	Media attention on innovative leaders
Policy Alignment	Experimentation promoted
	Recognition that standardized tests don't measure all learning outcomes; low achievement may be due to conditions beyond teaching

Exploration: Educators and policymakers study and visit places that are trying new approaches. They try new ways of teaching and managing, generally in low-risk situations.

Table 5 Expected Behaviors in Exploration

Elements of Change	Expected Behaviors in Exploration
Vision in	Stakeholder groups promote new ideas for parts of system
Emerging	New examples debated
Technology	Growing numbers and types of stakeholders drawn together
Public and Political Support	Task forces formed Leaders speak on some issues Minor resource allocations Public involved in redefining learning outcomes
Networking	Networks (including electronic) share information Schools, districts, and states join networks School leaders contact potential partners
Teaching and Learning Changes	Resources committed to learning new teaching methods; multiyear commitments New modes of assessment explored Outcomes are defined
Administrative Roles and Responsibilities	Site-based decision making piloted Professional development focuses on new roles Bureaucracy questioned Some resources allocated to learning outcomes
Policy Alignment	New assessments explored Policies defining graduation based on demonstrated learning piloted Curriculums emphasize higher learning for all

Table 6 Expected Behaviours in Transition

Elements of Change	Expected Behaviours in Transition
Vision in Emerging	Emerging consensus
Technology	Old components shed Need for linkages understood
Public and Political Support	Public debate Leaders campaign for change Resistant groups vocal More resources allocated Diversity recognized
Networking	Networks recognized as long-term features Debates on how to support ongoing networks Disenfranchised groups use networks for empowerment
Teaching and Learning Changes	Teachers, schools, districts try new approaches Teachers given time to plan Recognition of change needed and resources required Changes assessed
Administrative Roles and Responsibilities	Methods developed to distribute decision making Emphasis on outcomes to be achieved; flexibility in how Resources for ongoing teacher professional development
Policy Alignment	Task forces define learning outcomes Schools have latitude to redesign teaching and learning Recognition that policies need review

Transition: The scales tip toward the new system; a critical number of opinion leaders and groups commit themselves to the new system and take more risks to make changes in crucial places.



Emergence of New Infrastructure: Some elements of the system are operated in keeping with the desired new system. These new ways are generally accepted.

Table 7 Expected Behaviors in Emergence of New Infrastructure

Elements of Change	Expected Behaviours in Emergence of New Infrastructure
Vision in Emerging Technology	Vision includes student outcomes, system structure, underlying beliefs Continual refinement of vision, expanded involvement
Public and Political Support	Ongoing task forces Resources are ongoing; emphasis on meeting diverse student needs Public engaged in change
Networking	Networks accepted practice; major source of new knowledge Empowerment issues debated Multiple partners support vision
Teaching and Learning Changes	Assessments encourage improvement, recognize uneven progress Graduation based on outcomes Teaching engages students Ongoing teacher development
Administrative Roles and Responsibilities	Administrators hired using new criteria Site-based decision making School-community councils Teachers responsible for instructional decisions
Policy Alignment	Exit outcomes developed, emphasize complex learning Multiple means of assessment Major review of policy Education and social service policies connected

Predominance of the New System: The more powerful elements of the system operate as defined by the new system. Key leaders begin envision even better systems.

Table 8 Expected Behaviors in Predominance of New System

Elements of Change	Expected Behaviours in Predominance of New System
Vision in Emerging Technology	Belief that all students can learn at higher levels Learning is achieving and applying knowledge Education connected to social services
Public and Political Support	Public, political, business involvement essential Allocation of resources based on new vision
Networking	Resources allocated for networks Networks serve as major communication channels Power is shared
Teaching and Learning Changes	In most schools: Student learning is active Assessments are focused on outcomes Teacher and administrator preparation uses outcomes
Administrative Roles and Responsibilities	Administrators: Encourage rethinking, improvement, innovation Allocate resources to support student learning Use site-based management
Policy Alignment	Policy supports: Ongoing improvement High student standards Learning outcomes Flexible instruction Alternative assessment

#### IV. CONCLUSION

There is a need to identify expected behavior for the emerging technology acceptance. In the education world, learning should be carried out with personal construct and performing certain behavior. Innovation theory provides well organized examination on behavior observation in people using technology to extend their ability to gain control and innovation. The purpose of this study was to identify the expected behavior based upon innovation theory. The expected behaviors of each key-component of innovation were identified and evaluated.

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