DIGITALCOMMONS
—@WAYNESTATE—

Wayne State University

Wayne State University Dissertations

1-1-2016

A New Logic Model For Change

Zsa-Zsa Lashawn-Marie Booker
Wayne State University,

Follow this and additional works at: https://digitalcommons.wayne.edu/oa_dissertations

Part of the Educational Assessment, Evaluation, and Research Commons, and the Higher Education and Teaching Commons

Recommended Citation

Booker, Zsa-Zsa Lashawn-Marie, "A New Logic Model For Change" (2016). *Wayne State University Dissertations*. 1627.
https://digitalcommons.wayne.edu/oa_dissertations/1627

A NEW LOGIC MODEL FOR CHANGE

by

ZSA-ZSA BOOKER

Submitted to the Graduate School

for Wayne State University

Detroit, Michigan

in partial fulfilling of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

2016

MAJOR: EDUCATION, EVALUATION, AND
RESEARCH

Approved By:

_____
Advisor   Date

_____

_____

_____

DEDICATION

To my parents Reba Booker and Elbert Rhymes, it is your love and support that has provided me with the necessary foundation to achieve my goals. I am forever grateful for you both, and I thank you for raising me into the woman I am today.

In loving memory of my Grandmother Dorothy Booker, who also guided my steps and loved me unconditionally. You are one of the reasons I got off the truck and went on to pursue graduate school. You will forever be in my heart and mind.

To my family, especially to those younger than I and who are preparing to enter college, I hope that my experiences and achievements can be one of many lessons of how African American children from low socio-economic backgrounds can persist in their education, not only persist but also graduate to become doctors in your field of choice. I am the first to receive a Ph.D. in our family, but I am confident that I will not be the last.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 - INTRODUCTION

As evidence of the changing grant requirements in the Department of Education and various other funding and accreditation entities, program evaluation has grown in popularity over the years. This evidence of growth is seen from foundations such as United Way of America, W.K. Kellogg Foundation, and the Annie E. Casey Foundation, which require the use of a logic model in order for organizations to compete for grants each year (Fitzpatrick, Sanders, & Worthen, 2012; Stufflebeam, 2001). The logic model is based on a diagram that demonstrates how a program will function based on different environmental conditions, and the purpose it serves is to solve identified problems. The elements of a logic model are inputs, activities, outputs, and outcomes (Wholey, Hatry, & Newcomer, 2010). It is considered to be an easy model to understand based on its design with built-in diagrams that display information about a program (W. K. Kellogg Foundation, 2003).

Some evaluation professionals believe the logic model is mostly ineffective or not an evaluation model at all. For example, Taylor-Powell (2005) described the logic model by stating, "It is a framework for describing the relationships between investments, activities, and results" (p. 31). Taylor-Powell (2005) concluded that the logic model is not an evaluation model or method. This view of the logic model is shared with other professionals in the field of program evaluation. For example, Stufflebeam (2001) stated there is no real usefulness for the logic model. "Overall, there really is not much to recommend theory-based program evaluation, since doing it right is usually not feasible and since failed or misrepresented attempts can be highly counterproductive" (p. 39). Lee (2011) noted the logic model can be difficult to complete if it is not based on sound program theory, and adapting such theory can take a considerable amount of time, which is also a

critique of the logic model. Stufflebeam (2001) argued, "Unfortunately, not many program areas in education and the social sciences are grounded in sound theories" (p. 38).

Moreover, evaluators who want to employ a theory-based evaluation do not usually find it feasible to conduct the full range of theory development and validation steps, and also complete the evaluation effectively and on time. This is because many programs are not built on sound theory, and the evaluator is left with finding or developing such theory, which can be difficult and time consuming (Lee, 2011). Thus, evaluators have been put in the position of offering more than what can be delivered in a timely fashion. Stufflebeam (2001) concluded evaluators should remain cautious when working with theory-based evaluation methods.

> Nevertheless, modest attempts to model programs-labeled as such-can be useful for identifying measurement variables, so long as the evaluator does not spend too much time on this and so long as the model is not considered as fixed or as a validated theory. In the rare case where an appropriate theory already exists, the evaluator can make beneficial use of it to help structure and guide the evaluation and interpret the findings. (p. 39)

Therefore, if using a logic model, the program that is being evaluated must be based on sound theory and good program design.

The logic model neither effectively identifies program services nor program design, which make the logic model ineffective. Program services need to be specified because important services could be missing from the model and possibly present unclear or unwarranted results in the evaluation. Program design is necessary because the design of a program greatly impacts the programs outcomes (Stufflebeam, 2001). The identification of program services and program design are included in the accuracy standards presented by the Joint Committee on Standards for Educational Evaluation (1994). Therefore, these two components are considered limitations of the logic model.

Logic model limitations and the overall judgment that the logic model is inadequate has brought about a serious problem for evaluation professionals. Organizations and programs' that are required to submit logic models may also be affected because many programs funding is based on the use of logic models for their program evaluations. Logic model limitations can also be problematic because errors in program evaluation have the ability to compromise the integrity of theory-based program evaluation as well as the evaluation profession. For example, many argue that the logic model is more of a "framework" than an evaluation model. The logic model is an evaluation framework and can be used as a guide to determine if a program is ready for program evaluation (Langford, 2010). In the literature, the logic model is continuously referred to as a "framework" instead of an evaluation method or model.

Background

The W. K. Kellogg Foundation (2003) noted the logic model is a depiction of how an organization does its work which consists of the theory and assumptions underlying the program. A logic model links outcome with program activities or processes or both with the theoretical assumptions and or principles of the program. Frechtling (2007) provided a different definition of the logic model that includes the underlying theory that is tied to the logic model: "The logic model is a tool that describes the theory of change underlying an intervention, product, or policy. It characterizes a project through a system of elements that include components and connections, with context being an important qualification" (Frechtling, 2007, p. 1).

Stufflebeam (2001) critiqued the logic model's weaknesses and limitations as the following:

1. May undesirably narrow the range of the program services.

2. Evaluators might take over the program staff's responsibility for program design.

3. May ground an evaluation in a hastily developed, inadequate program theory.

4. May develop conflict of interest to defend the evaluation-generated program theory.

5. Might bog down the evaluation in a seemingly endless process of program theory development.

6. May create a theory early in a program and impede the program from redefinition and refinement. Many of the limitations of the logic model reported by Stufflebeam (2001) deal with program theory development, and others are more concerned with the identification of services offered and the development of the program design.

The logic model is missing key elements that are present in other similar models which could help to make the logic model more comprehensive and effective. In order to address limitations of the logic model, a revised logic model and logic model flow-chart will be designed, and serve as a guide to be followed throughout the logic model evaluation process. The flowchart will be designed based on the basic logic model also known as the theory approach logic model created by the W.K. Kellogg Foundation (2003). The W.K. Kellogg Foundation provides checklists and flow charts for logic model development. These checklists will be used to develop the revised logic model and the logic model flow chart., and the logic model promoted by the United Way of America. The basic logic model created by the United Way of America will be used in this study and referred to as the original logic model. This model was chosen as the reference model for creating the new logic model and will also be used as the model being compared to the revised logic model. The basic logic model created by United Way of America is more of a conceptual model which allows for the most adaptation and can be easily transformed to fit a wide array of programs (W.K. Kellogg Foundation, 2003). The revised logic model will be

created based on logic model limitations and the evaluation standards created by the Joint Committee on Standards for Educational Evaluation (1994).

Logic models are becoming more widely used for program design and management and are used less for the evaluation of completed projects (Wholey et al., 2010). This is a concept that is shared amongst many evaluation professionals. The logic model is not considered an evaluation method because on its own, it is nothing more than a pictorial representation of a program's inputs and outputs. However, the logic model has its merits according to many professionals in the field. The use of a logic model throughout the life of a program can be very useful by helping to organize and systematize the planning, management, and functions of the program (W. K. Kellogg Foundation, 2003). The logic model and other theory-based approaches are also being widely used by many organizations world-wide (Fitzpatrick et al., 2012). For these reasons it is imperative that the logic model become more than a diagram.

Purpose

The goal of this research is to produce a revised logic model that is comparable to other similar models that have been proven to possess high standards, based upon the Joint Committee on Standards for Educational Evaluation (1994) and Stufflebeam's *Evaluation Models* (2001) research. After the revised model has been designed, both models will be used to evaluate an educational program, and then both models will be meta-evaluated and reviewed for their effectiveness. The information gained from this study could provide the evaluation profession and others with much needed research and information on how to deliver better logic model evaluations of educational programs.

There is limited literature in the field of evaluation research and even less research on more specific aspects of the profession. There are many possible reasons for this. One reason is that the

program evaluation field is still developing and growing. For example, the program evaluation standards, produced by the Joint Committee on Standards for Educational Evaluation (1981), was not introduced to the profession until 1981. Daniel Stufflebeam (2001) is one of the very few who has contributed to research on educational program evaluation models. He has also played a significant role in the research and development of the evaluation standards and has acted as the Joint Committee on Standards for Educational Evaluation Chair from the start of the committee until the early '90s. Stufflebeam is also a member of the American Educational Research Association, National Council on Measurement in Education, and the American Evaluation Association (Stufflebeam & Shrinkfield, 2007).

Others who have contributed to advancing the literature in evaluation model research include Stake (1974), who provided detailed information on various educational evaluation approaches. Guba (1990) discussed the changes occurring in the discipline and examined educational evaluation approaches. Madaus, Scriven, and Stufflebeam (1983) explained the evaluation models and their use in the profession. Christie and Alkin (2013) developed the Evaluation Theory Tree in order to categorize the different evaluation approaches. Despite these publications, there is still a very small amount of research being done on evaluation approaches and their effectiveness which is why this research will help to enhance the existing literature and research.

Stufflebeam (2001) indicated the common characteristics of the best program evaluation approaches; these best practices will later be compared to the program-theory based approach in order to help improve the logic model. Comparing these characteristics may enable the discovery of common evaluation standards possibly missing from the logic model. These characteristics will be analyzed and possibly added to the revised logic model. Adding the common characteristics

seen in the best program evaluation models will add merit to the logic model and enable it to be a more useful and standardized model. The logic model and the revised logic model will then be used to evaluate a learning community educational program. Lastly, the program evaluations will be meta-evaluated which will determine which model is more effective.

Importance of the Study

"Currently, there is a new movement to shift program evaluation from method-oriented evaluations to theory-oriented evaluations" (Chen, 1990, p. 28). This fact shows that theory-oriented models, such as the logic model, have gained momentum in the field of program evaluation. With this shift, it becomes even more important to study these types of program evaluation methods. The purpose of this study is to add to the current literature and research in educational evaluation, as it will help to illuminate the logic model for its merits. This study will also help to improve the logic model which will legitimize and strengthen it. The improvement of the logic model will also help the evaluation profession by making the model stronger and more standardized. Improving limitations and adding standards to the logic model will ultimately help enhance the quality and fairness of the educational evaluation profession (Joint Committee on Standards for Educational Evaluation, 1994).

The anticipated outcomes are the development of a newly revised logic model that is more accurate, feasible, proprietary, and practical for the people who use them as well as the programs they serve. Useful information will also be provided for professionals in the evaluation field by emphasizing the importance of the study of alternative evaluation approaches such as the logic model (Stufflebeam, 2001).

Conceptual Framework

Modifications to the logic model proposed in this study is based on Stufflebeam's *Evaluation Models* (2001) research and the standards developed by the Joint Committee on Standards for Educational Evaluation (1994). This study's conceptual framework is the theory of change which is seen in theory based program evaluation. The theory of change is used as a guide for the selection of research methods, data collection, and analysis in order to improve the chance that the program's outcomes can be attributed to the program treatment instead of outside or external factors (Davis, 2000). The theory of change for a program includes (a) who the program was designed to serve, (b) what problem exist that the program was designed to solve, (c) what activities will help with the said problem, and what is believed to be the expected outcomes (Davis, 2000).

A learning community educational program, specifically within higher education, will be used to compare the original logic model to the modified logic model. Learning communities are an array of curricular approaches that intentionally link two or more courses, often around an interdisciplinary theme or purpose, and enroll a common cohort (Smith & MacGregor, 2009). Learning communities are based on social learning theory which says that learning is a cognitive process that takes place in a social context. This process can happen through observation or direct instruction with or without motor reproduction or direct reinforcement (Bandura, 1971). The learning community was chosen as the educational program for evaluation because learning communities are based on sound theory which is an important requirement for theory-based evaluations.

Research Questions/Hypothesis

Research questions related to the adaptation of the revised logic model:

- Are evaluation standard characteristics missing from the original logic model?

- What program evaluation characteristics, seen in other similar standardized models, help to make them more efficient and capable?

Main Research Question: Research questions related to the meta-evaluation and review of the newly revised logic model.

- Will the logic model change and become more effective after addressing limitations and reevaluating its evaluation standards?

- Chi-Square Hypothesis: $H_0: p_1 = p_2$

  $H_a: p_1 \neq p_2$

- T-Test Hypothesis: $H_0: \mu_1 = \mu_2$

  $H_a: \mu_1 \neq \mu_2$

Definitions

Evaluation: A study designed and conducted to assist some audience to assess an object's merit and worth (Stufflebeam, 2001).

Evaluation Standard: "A principle mutually agreed to by people engaged in the professional practice of evaluation, that, if met, will enhance the quality and fairness of an evaluation" (Joint Committee on Standards for Educational Evaluation, 1994, p. 3).

Information: "Numerical and non-numerical presentations-including facts, narratives, graphs, pictures, maps, displays, statistics, and oral reports-that help illuminate issues, answer questions, and increase knowledge and understanding of a program or other object" (Joint committee on Standards for Educational Evaluation, 1994, p. 3).

Learning Community: Provide common academic and social experiences that are meant to support the growth of academic success and reinforce social connections among students using cooperative learning techniques (Baier, 2014).

Logic Model: A depiction of how an organization does its work which is the theory and assumptions underlying the program. Logic models link outcomes with program activities and or processes and the theoretical assumptions and or principles of the program (W.K. Kellogg Foundation, 2003).

Meta-evaluation: A systematic review of an evaluation in order to define the quality of the methods and results of the evaluation (Cooksy & Caracelli, 2009).

Program: Intentional transformation of specific resources (inputs) into certain activities (processes) to produce desired outcomes (results) within a specific context (Wholey et al., 2010).

Stakeholder: "Individuals or groups that may be involved in or affected by a program evaluation" (Joint Committee on Standards for Educational Evaluation, 1994, p. 3).

Theory-based Program Evaluation: An approach to evaluation that examines the theories on which the program is based, activities being conducted, the effects that activities will have, and recommendations for the program's next phases (Birckmayer & Weiss, 2000).

Theory of Change: Centered in causality and encompasses the following three concepts: individuals a program is planned to serve, the problem the program is expected to remedy, the activities that will help to accomplish these goals, and the expected immediate, intermediate, and long-term outcomes associated with these concepts (Davis, 2000).

CHAPTER 2 – LITERATURE REVIEW

The Logic Model

<u>Why are Evaluations and Logic Models Important?</u>

The federal government awards nearly $400 billion annually in grants for most of the nation's educational, health, social welfare, housing, environmental, criminal justice, and transportation programs. However, this money is not enough to address the complexity of the growing national priorities due to the constant decrease in funding allocations (Polush, 2007). Stake (1976) noted most people recognize the importance and need for program evaluations because of the limited funding from the federal government for programs and social services. The federal government and other governmental agencies that deal with funding have been forced to make difficult decisions regarding funding for the nation's social services programs. Funding has to be divided among competing needs, and it is vital that evaluation studies are present in order to identify costs and benefits of those programs (Stake, 1976).

> Jimmy Carter, Governor of the state of Georgia, said ''We in government are faced with the problem of determining the 'ideal' level of services within constraints of available revenues''… Henry Ford II of the Ford Motor Company said: the government has no effective mechanism for measuring the costs and results of prior legislation against it goals… In every decision we must weigh the benefits to society and let the balance dictate the choice. (Stake, 1976).

Weiss (1993) was one of the first evaluation professionals to emphasize the connection between evaluation and politics, and they stated that politics interferes with evaluation in three different ways including: (1) educational programs are formed and sustained by political entities, (2) high level government officials, who make decisions about programs, are deeply rooted in politics, and (3) evaluations generally have political implications. The importance of program evaluation is evident and proves that research in this area is especially important and valuable.

The fight for government funding is very competitive which makes logic model research even more relevant and vital because many government funded grants require logic modeling in order to qualify for funding initially or to qualify for funding renewal (Chen, 2015). The use of logic models has steadily increased over the years, and programs and organizations are being challenged more by all levels of federal government to describe their program's story in a way that effectively presents the program's outcome goals and the achievement of these goals (Wholey et al., 2010).

According to the literature, the logic model is not without limitations. For example, Cooksy, Gill, and Kelly (2001) noted the logic model can be costly and can become a "rigid statement of the program's responsiveness to the information." Savaya and Waysman (2005) concluded that logic models are costly and added that they can be time consuming, can cause conflict among involved stakeholders, and can be rigid and cause programs to become or remain rigid. Julian (1997) indicated logic models have the following characteristics:

> Simplicity ignores the complex nature of local human services delivery systems and problems… In addition, the development of system impacts is dependent on the ability to achieve consensus regarding a few critical community issues… Finally, questions have arisen regarding the validity and reliability of implementation of this planning and evaluation model. (p. 256)

The competitive nature of being awarded governmental funding along with the increased need for program funding opportunities make it almost impossible for the government to allocate funds without a system in place to measure needs and benefits of programs. Program evaluation meets this need, and for some time now, the logic model has been the popular method used to perform these evaluations. Therefore, research on logic models and program evaluation is highly needed and important.

Logic Model History and Theory

One of the logic model's earliest uses was by Wholey (1981), who divided the logic model into two parts that included the program components and the goals and effects of the program. Renger and Titcomb (2002) reported that the two main characteristics of the logic model are the visual representation of the underlying rationale and the relationship of elements of evaluation to this underlying rationale. The history of the logic model began with the discrepancy model by Provus (1971) which was developed in order to plan and evaluate educational programs for improvement and assessment. However, Wholey's use of the logic model highlight the theories program managers had about their program evaluability assessments during the initial planning of an evaluation (Wholey, 1981). More recently, organizations such as the United Way of America, W.K. Kellogg Foundation, and Annie E. Casey Foundation have been known as the organizations who have updated the logic model and provided training and resources for logic model utility (Program Evaluation Resource Center).

Theory-based and methods-based evaluations are both used to help determine the effectiveness of programs. "Theory-based evaluation is an alternative to the conventional methods-based evaluation" (Davis, 2000, p. 11). Method-based evaluations are criticized for focusing mostly on the success or failure of a program while theory based evaluations are guided by fixed controls and procedures to make causal inferences regarding the effects of programming and whether social problems are eliminated as a result of the program (Davis, 2000).

Theory-based evaluation examines whether the challenges of a program are primarily a result of problems in the program theory (Program Evaluation Resource Center). Theory-based evaluation is an approach to evaluation that examines the theories on which the program is based, activities being conducted, the effects that activities will have, and recommendations for the

programs next phases (Birckmayer & Weiss, 2000). "Theory-based evaluation requires evaluators to open the black box in advance to gain a clear understanding of the program's intervening variables, defined as a process or near term effect that occurs between the inputs of a program and its long-term outcomes" (Davis, 2000, p. 12).

Theory-based evaluation approaches, such as the logic model, can provide programs with valuable information not provided by other evaluation approaches. Program managers usually want to discover how their programs can be improved, not if they should continue their program, which is why theory-based evaluation results can be more useful than evaluations of outcomes alone. Information learned from theory-based evaluations can be used to discover why programs work and areas in which they are not working (Birckmayer & Weiss, 2000). There are three major factors that can affect the success of a theory-based evaluation: how well the theory is defined, how well program activities reflect the assumptions embedded in the theory, and how well the evaluation is funded and if there is efficient time to carry out the evaluation fully with those funds (Birckmayer & Weiss, 2000). "Advocates of theory-based evaluation claim specification of a program's theory improves evaluation design by helping the researcher ask the right questions, collect the right data and measure the right outcomes" (Davis, 2000, p. 13).

Logic modeling and program theory refer to a chain of assumptions that explain how program activities lead step-by-step to desired outcomes (Cooper, 2009). Program theory is the process of identifying mediators of success, the discovery of latent theories, and the illustration of the chains of causation (Polush, 2007). A good program theory is one of the missing guiding principles in evaluation practice. Program theory is one path to make evidence more acceptable and useful for decision-making aimed at refining and improving the program. The understanding of a program's underlying mechanism is an important part of evaluation because it leads to

evaluation that is sensitive and responsive to the program (Polush, 2007). Program theory focuses

on black box mechanisms which assist with the delivery of programming and the development of

outcomes (Polush, 2007). The two specific outcomes of program theory are as follows:

> The program theory approach facilitates (a) planning evaluation that is grounded on substantive knowledge about the program and (b) designing evaluation that allows gathering credible evidence aimed at reaching justifiable conclusions and ensuring their use for the program improvements… program theory-based approach is a valuable tool for evaluation of a federal competitive grants program that has an established history, and which continuous funding largely depends on determining its merits, worth, and significance (Polush, 2007, p. 8).

Program theory describes the rationale, beliefs and assumptions of underlying program activities

that are graphically conveyed in an arrangement of cause and effect relationships (Davis, 2000).

Theory of change refers to the individuals a program is planned to serve, the problem the

program is expected to remedy, the activities that will help to accomplish these goals, and the

expected immediate, intermediate, and long-term outcomes associated with these concepts (Davis,

2000). Theory of change is centered in causality and is the theory that is used for logic models. A

program's theory of change is used as a guide for the selection of research methods, data collection,

and analysis to improve the likelihood that the outcomes of the evaluation can be ascribed to the

program treatment rather than an external variable (Davis, 2000).

Davis (2000) conducted a qualitative research study that was designed to discover the

underlying theories of change for the College Reach-Out Program (CROP) at South Florida State

College. Davis (2000) found that it can be difficult to establish a program's underlying theory

when consulting multiple stakeholders, but sometimes having multiple stakeholders' help to

provide missing information which is vital to the discovery of the program theory.

What is a Logic Model?

The logic model is sometimes compared to the hypothesis in a research study. Programs

are regarded as a hypothesis, and when a program is implemented, the expected results follow.

Logic models are tools used to unpack the hypothesis (Wholey, Hatry, & Newcomer, 2004). Logic models are diagrams that display components of a program and its theory, and they can be helpful for program planning, evaluation, and research (Program Evaluation Research Center). By definition, a logic model is a graphical representation of a program and is referred to as an evaluability assessment or a feasibility analysis. Logic models describe the relationships between objectives, activities, indicators, and resources of a program (Dwyer & Makin, 1997). Renger and Titcomb (2002) noted a logic model is an essential first step in program evaluation, a visual representation of a plausible and sensible method of how a program will work under certain conditions to solve identified problems, and it is fundamental to program evaluation. Logic models are often included in program-oriented approaches that include objectives-oriented and theory-based evaluations (Program Evaluation Resource Center).

The W. K. Kellogg Foundation (2003) divided the logic model into three different types which include the following: theory approach logic model, outcomes approach logic model, and activities approach logic model. The theory approach logic model highlights the theory of change which is predisposed to the design and plan of the program. The outcomes approach logic model is used during the planning phase of the program and tries to link the necessary resources and inputs with similar activities. The activities approach logic model focuses on implementation by linking detailed activities and resources with the detailed steps necessary to initiate the program (Bolden, 2007). A picture of the logic model developed by the W. K. Kellogg Foundation (2003) can be seen below in Figure 1.
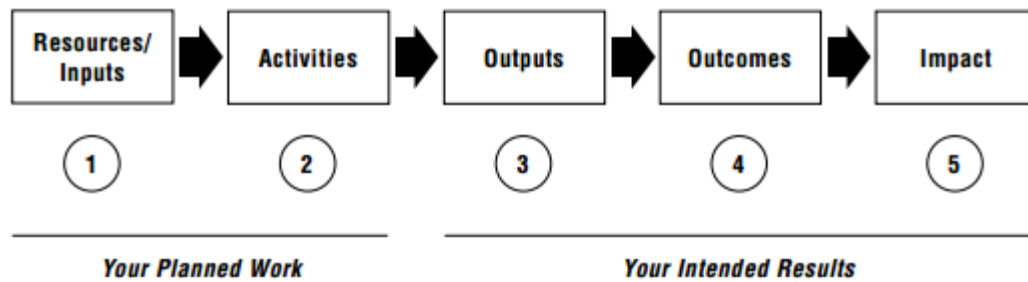
Figure 1. W.K. Kellogg Foundation (2003) Logic Model

Many have critiqued the logic model as being useful in several different ways including but not limited to the following: it describes a program to stakeholders in order to clarify how the program is structured; it shows the program linkages; and it helps to incorporate program planning and evaluation (Dwyer & Makin, 1997). Cooper (2009) conducted a case study that revealed the logic model provides important information about a program such as its strengths and weaknesses and can aid evaluation by implementing creative ways to reach resolutions. According to Bolden (2007), the logic model "demonstrates accountability with focus on outcomes… Links activities to results: Prevents mismatches… Integrates planning, implementation, evaluation and reporting… Creates understanding… Promotes learning… [it is] not just a pretty graphic" (p. 11).

In a study conducted by Bolden (2007), it was found that by using logic modeling and theory-based evaluation as the conceptual framework, it is possible to build an evaluation tool specifically designed for accreditation. Bolden (2007) concluded that the logic model can function as a communication device, a foundation for developing strategic planning, and a tool that facilitates the selection and effective use of evidence to demonstrate a program's results.

Logic Model Limitations

With all of the desirable characteristics the logic model possess, it still remains important to understand its limitations. One of the most relevant limitations of the logic model is that it is not

a program evaluation method. Instead, it is best described as an evaluation "framework" (Suchman, 1967; Langford, 2010; Weiss, 1998). Some evaluation professionals believe the logic model is mostly ineffective or not an evaluation model at all. For example, Weiss, a supporter of theory-based evaluation, stated that the logic model is used for "describing the relationships between investments, activities, and results. It provides a common approach for integrating planning, implementation, evaluation and reporting" (Cooper, 2009, p. 38). Another evaluation professional, Taylor-Powell (2005), described the logic model as a framework used for explaining the relationships between funding, activities, and outcomes. Others have said that the logic model is used as a guide to determine if a program is ready for evaluation (Langford, 2010).

Logic models have the potential to help stakeholders reach successful programs, but do not guarantee a successful program. The logic model is merely the start of the evaluation design for programs or institutions with identified program theories (Bolden, 2007). Taylor-Powell (2005) noted the logic model is neither a theory, reality, and nor is it an evaluation model. "In a recent journal article, Michael Scriven describes approximately 23-25 evaluation models that he recognizes. The logic model does not dictate any prescribed method or evaluation, nor does it imply any kind of evaluation model" (Bolden, 2007, p. 57). Logic models are not considered evaluation methods because at their core, they are limited and only represent a pictorial arrangement of a program's theory of change. Therefore, the current logical model on its own is best described as a "framework" or program evaluation prerequisite.

Other limitations of the logic model include the following: elemental links within the logic model are unclear or missing, logic models tend to present too much information instead of the "big picture" ideas, logic model objectives are sometimes confused with activities, and the objectives in the logic model sometimes lack measurability (U.S. Department of Justice).

Stufflebeam (2001) stated there is no real usefulness for the logic model. "Overall, there really is not much to recommend theory-based program evaluation, since doing it right is usually not feasible and since failed or misrepresented attempts can be highly counterproductive" (p. 39). Lee (2011) noted the logic model can be difficult to complete if it is not based upon sound program theory, and adapting such theory can take a considerable amount of time which is also a limitation of the logic model. What makes logic model use even more challenging is the lack of theory development associated with educational and social science programs (Stufflebeam, 2001).

In a list of the major disadvantages of the logic model, one of the disadvantages mentioned is the cost involved in discovering and formulating the theories involved in a program (Cooksy, Gill, & Kelly, 2001). This cost is also reflective of the time required to actually develop the model itself. Another limitation of the logic model is the potential problem caused by misuse of the program's underlying theory. Lastly, the program's evaluator(s) could also apply the model too rigidly and use direct compliance with the model as a measure of the program's quality (Cooksy, 2001). Cooksy et al. (2001) also listed several alternatives to the logic model: path diagrams, program templates, concept maps, and narrative.

Lee (2011) noted 10 reasons that logic models should not be considered. "Many government and nonprofit organizations are adopting the more useful tools emerging from the movement toward outcomes-based or results-based planning and management" (Lee, 2011). The ten logic model limitations provided by Lee (2011) include the following items: (1) logic models start incorrectly with the program inputs rather than the expected or actual outcomes, (2) logic models rely on causality which does not reflect the real world, (3) logic models can be difficult to understand, (4) completing a logic models can be time consuming, (5) logic models are not useful because programs do not use them after they have been created, (6) logic models narrow creativity

when looking for solutions to a problem, (7) logic models are neither action oriented nor useful for continuous improvement, (8) logic models do not encourage inclusive planning among stakeholders, (9) logic models fail to make a connection between programs and communities, and (10) logic models can be deliberately intimidating. Lee (2011) concluded there are better models that can be used as an alternative for logic models. However, this conclusion may be too challenging to actually become a reality due to the expansive and continuous use and the role they play in government funding.

Improving the Logic Model

The goal of this research is to produce a revised version of the logic model in order to help resolve some of its limitations. The revised logic model should be comparable to other similar models that have been proven effective. The revised logic model will be created based upon the Joint Committee on Standards for Educational Evaluation (1994) and research from Stufflebeam's (2001) *Evaluation Models*.

Stufflebeam (2001) categorized 22 of the alternative evaluation approaches into four different groups: pseudo-evaluation, questions and or methods-oriented evaluation, improvement/accountability evaluation, and social agenda/advocacy evaluation. Each of the groups of approaches, excluding (pseudo-evaluation), were then characterized and evaluated by ten different descriptors: advance organizers, main purpose served, sources of questions addressed, questions that are characteristic of each study type, methods typically employed, persons who pioneered in conceptualizing each study type, other persons who have extended development and use of each study type, key considerations in determining when to use each approach, and weaknesses of the approach (Stufflebeam, 2001).

Stufflebeam (2001) identified program evaluation descriptors that were used to determine the approaches that appeared most worthy. The nine approaches listed below were analyzed and

evaluated based upon the requirements of the Joint Committee on Standards for Educational Evaluation (1994) in order to decide which approaches were poor, fair, good, very good, or excellent. These conclusions were reached by taking the 30 standards and condensing them to ten checkpoints based upon those standards and then comparing each of the nine remaining approaches to these checkpoints. The standards are based on the five important attributes of an evaluation, which include utility, feasibility, propriety, accuracy, and evaluation accountability (Joint Committee on Standards for Educational Evaluation, 1994). After these analyses were complete, Stufflebeam (2001) concluded that the best program evaluation approaches were decision/accountability, utilization based, client-centered, consumer-oriented, case study, deliberative democratic, constructivist, accreditation, and outcome/value added assessment. Stufflebeam (2001) also noted the worst program evaluation approaches which are as follows: politically controlled, public relations, accountability, clarification hearings, and program-theory based approaches.

Among the best program evaluation approaches were two that belonged to the same category (Questions and Methods Approaches) as the logic model, and they were the Outcome/Value Added Approach and the Case Study Approach. These three evaluation approaches share common characteristics seen among the descriptors in the study.

The ten descriptors that Stufflebeam (2001) identified are as follows:

1. Advance organizers,

2. Evaluation purpose,

3. Evaluation questions,

4. Questions relate to study type,

5. Evaluation methods,

6. Individuals who pioneered in conceptualizing the study type,

7. Individuals who have extended development in study type,

8. Key considerations for evaluation use,

9. Strengths, and

10. Weaknesses and limitations.

Of these descriptors, the two categories that shared commonality among the two approaches are outcome/value added approach and case study approach. The three characteristics they had in common are as follows: evaluation questions, evaluation methods, and evaluation strengths.

When considering evaluation questions, both approaches -- outcome/value added and case study approach -- are included the question "What changes in the program's design or implementation might produce better outcomes?" This question is currently a part of the theory-based evaluation approach and therefore does not need to be added to the logic model. When considering evaluation methods, both approaches included the method of Cross-Break tables. Cross-break tables can be found in Chi-Square tests and will be added to the new logic model. However, it is important to note that within a different scenario a different statistical test may be necessary to accomplish the revised logic model. When considering evaluation strengths, both approaches included the rejection of artificial cut scores, and they both consider contextual influences. Artificial cut scores will not be used in the revised logic model data analysis methods, and contextual influences will be considered with the new logic model.

Logic model limitations include but are not limited to the following: the logic model is a "framework" and not an evaluation model; the logic model is missing key elements seen in other similar models such as evaluation standards; and logic models can be very time consuming and costly.

Revisions to the Original Logic Model

<u>Conceptual Framework</u>

Program evaluations have the ability to effect individuals, organizations, and governmental aspects such as governmental funding and education which is why it is important to create evaluations with standards in mind. The Logic Model is missing key components that are present in other models which could help to make the logic model more comprehensive and effective. In order to help shape the new logic model, several resources were considered and used. This study primarily draws from the evaluation standards created by the Joint Committee on Standards for Education, Evaluation, and Research (1994); the guiding evaluation principles from the American Evaluation Association (2003); and the evaluation approaches assessments created by Stufflebeam (2001) in Evaluation Models.

The Joint Committee on Standards for Educational Evaluation created the 30 evaluation standards by forming an alliance of partnerships among professionals invested in improving the quality of evaluation (Langford, 2010). The Joint Committee on Standards for Education Evaluation was designed for evaluators and individuals who create and implement or structure policies, projects, or programs (Langford, 2010). The evaluations standards created by the Joint Committee on Standards for Educational Evaluation (1994) were created in order to address important questions such as the following: Does the program satisfy the needs of the users? Is the evaluation realistic and based on ethical standards? and Does the information gained from the evaluation speak to the adequacy of the program? The guidance of the evaluation procedure is led by The Joint Committee on Standards for Education Evaluation (Langford, 2010).

The American Evaluation Association (2004) also has developed a list of best practices for the evaluation profession. The Guiding Principles for Evaluators were created in 1994 by the

American Evaluation Association Board. These guiding principles are based upon the professional practices of evaluation and are intended to guide evaluators in order to ensure evaluation principles are upheld (American Evaluation Association, 2004). The guiding principles created by the American Evaluation Association (2004) are as follows: evaluators are responsible for conducting systematic, data-based inquiries; evaluators need to provide competent performance to stakeholders; evaluators should show integrity and honesty in their own behavior and throughout the entire evaluation process; evaluators are responsible for showing respect for the security, dignity, and self-worth for all individuals involved in the evaluation; and evaluators must promote the diversity of the general public's interests and values as they relate to the evaluation. The guiding principles created by the American Evaluation Association help to structure ethical principles necessary for evaluators to consider when implementing program evaluations (Langford, 2010). These guiding principles are also represented in the 30 standards created by the Joint Committee on Standards for Educational Evaluation (1994). Therefore, the research in this study mostly relied on the 30 standards by the Joint Committee on Standards for Educational Evaluation (1994).

The Joint Committee on Standards for Educational Evaluation (1994) and Stufflebeam's (2001) research will be used in this study in order to develop the revised logic model. Stufflebeam (2001) characterized twenty-two different evaluation approaches into ten different descriptors in order to determine which approaches were most effective and then tested these approaches against the Joint Committee on Standards for Educational Evaluation (1994).

The revised logic model will include the following:

1. Logic model flow-chart designed to help assist evaluators in the step-by-step process of an evaluation and also help to eliminate the amount of time it takes to perform this type of evaluation,

2. Program theory identification/development search, which will be included in the revised logic model flow-chart,

3. The Chi-Square test as the method,

4. Reject the use of artificial cut scores, and

5. Consider contextual influences.

Stufflebeam (2001) noted some of the most effective and widely used evaluation methods for the Questions and Methods Oriented Approaches category. In Table 1 below, the evaluation methods can be seen for the three evaluation approaches, including the theory-based approach (which includes the logic modeling), and two other approaches closely related to the program theory-based approach: (1) outcome and value added and (2) the case study approaches. The outcome and value added and case study approaches were found to be some of the most effective evaluation approaches and fall into the same family as theory-based approaches (which includes logic models), in the questions and methods approaches.

There was one evaluation method that both the outcome and value added and case study approaches had in common which was Cross-Break tables. Cross-Break tables are seen in Chi-Square tests and will be added to the new logic model. Chi-Square tests provides researchers with a test of the null hypothesis for differences between frequencies (Patten, 2007). This also helps to provide high standards as noted by the Joint Committee on Standards for Educational Evaluation (1994). The Joint Committee on Standards for Educational Evaluation's Accuracy Standards stated they are "intended to increase the dependability and truthfulness of evaluation representations,

propositions, and findings, especially those that support interpretations and judgments about quality" (Joint Committee on Standards for Educational Evaluation, 1994). More specifically the addition of the Chi-Square test will help to improve Accuracy Standard Number 6 -- sound designs and analyses -- which states that evaluations should provide adequate designs and analyses that are suitable for the evaluation purposes.

Table 1. Evaluation Methods Found in Questions and Methods Oriented Approaches Observed by Stufflebeam (2001)

Evaluation Methods	Outcome/Value-Added Assessment (6)	Case Study (12)	Program Theory-Based (14)*
Criterion-referenced tests		X	
Standardized testing	X		
Computerized or other database	X		
Hierarchical mixed model analysis	X		
Policy analysis	X		
Study of outliers		X	
Analysis of archives		X	
Collection of artifacts		X	
Content analysis		X	
Independent and participant observers		X	
Key informants		X	
Interviews		X	
Operations analysis		X	
Focus groups		X	
Questionnaires		X	
Rating scales		X	
Hearings and forums		X	
In-depth descriptions		X	
Photographs		X	
Critical incidents		X	
Testimony		X	
Logic models		X	X
Grounded Theory			X
News clippings analysis		X	
Cross-Break tables	X	X	
Expert critics		X	

Stufflebeam (2001) noted the most effective evaluation strengths from the questions and methods oriented approaches. There were two evaluation strengths that both of the evaluation approaches -- outcome and value added and also case study approaches -- had in common which were (1) rejection of artificial cut scores and (2) consideration of contextual influences. Cut scores are the extreme scores or outliers found on exams, tests, and other types of assessments. Cut scores help to determine proficiency and multiple cut scores can exist within a data-set (Dwyer, 1996). Cut scores are created by individuals, groups of individuals, and experts in the field. Therefore, cut scores are based on judgements, which could be subject to error and bias (Dwyer, 1996). Cut scores have the following characteristics:

1. Always involve judgement,

2. Result in misclassification,

3. Enforce an artificial contrast on an essentially continuous distribution of knowledge or skill, and

4. There is no true cut score value. (Dwyer, 1996)

The addition of these changes will also provide improvement to the accuracy standards of the newly revised logic model. Table 2 below shows the evaluation strengths for outcome and value added, case study and program theory-based evaluation approaches.

Table 2. Evaluation Strengths Found in Questions and Methods Oriented Approaches Observed by Stufflebeam (2001)

Evaluation Strengths	Outcome/Value-Added Assessment (6)	Case Study (12)	Program Theory-Based (14)*
Common sense appeal	X		
Employs the technology of testing	X		
Efficient use of standards tests	X		
Popular among constituents and politicians	X		

Can focus on audience's most important questions		X	
Efficient means of data collection	X		
Stress on validity and reliability	X		
Triangulates findings from multiple sources		X	
Uses institutional database	X		
Monitors progress on each student	X		
Emphasizes service to every student	X		
Hierarchical analysis of achievement	X		
Conducive to policy analysis	X		
Employs trend analysis	X		
Strong provision for analysis qualitative information		X	
Rejects use of artificial cut scores	X	X	
Considers student back-ground by using students as their own controls	X		
Considers contextual influences	X	X	
Focuses on outcomes	X		
Examines program's internal workings and how it produces outcomes		X	X
Can be done retrospectively or in real time		X	X
Requires no controls of treatments and participants		X	
Examines programs as they naturally occur		X	
Examines programs holistically and in depth		X	
Engages experts to render refined descriptions and judgements		X	
Yields in-depth, refined, effectively communicated analysis		X	
Employs all relevant information sources and methods		X	
Stresses complementarity of qualitative and quantitative methods		X	

The Logic Model Flow-Chart

The logic model flow chart includes all of the practical steps needed for a program

evaluation in addition to procedures that are distinctively related to the logic model. The logic

model flow chart includes the following items: negotiate evaluation terms, identify program design

and the problem the program is trying to address, identify program theory, logic model development, data collection, data analyze including the Chi-Square test and other necessary tests as needed, data reporting, recommendations, and meta-evaluation or evaluation review. An example of the revised logic model checklist can be found in Figure 2 below.

Logic Model Flow Chart

Negotiate Evaluation Terms

Identify Program Theory, Design, and Problems

Logic Model Development

Data Collection

Data Analysis (using Chi-Square Tests)

Data Reporting

Recommendations

Meta-evaluation (Evaluation Review)
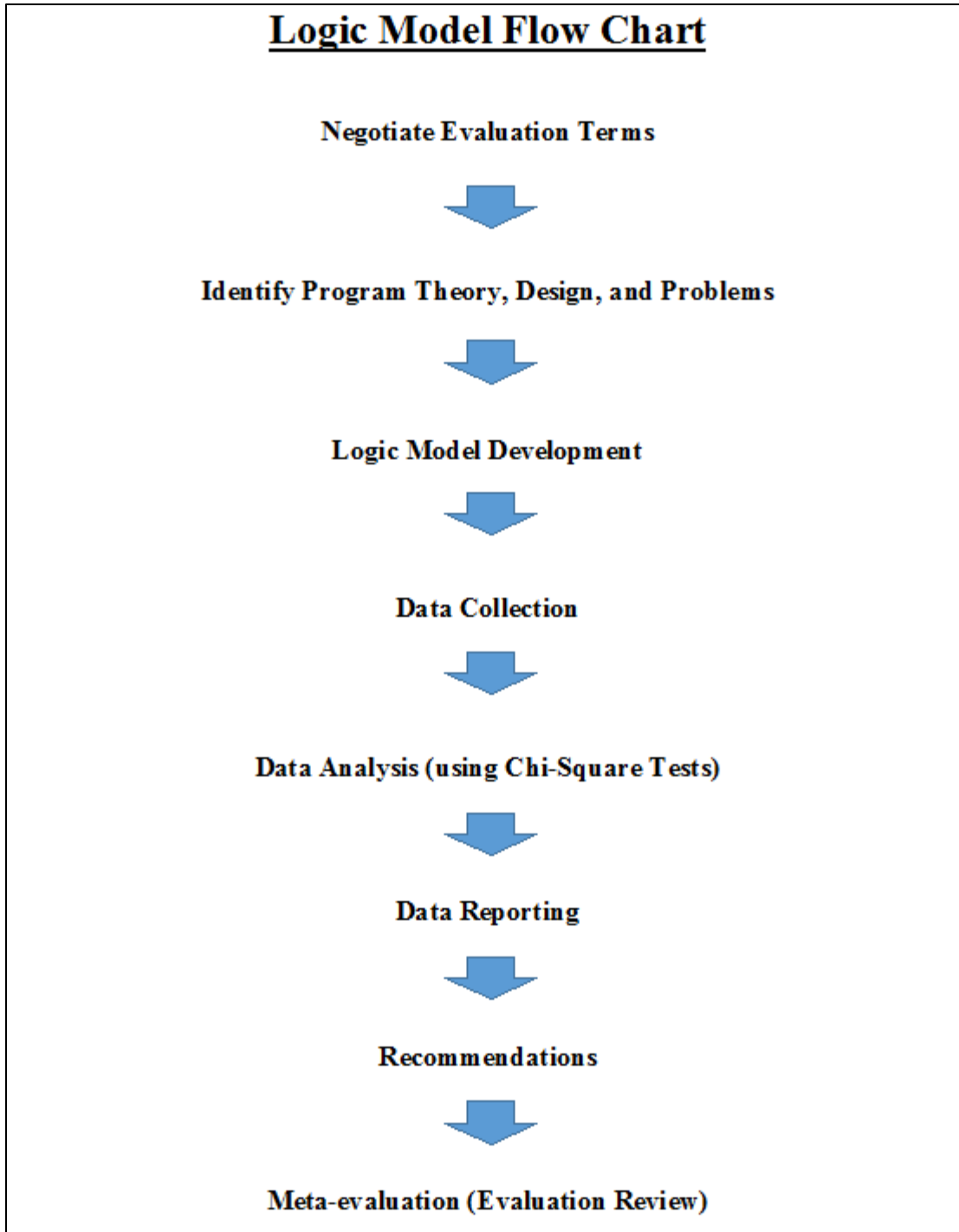
Figure 2. Logic Model Checklist/Flow Chart

Program Theory Validation and Identification

One of the most noted limitations of the logic model is its dependence on programs that have sound theory. In order to revise the logic model, decisions must be made before the logic model is considered for use. Therefore, one of the first steps in the revised logic model flow chart is to confirm the presence of sound program theory. Many programs are not built on sound theory, and the evaluator is left with finding or developing such theory which can be difficult and time consuming (Lee, 2011). Thus, evaluators have been put in the position of offering more than what can be delivered in a timely fashion. Stufflebeam (2001) arrived at this conclusion:

> Nevertheless, modest attempts to model programs-labeled as such-can be useful for identifying measurement variables, so long as the evaluator does not spend too much time on this and so long as the model is not considered as fixed or as a validated theory. In the rare case where an appropriate theory already exists, the evaluator can make beneficial use of it to help structure and guide the evaluation and interpret the findings. (p. 39)

Therefore, the program that is being evaluated must be based on sound theory, and good program design. Evaluators who find that a program is not embedded in sound theory should not consider using the revised logic model. The revised logic model is designed for users who have identified solid program theory.

The underlying program theory makes clear what conditions are most likely to lead to desired outcomes. Well defined program theory is essential to ensuring that (1) objectives are related to the conditions being targeted, (2) program content is linked to the objectives, and (3) the measurement tools selected assess the conditions being targeted for change. When program content is not aligned with the objectives, the chance of observing change is small (Renger, 2004).

Confirmation of grounded program theory is followed by supporting research evidence for this theory (Renger, 2004). Programs should be initiated based on concrete research evidence in order to assure that program activities are based on reliable methods in accomplishing social

change (Renger, 2004). Program theory and program rationale are vital components to a program that is being considered for logic modeling. These two components will be added to the new logic model.

<u>Chi-Square Test</u>

Stufflebeam (2001) noted the best evaluation approaches, within the same category as the logic model -- Questions/Methods Approaches -- included the outcome/value added approach and the case study approach. Both approaches have common characteristics found among the descriptors. When considering evaluation methods, both approaches included the method of Cross-Break tables. Cross-Break tables, also referred to as contingency tables, can be found in Chi-Square tests. Successful methods similar to the logic model use Chi-Square test to acquire Cross-Break tables and this will be added to the revised logic model.

The Chi-Square test was developed by Karl Pearson and is a non-parametric test that uses both observed and expected frequencies (Rossi, 2010). The Chi-Square test is being added to the new logic model because of its wide range of usability with any type of distribution and for its wide application with various statistical procedures (Rossi, 2010). "Its two principal uses are test the independence of two variables and to assess how well a theoretical model or set of a priori probabilities fits a set of data (goodness of fit)" (Rossi, 2010, p. 1). The Chi-Square basic formula is $X^2 = \sum [(O - E)^2 / E]$ and is most appropriately used with nominal or ordinal data (Rossi, 2010). "The Chi-Square distribution is related to the normal distribution, such that the square of a standard normal deviate (z^2) is distributed as a x^2 with one degree of freedom" (Rossi, 2010, p. 1). Chi-Square can be used with procedures such as logistical regression, multivariate analysis of variance, and other procedures that use generalized least squares and maximum likelihood (Rossi, 2010).

Reject the Use of Artificial Cut Scores and Consider Contextual Influences

Stufflebeam (2001) found that the outcome/value added approach and the case study approach both had common evaluation strengths. Both approaches used the rejection of artificial cut scores, and they both considered contextual influences. Artificial cut scores will not be used with the revised logic model, and the use of contextual influences will be considered.

Elements of the Learning Community

Tinto (1987) in *Model of Student Departure* indicated that successful integration, both academically and socially, is achieved for students when they move through the stages of separation, transition, and incorporation. Tinto (1987) concluded that failure to complete even one of these stages could result in a student's departure from the college or university. Tinto (1993) created a model that was multifaceted and included many different elements such as demographics, cognitive, psychosocial, and institutional elements. Tinto's model stated demographic elements of family background, pre-college education, and individual attributes affect the formation of the commitment stage when students enter college, and there are two forms of commitment that are possible, including goal and institutional commitment (Tinto, 1993). The goal commitment is the degree to which students are committed to graduating from college. Institutional commitment is the degree to which students are concerned about graduating from college (Tinto, 1993). There are two types of integration relevant to the commitments previously listed, including academic and social integration. Academic integration is the integration of academic systems of academic performance and intellectual development. Social integration includes peer-group and faculty interaction (Tinto, 1993). One of the best examples of Tinto's model is seen in learning community programs.

Tinto (2000) noted that learning communities impact students socially and academically in four different ways. First, students have the opportunity to develop their own support system

among their peers, faculty and staff. Second, students learn more information and concepts because they practice active learning strategies to achieve their academic goals. Third, students are aware that their quality of learning has been enriched. Lastly, students' persistence is above the general student population at the institution they attend (Tinto, 2000). The learning community was chosen as the educational program to evaluate in this study because it is based on extensive theory, and there is substantial research that supports it.

"First semester college grades have consistently been found to be an important factor in student persistence" (Zientek, 2008, p. 22). According to the Chickering Model of Development of the young adult, in order for college students to be successful, especially in their first academic year, they must adopt seven developmental vectors by way of college life or experience. Chickering's seven developmental vectors included the following:

1. Developing competence,

2. Managing emotions,

3. Moving through autonomy toward interdependence,

4. Developing mature interpersonal relationships,

5. Establishing identity,

6. Developing purpose, and

7. Developing integrity. (D'Souza, 2003)

"In a study that used stepwise logistic regression to analyze the significance of several factors, only the first semester grade point average was related to persistence" (Zientek, 2008, p. 23). Therefore, the focus of the program evaluation for this study will involve the freshmen first semester grades and how that relates to persistence.

Context and Background of the Learning Community Used in This Study

Before conducting the program evaluations, the major stakeholders of the program should be interviewed in order to help the evaluator identify program elements. An interview will be conducted with one of the major stakeholders of the learning community educational program in order to determine the logic model mainstays including the following: inputs, activities, outputs, and outcomes. These four logic model concepts are essential in order to perform the logic model evaluation. The following questions will be asked of one of the major stakeholders associated with the development and implementation of the learning community educational program.

The learning community group will consist of students enrolled at a Midwestern Higher Education Institution full time during the Fall 2007, 2008, 2009, and 2010. This group of students are Pell grant eligible, have high academic achievement in high school, and have a 21 ACT score or greater. All students entered the university as first time in any college students and were admitted as non-conditional students to the Midwestern Higher Education Institution.

Rationale for Evaluating a Learning Community

A learning community was chosen as the educational program to evaluate in this study because they offer sound theory, and this was a significant consideration when deciding upon an educational program to use. Wang (2006) indicated two levels of learning which included the first level, social level, and the second level, individual level. The first level is social because learning first happens between people (inter-psychology). The second level is individual because learning happens second inside the learner (intra-psychology) (Wang, 2006). Learning communities combine these two concepts in order to make learning more effective for the students involved. The collaborative learning piece recognized on the social level is the first place where learning appears for students. Collaborative learning happens when students from various performance

levels work together in groups to reach a common goal or outcome (Wang, 2006). Learning communities get students involved which ultimately helps them stay retained.

Astin (1999) noted there are three traditional pedagogical theories that include Subject Matter Theory, Resource Theory, and Individualized (Eclectic) Theory. Subject Matter Theory, which is also known as Contact Theory, is popular among college professors and states that student learning and development depend primarily on exposure to the right subject matter (Astin, 1999). Resource Theory is popular among administrators and policymakers and stats that if adequate resources are brought together in one place, student learning and development will occur (Astin, 1999). Individualized (Eclectic) Theory is most popular with developmental and learning psychologists and states that no single approach to subject matter, teaching, or resource allocation is adequate for all students (Astin, 1999). "Rather, it attempts to identify the curricular content and instructional methods that best meet the needs of the individual student" (Astin, 1999). Astin (1999) noted the factors that contributed to student's persistence was related to involvement and a lack of involvement led to lower persistence. Learning communities are built with an emphasis on student involvement.

<u>What is a Learning Community?</u>

The very first learning community came along in 1927 and was developed by the University of Wisconsin. This learning community was implemented by the Meiklejohn's Experimental College and was coined the "Climate of Learning" (Zientek, 2008). Changes to the curriculum challenged traditional college education which is characterized by disintegration due to departmentalism (Kahrig, 2005). "The current form of learning communities appeared in the 1980's based on the understanding that engagement in a community of learners facilitates personal and academic development" (Baier, 2014, p. 25). Learning communities are now offered in more

than 500 colleges and universities across the United States (Smith, 2009). Levine and Shapiro

(2000) noted that there are three different types of approaches to learning communities:

> There are three common approaches to learning communities: paired or clustered
> courses, First-year Interest Groups (FGIs), and team taught programs. The paired-
> course model links two courses, and the students are block-scheduled. Pairs of
> courses usually consist of a writing course and perhaps a first-year student seminar;
> other pairs may be thematic, such as a math and chemistry pair. An expansion of
> the paired-course model is the cluster approach, which links three or four courses
> around a theme. Faculty members usually generate the theme and coordinate
> readings and assignments across the cluster. (p. 10)

Gabelnick, MacGregor, Mathews, and Smith (1990) noted there are five common types of learning

communities which include federated learning communities, coordinated studies, freshmen

interest groups, learning clusters, and linked courses. Lenning and Ebbers (1999) noted a broader

spectrum for learning communities that included curricular learning communities, residential

learning communities, and student-type learning communities. Lenning and Ebbers (1999)

developed a categorized list of learning communities into levels of high, middle, or low, and they

were along five different dimensions. Those dimensions included student collaboration, faculty

collaboration, curricular coordination, shared setting, and interactive pedagogy (Lenning and

Ebbers, 1999). This study will evaluate a coordinated studies learning community.

Smith and MacGregor (2009) examined the distinction of curricular learning communities

and were able to describe how these types of learning communities operate:

> Curricular learning communities refer to a variety of curricular approaches that
> intentionally link two or more courses, often around an interdisciplinary theme or
> question, and enroll a common cohort of students. By restructuring a student's time,
> credit, and learning experiences, learning communities aim to bring more
> coherence to the curriculum, increase student engagement, and help build social
> and academic community. Learning communities rearrange students' otherwise
> piecemeal academic experiences to bring focus, coherence, and community to their
> learning. (p. 120)

Therefore, learning communities act as programs that assist with academic and social success for students. "Learning communities take on different forms but are characterized by common academic and social features which are meant to support the growth of intellectual capabilities and strengthen the social connections among students using cooperative learning techniques" (Baier, 2014, p. 25). The organization and features of learning communities may vary according to the faculty, student, and administrative campus environment, but the majority of learning communities function to meet similar goals (Zientek, 2008). Most learning communities help to produce some of the following results: organize students and faculty into smaller groups; encourage integration of the curriculum using interdisciplinary skills in inquiry, acquire knowledge and civil values; help students establish academic and social support networks; students become familiar with college expectations and recognize the value of peers in the learning process; faculty have the opportunity to become more versatile in their teaching methods because they can share their ideas with other instructors; students and faculty can focus more on learning outcomes in order to better facilitate learning; the smaller setting allows for prompt delivery of different support services; the smaller setting allows the learning community team the opportunity to examine policies, practices, and needs of students in order to reach high levels of freshmen retention (Baier, 2014).

Smith and MacGregor (2009) noted there are five core practices of common learning communities, and they include the following: community, diversity, integration, active learning, and reflection/assessment. These practices are often noted as best practices and are essential to the understanding of the full potential of learning communities (Smith & MacGregor, 2009). Figure 3 below is an illustration of the core practices of the learning community as described and displayed by Smith and MacGregor (2009).
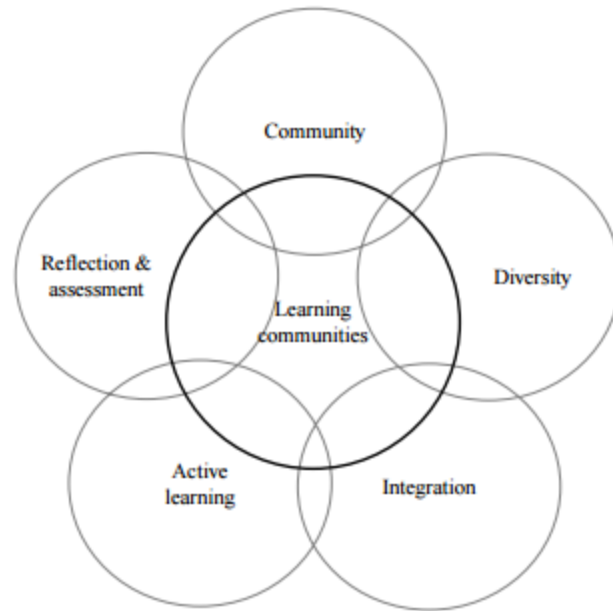
Figure 3. Smith and MacGregor (2009) Core Practices of Learning Communities

Studies show that learning communities have more positive impacts on retention (Zientek, 2008). Baier (2014) conducted a pre-post-test study design in order to examine the extent to which factors that influence student persistence within a social-cognitive framework at an urban Midwestern University. The results of the study revealed two significant predictors of First Time in Any College Students; (FTIACS) intentions to complete college or persistence which included perceptions of mentorship and self-efficacy. The strongest predictors of success during FTIACS first semester in college was academic factors and social support (Baier, 2014).

D'Souza (2003) conducted a study to examine the impact of a residential learning community on student academic achievement, leadership skills development, institutional integration and loyalty, and retention. The quantitative data from the study indicated that the learning community students had a higher rate of retention and motivation to continue college than the non-learning community students. The qualitative data from the study supported those findings

and indicated that most learning community students were motivated to remain in the program (D'

Souza, 2003).

Zientek (2008) conducted a study aimed to measure the impact of themed learning

communities on the academic performance and retention of FTIAC students arriving at Buffalo

State College in 2001, 2002, and 2003 fall semesters. Academic performance was measured by

the semester and cumulative GPA as well as the percentage of students in good academic standing

after their first semester. Retention was measured by the percentage of students returning to

Buffalo State College for succeeding semesters. Grades are the best predictor of academic success

in college which is why successful educational programs should lead to students earning higher

grades and college graduation (Zientek, 2008). Zientek (2008) used an ex-post facto quantitative

study design and the following tests: T-Test (One Group T-Test), Chi-Square test, and Analysis of

Variance (2-Way ANOVA). Zientek (2008) indicated that participating in the learning community

program had a significant impact on the first-semester grade point average and academic standing

for two thirds of the cohorts studied.

Learning Communities and First-Year Experience Courses

Learning communities combine academic and social programming in order to promote

academic success and retention (Wang, 2006). The first year has proven to be one of the most

important academic years for first-year students. Research has proven that the first year

intervention which provides the highest level of academic and social integration is the learning

community, but the First Year Experience Course has also been proven to be beneficial to the

success of students' academic and social engagement (Smith, 2003). As a reaction to this fact,

many colleges have enhanced their learning communities by developing and adding a first-year

student experience or seminar course (Zientek, 2008). The coordinated learning community

educational program being evaluated in this study has a first year experience course integrated into its program.

First-year experience courses have small class sizes and are useful because they provide FTIAC students with information about the school, an exploration of students goals and what their purpose for attending college may be, and study skills development and analysis (Zientek, 2008). First year seminar has been proven to increase persistence to the second academic year, yield higher grades, and ultimately led to graduation (Zientek, 2008).

Sidle and McReynolds (1999) conducted a study to examine effects of participation in first year experience courses on academic success and student retention. The study was an ex-post facto and included college students first year GPAs and grades along with persistence rates. Sidle and McReynolds (1999) noted participation in the first year experience course lead to students achieving higher GPAs than non-participants and significantly higher persistence rates than non-participants. A number of studies also concluded with similar results (Gardner, 1986; Schnell, Louis, & Doetkott 2003; Schroeder, Minor, & Tarkow, 1999). Therefore, first year experience courses and learning communities both provide first year college students with experiences that lead to retention and college engagement.

Evaluating Learning Communities

In order to evaluate the learning community educational program, first it will be important to understand what the program's objectives are. Learning communities produce a set of educational processes and outlines the nature of the experiences it offers to students, but learning objectives must also be defined (Brower & Inkelas, 2007). The learning community objectives are as important as any other component of the program. An educational program's learning objectives

play a huge role in assessments and are as important as any other element of the program including budget, staffing, and the programs delivered (Brower & Inkelas, 2007).

Identifying the programs objectives is the first step to a productive and successful assessment of a learning community program. The objectives and outcomes of the program should be mutually understood by all program leaders (Brower & Inkelas, 2007). These objectives can be established from stakeholders by way of interview, focus groups, or by way of a different method. In this study, the objectives will be established by stakeholder interview. There are three main characteristics of a learning community assessment which include the following: (1) identifying the programs learning objectives; (2) operationalizing the objectives for study; and (3) designing an assessment that captures the factors that contribute to student success (Brower & Inkelas, 2007). The logic model can help successfully manage a learning community assessment because it is capable of identifying programs objectives which help to develop the proper assessment, by distinguishing the program's inputs, activities, outputs, and outcomes.

Traditional learning community assessments might include measurements of students' academic outcomes which may include: grade point averages, credits earned, persistence, or graduation rates (Brower & Inkelas, 2007). The measurements used in the assessment should be directly aligned with the programs goals and objectives which help to assure accuracy of the assessment and the results.

Meta-Evaluation of Logic Models

Meta-evaluations have become especially common in high-stakes evaluations in order to ensure the evaluation is of high quality and standards (Patton, 2013). A meta-evaluation is considered an evaluation of an evaluation and is a highly recommended practice in the field of program evaluation (Stufflebeam and Shinkfield, 2007; Scriven, 1991; Joint Committee on

Standards for Educational Evaluation, 1994; and Stufflebeam, 2001; Stufflebeam, 2011). Even with major interest in meta-evaluation there is still a limited number of meta-evaluations in research and evaluation literature (Hanssen, Lawrenz, & Dunet, 2008).

A meta-evaluation will be conducted in order to determine if there is a statistically significant difference between the original logic model and the newly revised logic model. The meta-evaluation will ultimately help to determine which logic model is more effective. A meta-evaluation is a systematic review of an evaluation in order to define the quality of the methods and results of the evaluation (Cooksy & Caracelli, 2009). Meta-evaluations help to determine if an evaluation has met quality standards and also helps to identify the evaluation's strengths, weaknesses, and lessons (Patton, 2013). A meta-evaluation checklist will help to determine which evaluation standards were met for each of the two logic models.

Stufflebeam (2011) noted meta-evaluations are increasingly important because they help to insure the quality of work in the field of education. A Meta-evaluation is descriptive and judgmental assessment about the evaluation to guide the evaluation and report it strengths and weaknesses (Stufflebeam, 2007). Stufflebeam (2007) noted both proactive and retroactive meta-evaluation and describe their necessity:

> Proactive meta-evaluations are needed to help evaluators focus, design, budget, contract, and carry out sounds evaluations. Retroactive meta-evaluations are required to help audiences judge completed evaluations. In the evaluation literature, these two kinds of meta-evaluations are labeled formative meta-evaluations and summative evaluation. (p. 650)

For the purposes of this study, a summative meta-evaluation will be conducted on the learning community educational program within the Midwestern Higher Education Institution. The summative meta-evaluation will be conducted in order to help judge the completed evaluations of

the learning community performed by both the original logic model and the newly revised logic

model.

CHAPTER 3 - METHODOLOGY

The methodology is divided into three different sections. The first section of this chapter focuses on the development of the newly revised logic model. The second section of this chapter describes the procedures for testing both the original and newly revised logic model on the learning community program. Lastly, the third section of this chapter describes the meta-evaluation and analysis of the two logic models after they have been used and applied to the learning community educational program. The purpose of this last phase, which relates to the main research question of this study, is used to help determine which logic model is more effective.

The revisions to the original logic model will be based on the Joint Committee on Standards for Educational Evaluation (1994) and Stufflebeam's (2001) research. After the revised logic model has been designed, it will be used to evaluate a learning community educational program, within a Midwestern Higher Education Institution. In order to compare the original logic model to the revised logic model. The purpose of the evaluation of the learning community is to determine the effectiveness of the learning community educational program at a Midwestern Higher Education Institution. The effectiveness of the learning community will be determined by conducting a stakeholder interview and evaluating the learning community data.

Development of the Newly Revised Logic Model

The logic model and other theory-based evaluation models have gained appeal and have been frequently used in the last 25 years (Chen, 1990). Theory-based evaluations, such as the logic model, can provide valuable information not obtainable from other evaluation approaches (Birckmayer & Weiss, 2000). The logic model can be very useful by providing valuable information to stakeholders by showing program linkages and by providing program planning (Dwyer & Makin, 1997). However, many evaluation professionals have concluded that the logic

model is not an evaluation model or method, instead it is an evaluation framework, used as a guide to prepare programs for evaluation (Bolden, 2007; Langford, 2010; Suchman, 1967; Taylor-Powell, 2005; Weiss, 1998).

The research questions for this study were created in order to address the problem statement. The problem is that the logic model is missing key elements found in other evaluation models which, if present, could make the logic model more comprehensive and effective. The logic model is not considered an evaluation method because on its own it is nothing more than a pictorial representation of a program's theory. There are many logic model limitations that can be addressed, and it is important that additional research on the logic model and its limitations be conducted.

The basic logic model, used by the United Way of America, is the model being used in the study to compare to the revised logic model. In this study, the basic logic model is also referred to as the original logic model. The original logic model is comprised of four main components:

1. Inputs,

2. Activities,

3. Outputs, and

4. Outcomes. (United Way of America)

Inputs refers to the resources needed to run the program and can include money, staff, or equipment. Program activities includes the actions that make-up the program and could include training, tutoring, or counseling. Outputs are the results of the program or the numerical value of participation. Outputs can also be thought of as the program products or what results the program produces. Lastly, outcomes are the benefits of the program for participants. The outcomes of a

program can be revealed by asking the question, "What difference did this program make?" (W. K. Kellogg Foundation, 2003).

The newly revised logic model will also include inputs, activities, outputs, and outcomes. However, in addition to the characteristics seen in the original logic model, the revised logic model will also include a logic model flow chart, program theory identification/validation check and theory research components prior to its use, the use of Chi-Square test for data analysis, rejection of artificial cut scores, and consideration for contextual influences.

The Original Logic Model Versus the Newly Revised Logic Model

Table 3. The Original Logic Model Compared to the Newly Revised Logic Model

Original Logic Model Versus Revised Logic Model	
Original Logic Model	**Revised Logic Model**
Inputs	Inputs
Activities	Activities
Outputs	Outputs
Outcomes	Outcomes
N/A	Chi-Square Test
N/A	Program Theory Identification/Validation
N/A	Reject Artificial Cut-Scores
N/A	Consider Contextual Influences
N/A	Logic Model Flow Chart

Development Procedures

In order to create the revised logic model, research will be conducted to discover some of the most relevant and repeatedly stated limitations offered by evaluation professionals. These limitations will be considered along with the logic model limitations offered by Stufflebeam

(2001). The limitations of the logic model that are important to this study are as follows: unidentified program theory, program services, and program design; the logic model is better practiced as a framework, instead of an evaluation model or method; it can be time consuming and costly to develop a logic model; other theory-based models, similar to the logic model, use statistical methods in order to analyze the data used in the evaluation; other theory-based models, similar to the logic model, reject the use of artificial cut scores; other theory-based models, similar to the logic model, consider the use of contextual influences.

The logic model flow chart was created in order to relief the limitations of the original logic model, and in particular the limitation of being time consuming and costly. This addition to the newly revised logic model will help to improve the utility standards developed by the Joint Committee on Standards for Educational Evaluations. Utility standards help to assure that stakeholders find program evaluation processes valuable to their needs (Joint Committee on Standards for Educational Evaluation, 1994). More specifically, this change will help to improve Utility Standard Number 7, timely and appropriate communicating and reporting, which states that evaluations should adapt to the information needs of their audiences (Joint Committee on Standards for Educational Evaluation, 1994). The very last step in the newly revised logic model flow chart, meta-evaluation/evaluation review, will help to improve the evaluation accountability standards provided by the Joint Committee on Standards for Educational Evaluation (1994). More specifically, the evaluation review will address the Accountability Standard Number 2, internal meta-evaluation, which says that evaluators should use the Joint Committee on Standards for Educational Evaluations (1994) and other standards in order to examine the accountability of the evaluation design, procedures, data collection, and outcomes.

The logic model flow chart includes all of the practical steps needed for a program evaluation in addition to procedures that are distinctively related to some of the logic model limitations. The logic model flow chart includes: negotiate evaluation terms; identify program design and the problem the program is trying to address; identify program theory; logic model development which include inputs, activities, outputs, and outcomes; data collection; data analyze including the Chi-Square test and other necessary tests as needed; data reporting; provide recommendations, and meta-evaluation.

Testing the Original and Newly Revised Logic Models

<u>Procedures</u>

The original logic model will be completed by using the standard logic model procedures developed by United Way of America. This will include the development of the logic model by providing the programs inputs, activities, outputs, and outcomes. The newly revised logic model flow chart will be followed step-by-step until complete in order to finalize the evaluation of the newly revised logic model. The newly revised logic model flow chart will be followed step-by-step in the following order: negotiate evaluation terms; identify program design and the problem the program is trying to address; identify program theory; logic model development which include inputs, activities, outputs, and outcomes; data collection; data analysis including the Chi-Square test and other necessary tests as needed; data reporting; provide recommendations, and meta-evaluation.

Before conducting an evaluation study the evaluator must start by considering the evaluation focus. This can be done by answer two types of questions: (1) why is the evaluation being conducted and (2) what type of program is being evaluated (Cranton & Legge, 1978). The evaluator must also consider the evaluation plan which consists of detailed evaluation plans,

evaluation questions, methods for information collection, evaluation standards, and the planning of the course of actions and decisions to make based on the results of the evaluation (Cranton & Legge, 1978).

The following questions should be considered when beginning the evaluation process: Why is the evaluation being done and what changes can be made in the program; What type of information is needed to conduct the evaluation; What types of methods are needed in the evaluation; What source of information will the evaluation process have access to; What is the time-line for the evaluation and when do final decisions need to be made; What stakeholders are available to help conduct the evaluation; and Who is the audience for the evaluation results? (Cranton & Legge, 1978). These questions will be considered prior to the evaluation of the learning community.

During the evaluation process, information is collected and decisions are made based on this information. During this time, there are three types of judgements that are made: decisions related to the program, decisions that are related to the strategies of the program, and those decisions that are related to the outcomes of the program (Cranton & Legge, 1978).

A stakeholder interview will be conducted in order to gain valuable program information from major stakeholders affiliated with the program. The questions below in Table 4 represent the interview questions given to stakeholders. The stakeholder interview is necessary in order to develop the logic model diagram, and it also supports the conceptual framework for this study, which is the theory of change. The questions included in the stakeholder interview are based on the four different characteristics seen in the theory of change:

1. Who is the program designed to serve?

2. What problem is the program designed to solve?

3. Which activities help with the problem? and

4. What are the expected outcomes of the program? (Davis, 2000)

Table 4. Stakeholder Interview Questions

Interview Questions
What is the mission of the Comerica Scholars Learning Community?
What are the goals of the learning community?
What is the expected outcome of this program?
What problem was the program designed to solve?
Who was the program designed to help?
What activities are in place to help solve this problem?
What key characteristics makes a Comerica Scholar a successful scholar? What does a successful program look like?
What does a successful program look like?
How has the program changed over the years?
If you had the opportunity to have a full scale evaluation of the LC, and cost and time were not an issue what would you want to find or evaluate?

Data for the learning community evaluation will be obtained from the institutional Student Admissions and Records System (STARS), which is composed of student demographic and academic information. STARS also includes the learning community cohort database. Students first year GPA on a 4.0 scale, and students' re-enrollment status was obtained through STARS. STARS is a university web based application used to access university data for advising, retention, curriculum and program tracking (Baier, 2014).

The evaluation of the learning community will begin with the original logic model evaluation procedures and state that the evaluator is to identify the programs inputs, activities outputs, and outcomes (United Way of America). The evaluation of the learning community under the newly revised version of the logic model will begin by following the logic model flow chart. Each step in the flow chart will be conducted by completing the following tasks: the negotiation of evaluation terms, identification of program theory, identification of program design, logic model development, data collection, data analysis, data reporting, and recommendations.

Participants

The participants of interest for this study will all be first time, first year college students admitted and enrolled in the particular learning community during the following fall cohorts: Fall, 2007 (N=3096), 2008 (N=2797), 2009 (N=2957), and 2010 (N =2613) semesters at a Midwestern higher education institution. The learning community participants will consist of first time, first year students enrolled in one of the institutions learning communities for the following fall cohorts: Fall, 2007 (N=25), 2008 (N=35), 2009 (N=30), and 2010 (N=20).

The learning community educational program used in this study includes a total of N=110 subjects. The following demographic information was collected from the subjects: gender, ethnicity, and age. Gender for the entire group of cohorts is 78 (71%) female and 32 (29%) male. Ethnicity for the group is 64% Black, 23% unknown, 8% Hispanic, and 3% White, and 2% Asian. The Age for the group includes 71% 18 years old, 12% 19 years old, 9% 20 years old, and 8% 21 years old. Participants represented were all high achieving academics from high school and represented local high-schools near the area of the Midwestern Institution.

Research Design

The main objective of this research is to discover which of the two logic model types, the original logic model or the newly revised logic model, is more effective according to the standards created by the Joint Committee on Standards for Educational Evaluation (1994). The evaluation of the learning community educational program will be conducted as a non-experimental retrospective study in order to gauge the how time affects group changes. The design for this study is retrospective descriptive or Type I, as the objective of the study is to look backward to locate information on the independent variables that help to explain the current differences on the dependent variables and to describe the characters of the study phenomenon (Johnson, 2001).

It is now common to perform a meta-evaluation in order to determine if the evaluation met acceptable quality and standards (Patton, 2013). A summative meta-evaluation will be conducted in order to determine if there is a statistically significant difference between the original logic model and the revised logic model, and will ultimately help to determine which logic model is more effective based on program evaluation standards and guidelines. A meta-evaluation checklist will help to determine which evaluation standards were met for each of the two logic models.

Independent Variables

The independent variables for this study include students in the learning community at the Midwestern Higher Education Institution. The learning community group will consist of students enrolled at a Midwestern Higher Education Institution full time during the fall semesters of 2007, 2008, 2009, and 2010. This group of students are Pell grant eligible and all have high academic achievement in high school and have a 21 ACT or greater. All students entered the university as first time in any college students and were admitted as non-conditional students to the Midwestern Higher Education Institution.

Dependent Variables

The dependent variables for this study include student's GPA and student's graduation status. All dependent variables and their data will be obtained from STARS and documented in an excel database.

Data Collection

Data needed to perform the evaluation of the learning community will be collected using STARS. Data collected from STARS will include both learning community student data from the Midwestern Higher Education Institution.

Data Analyses

The Statistical Package for the Social Sciences for Windows (SPSS 23.0) will be used. An alpha level of 0.05 will be used as the significance level, which is used to determine whether to reject or fail to reject the null hypothesis.

Data will be collected from STARS in order to understand student success, student's GPA and graduation status, will be analyzed in order to determine the learning community's effectiveness. Chi-Square analysis will be used to determine if there are statistically significant differences between learning community students with a 2.5 GPA and higher and a 2.49 GPA and below at the Midwestern Higher Education Institution.

Threats to Validity

A retrospective cohort study, also called a historical study, means to look at events that already have taken place (Mann, 2003). Some of the advantages of a retrospective cohort study include the following: they are cheaper and tend to take less time to complete; there is a lack of bias because the data was collected in the past and typically the outcome of current interest was

not the original reason for the data collection; and a single study can test various outcome variables (Mann, 2003).

Threats to validity that are relevant to a retrospective study include history, maturation, selection bias, and single group threat. The validity threat known as history occurs when an event is unrelated to intervention during a study (Campbell & Stanley, 1963). Maturation is the process of systematic changes occurring naturally during a study (Campbell & Stanley, 1963). Selection bias occurs when a comparison group is selected non-randomly, which is a concern because this group could differ from the intervention group and ultimately affect the study outcome (Campbell & Stanley, 1963). The single group threat occurs when there is a lack of comparison or control group in the study (Tofthagen, 2012).

Another threat to validity deals with external validity and generalizability. The subjects in this study are all from the Midwestern Higher Education Institution, they are all Pell grant eligible, and all have similar backgrounds is also a threat to validity. Therefore, this homogeneity qualifies as a threat to validity, and the results of this study can only be generalized with caution to other programs.

Meta-Evaluation: Original and Newly Revised Logic Models

The meta-evaluation will serve as the method used to determine the effectiveness of both logic models and will allow for a comparison which will reveal the most effective model between the two. The meta-evaluations of both the original and newly revised logic models will be conducted by using the standards from the Joint Committee on Standards for Education Evaluation (1994). Each evaluation standard will be added to a meta-evaluation check-list and both logic models will be analyzed in order to determine their effectiveness.

The evaluation standards being used in the meta-evaluation from the Joint Committee on Standards for Educational Evaluation (1994) include five different standards categories which include:

1. Utility Standards which help to assure that stakeholders find program evaluation processes valuable to their needs (Joint Committee on Standards for Educational Evaluation, 1994).

2. Feasibility Standards which are intended to increase evaluation effectiveness and efficiency (Joint Committee on Standards for Educational Evaluation, 1994).

3. Proprietary Standards which support legal, fair and just evaluations (Joint Committee on Standards for Educational Evaluation, 1994).

4. Accuracy Standards which are intended to increase the dependability and truthfulness of evaluation representations, propositions, and findings, especially those that support interpretations and judgments about quality (Joint Committee on Standards for Educational Evaluation, 1994).

5. Evaluation Accountability Standards which encourage adequate documentation of evaluations and a meta-evaluative perspective focused on improvement and accountability for evaluation processes and products. (Joint Committee on Standards for Educational Evaluation, 1994)

Each standard has its own set of characteristics that include the following: utility standards (u1 evaluator credibility, u2 attention to stakeholders, u3 negotiated purposes, u4 explicit values, u5 relevant information, u6 meaningful processes and products, u7 timely and appropriate communicating and reporting, u8 concern for consequences and influence), feasibility standards (fi project management, f2 practical procedures, f3 contextual viability, and f4 resource use),

proprietary standards (p1 responsive and inclusive orientation, p2 formal agreements, p3 human rights and respect, p4 clarity and fairness, p5 transparency and disclosure, p6 conflicts of interests, p7 fiscal responsibility), accuracy standards (a1 justified conclusions and decisions, a2 valid information, a3 reliable information, a4 explicit program and context descriptions, a5 information management, a6 sound designs and analysis, a7 explicit evaluation reasoning, a8 communication and reporting), and evaluation accountability standards (e1 evaluation documentation, e2 internal meta-evaluation, e3 external meta-evaluation). The 30 standards will be compared to each logic model by way of checklist, in order to determine which model is efficient.

Meta Evaluation Check-list of the Original and Newly Revised Logic Model			
Evaluation Standard	Original Logic Model	Newly Revised Logic Model	
U1 Evaluator Credibility			Utility Standards (8)
U2 Attention to Stakeholders			
U3 Negotiated Purposes			
U4 Explicit Values			
U5 Relevant Information			
U6 Meaningful Processes and Products			
U7 Timely and Appropriate Communicating and Reporting			
U8 Concern for Consequences			
F1 Project Management			Feasibility Standards (4)
F2 Practical Procedures			
F3 Contextual Validity			
F4 Resource Use			
P1 Responsive and Inclusive Orientation			Proprietary Standards (7)
P2 Formal Agreements			
P3 Human Rights and Respect			
P4 Clarity and Fairness			
P5 Transparency and Disclosure			
P6 Conflicts of Interests			
P7 Fiscal Responsibility			
A1 Justified Conclusions and Decisions			Accuracy Standards (8)
A2 Valid Information			
A3 Reliable Information			
A4 Explicit Program and Context Descriptions			
A5 Information Management			
A6 Sound designs and Analyses			
A7 Explicit Evaluation Reasoning			
A8 Communication and Reporting			
E1 Evaluation Documentation			Evaluation Accountability Standards (3)
E2 Internal Meta-Evaluation			
E3 External Meta-Evaluation			

Figure 4. Meta-Evaluation Check-list of the Original and Newly Revised Logic Models: Based on the Joint Committee on Standards for Educational Evaluation (1994).

The meta-evaluation check-list for this study can be seen below in figure 5. In order to analyze the results of the meta-evaluation, an Independent Samples T-Test will be conducted. This will help to determine which model is the best as it relates to evaluation standards.

Independent Samples T-Test and Wilcoxon Rank Sum Test

The Independent Samples T-Test or T-Test was used to determine if there were any statically significant differences between the meta-evaluation results for the original logic model and the newly revised logic model. The data collected from the meta-evaluation will be considered interval data and will be analyzed by the T-test. There are several assumptions made about the data being used in a T-Test that must be met before its use. The assumptions are independence of observations, normality of the treatment populations, random sampling, and homogeneity of population variances (Keppel & Wickens, 2004). The assumption of independence is a function of the design of the study and can be fulfilled by randomization techniques. However, both normality and homogeneity of variance assumptions, are functions of the populations and are usually beyond the control of researchers (Lix, Keselman, & Keselman, 1996). The T-Test is used to determine whether there are any significant differences between the means of two or more independent or unrelated groups (Wilcox, 1996).

In addition to the T-Test, the Wilcoxon Rank Sum Test will be conducted. The Wilcoxon Rank Sum Test is the non-parametric alternative to the T-Test, and is critiqued as being a more powerful and robust test (Sawilowsky, 2005). "When normality is met or nearly met (which occurs rarely), the t test maintains a very small power advantage over the Wilcoxon Rank Sum / Mann-Whitney U-Test. When normality is violated, the Wilcoxon Rank Sum Test can be three or four times more powerful than the independent samples T-Test" (Sawilowsky, 2005, p. 598). For these

reasons, both the T-Test and the Wilcoxon Rank Sum Tests will be conducted in order to determine if there are statistically significant differences among the original and revised logic model scores from the meta-evaluation.

CHAPTER 4 – RESULTS

The purpose of this study was to produce a revised logic model based on the Joint Committee on Standards for Educational Evaluation (1994) and Stufflebeam's research (2001). A retrospective, descriptive research design was used on data obtained from the fall 2007, 2008, 2009, and 2010 cohorts that were admitted in the Learning Community at the Midwestern Higher Education Institution. This included existing, historical, student data that can be assessed in the institutions Student Tracking and Advising Retention System (STARS). STARS is an integrated database system used to coordinate and manage student information. The sample was obtained from the Cohort Tracking Tool (CTT) Report which was found in the STARS database. The CTT report included the following parameters: term starts – fall 2007, 2008, 2009, and 2010; level – undergraduate; program – undergraduate in Liberal Arts and Sciences; major – Learning Community; enrollment status – registered in fall 2007, 2008, 2009, and 2010. The independent variable for the study is students who belong in the Learning Community during the fall 2007, 2008, 2009, and 2010 cohorts. The dependent variables for the study included student's GPA and graduation data. The collected variable data was entered into SPSS Version 23, a statistical software package on the PI's password protected laptop. No other data collection instruments were used. Descriptive and inferential statistical tests were also performed using SPSS.

STARS data was used to help assess the two different logic models. The data helped to determine if the learning community educational program being evaluated was effective or not and was needed in order to conduct the program evaluations. The same data was used for both of the two logic models and helped to ultimately decide which logic model was more effective based upon the meta-evaluation results. Student's data was used to help determine the overall effectiveness of the program based on the program theory. After the two logic model evaluations were conducted a meta-evaluation was completed for both logic model evaluations. Comparisons

and analysis were made in order to determine which logic model was more effective, based on program evaluation standards.

Preliminary Analyses

Creating the Newly Revised Logic Model

The first research questions in this study was, **"Are evaluation standard characteristics missing from the original logic model?"** The Newly Revised Logic Model was created based on the evaluation standards found within The Program Evaluation Standards from the Joint Committee on Standards for Educational Evaluation (1994) and Stufflebeam's (2001) Evaluation Models. Both of these resources indicated there were standards missing from the logic model that are seen in other questions and methods approaches.

Both the outcome/value added approach and case study approach included evaluation standard characteristics missing from the Theory-Based Approach, which include logic models. It was found that the following items were missing from the original logic model: Methods (Cross-Break Tables), Consideration for Contextual Influences, and Rejection of Artificial Cut-Scores.

The second research question in this study was, **"What program evaluation characteristics, seen in other similar standardized models, help to make them more efficient and capable?"** In order to help make the logic model more standardized and comparable to other questions and methods approaches the following characteristics were added: Chi-Square test, rejection of artificial cut-scores, consideration of contextual influences, logic model flow chart, and stakeholder interviews.

It was found that the original logic model had the following limitations and missing evaluation standards, and needed revisions. Table 5 below shows the limitations seen in the original logic model, the evaluation standards related to those limitations, and the revised logic model revisions established in order to change the original model and make it more standardized

and effective. Note the limitations "No Relevant Information" and "No Accountability" were added to the list after observations of both models and the identification of insufficient evaluation standards.

Table 5. Logic Model Limitations, Insufficient Evaluation Standards, and Revisions

Limitations	Evaluation Standards	Revisions
No Methods	Feasibility	Chi-Square Test
No Contextual Influences	Accuracy	Program Theory Research/Validation
No Rejection of Artificial Cut Scores	Accuracy	Reject Artificial Cut Scores
Time Consuming & Costly	Accuracy	Logic Model Flow-Chart
No Relevant Information	Utility	Stakeholder Interview
No Accountability	Evaluation Accountability	Meta-Evaluation

Results of the Stakeholder Interview

During the program evaluation of the learning community a stakeholder interview was performed in order to discover the program's theory of change which would later be translated into the logic model seen below in Table 6. Actual responses from the stakeholder interview can be found in the Appendix. Results from the stakeholder interview revealed key information for logic model development including the following: inputs, activities, outputs, and outcomes. Information gained from the stakeholder interview was based on the current state of the learning community program and not on the retrospective data that was collected from STARS. The inputs of the program include the following resources: funding, project manager, instructors, and peer mentors. The activities for the learning community are as follows: first year seminar, meetings with project

manager, peer mentor program, community service activities, recognition ceremony, study day, and freshmen welcome and orientation. The outputs for the learning community include the following program results: 65% student participation (based on students who meet with the project manager and or peer mentor) and 69% of students maintain the minimum GPA requirement of 2.5. The outcomes for the learning community include the following: students graduate with leadership skills, students become more engage in the university, and students become more engaged in the community.

Results from the Original Logic Model Evaluation of the Learning Community

The logic model seen below in Table 5 was the result of the stakeholder interview. The original logic model method was complete after the logic model had been developed.

Table 6. Logic Model of the Learning Community Educational Program

Logic Model of Learning Community Educational Program			
Inputs	**Activities**	**Outputs**	**Outcomes**
Funding	First Year Seminar	65% Student Participation	Students graduate with leadership skills
Project Manager	Meetings with Project Manager	69% of Students maintain 2.5 GPA	Students become more engaged in the university
Instructors	Peer Mentor Program	Collaboration and support from other departments on campus	Students become more involved in the community
Peer Mentors	Community Service Activities		
	Recognition Ceremony		
	Study Day		
	Freshmen Welcome and Orientation		

Results from the Newly Revised Logic Model Evaluation of the Learning Community

Based on the information learned from the stakeholder interview and the development of the revised logic model it became clear that the completion of the revised logic model evaluation would be based on the analysis of two important factors, in order to determine the learning community program effectiveness. Those two factors included student's GPA and student's graduation rates.

Table 6 below reflects the two factors as they relate to the program in a comparison table based on High GPA, which is a 2.5 or higher GPA and Low GPA, which is a 2.49 GPA or lower. Of the students with high GPA's nearly 40% graduated from college, compared to students with Low GPA's with only 2.8% or 1 student who reached graduation. Figure 6 below also reflects this comparison visually.

Table 7. Combined GPA and Graduation Comparison

Combined GPA and Graduation Comparison		
	High GPA (2.5 or higher)	**Low GPA (2.49 or below)**
Graduated	39.2% (29)	2.8% (1)
Did not Graduate	60.8% (45)	97.2% (35)
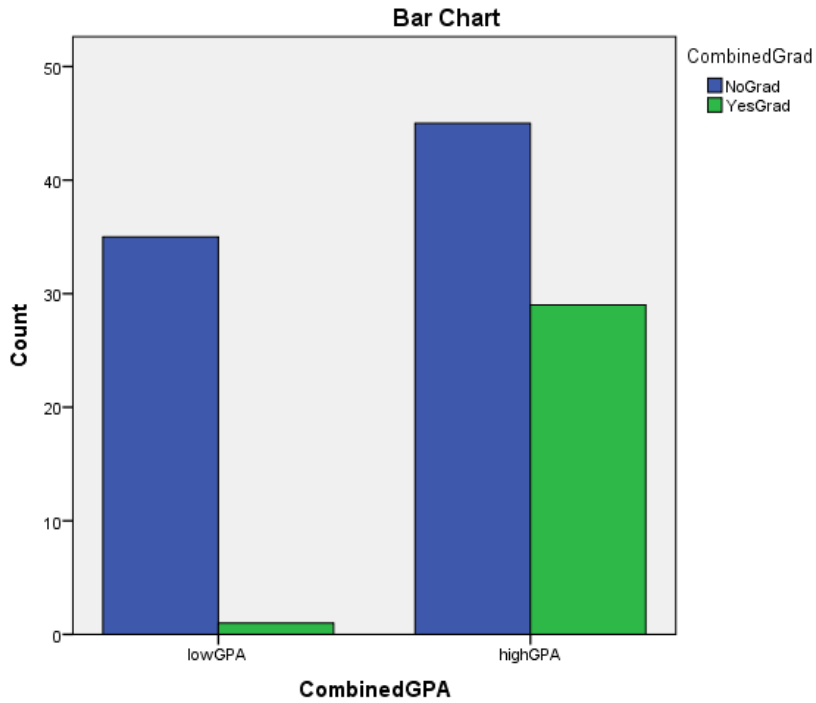
Figure 5. Bar chart of High and Low GPA with Graduation Comparison

Table 8. Combined GPA and Graduation Cross-tabulation

			Combined Grad		Total
			No Grad	Yes Grad	
Combined GPA	**Low GPA**	**Count**	35	1	36
		Expected Count	26.2	9.8	36.0
		% within Combined GPA	97.2%	2.8%	100%
		% within Combined Grad	43.8%	3.3%	32.7%
	High GPA	Count	45	29	74
		Expected Count	53.8	20.2	74.0
		% within Combined GPA	60.8%	39.2%	100%
		% within Combined Grad	56.3%	96.7%	67.3%
Total		Count	80	30	110
		Expected Count	80.0	30.0	110
		% within Combined GPA	72.7%	27.3%	100.0%
		% within Combined Grad	100.0%	100.0%	100.0%

Learning Community data, which included student's GPA and student's graduation rates, were pulled from STARS and a Chi-Square test was conducted in order to determine the association between the two variables. The Chi-Square test results can be found below in Table 7. The Chi-Square test indicated a Chi-Square value of 16.188 and a significance or p-value of .000. These values indicate there is a statistically significant association between students who earn 2.5 or higher GPAs and graduation. The association between GPA and graduation is that students with high GPAs graduate more frequently than those with low GPAs. These results helped to support the GPA requirement that the program has put in place and show that the program is effective at identifying where students need to be academically in order to graduate.

Table 9. Chi-Square Test Results

	Value	Df	Asymptotic Significance (2-sided)	Exact Significance (2-sided)	Exact Significance (1-sided)
Pearson Chi-Square	16.188[a]	1	.000		
Continuity Correction	14.404	1	.000		
Likelihood Ratio	20.672	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	16.041	1	.000		
N of Valid Cases	110	1			

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.82.

b. Computed only for a 2x2 table

The Chi-Square test results indicated there was a statistically significant difference between GPA and Graduation. The Pearson's r value seen below in Table 8 shows a value of .384. Pearson r helps to determine the strength of association between variables. The .384

Pearson r value shows that the strength of the relationship between GPA and Graduation is moderate.

Table 10. Symmetric Measures Results

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Nominal by Nominal	Phi	.384			.000
	Cramer's V	.384			.000
Interval by Interval	Pearson's R	.384	.058	4.317	.000[c]
Ordinal by Ordinal	Spearman Correlation	.384	.058	4.317	.000[c]
N of Valid Cases		110			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Analyses for Main Research Question

The meta-evaluation results of utility standards for the original logic model and the newly revised logic model can be seen below in Table 9. The results indicated that the original logic model achieved 4 out of 8 utility standards, and the newly revised logic model achieved 8 out of 8 utility standards.

Table 11. Meta-Evaluation Utility Standard Results of the Original and Newly Revised Logic Models

Meta-Evaluation Utility Standards		
Utility Standards	**Original Logic Model**	**Newly Revised Logic Model**
U1 Evaluator Credibility	X	X

U2 Attention to Stakeholders		X
U3 Negotiated Purposes		X
U4 Explicit Values	X	X
U5 Relevant Information		X
U6 Meaningful Process and Products		
U7 Timely and Appropriate Communicating and Reporting	X	X
U8 Concern for Consequences and Influence		X

U1, evaluator credibility, demonstrate that the evaluation was conducted by a qualified person who maintains credibility throughout the evaluation (Joint Committee on Standards for Educational Evaluation, 1994). Both evaluations being conducted under the supervision of an advisor in the evaluation field gives credibility to the evaluations of the original and newly revised logic models. U2, attention to stakeholders, indicates the evaluator should devote attention to stakeholders involved in the evaluation (Joint Committee on Standards for Educational Evaluation, 1994). This evaluation standard was accomplished by the revised logic model but not by the original logic model. U3, negotiated purposes, means the evaluation purpose is identified and continuously negotiated with stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). The evaluation purposes were continuously negotiated throughout and during the revised logic model evaluations. U4, explicit values, means the evaluation should allow for clarity as it relates to the cultural underpinnings of purpose, process, and judgement (Joint Committee on Standards for Educational Evaluation, 1994). This information was gained from the

stakeholder interview and was present for both the original and newly revised logic model evaluations.

U5, relevant information, shows that the evaluation provides relevant information for stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). Information gained from the stakeholder interview revealed that the stakeholder was ultimately concerned about graduation rates and if students' required GPA was related to their graduation. This information was not gained from the original logic model but could be drawn from the newly revised logic model. U6, meaningful processes and products, means that evaluators should implement activities, descriptions, and judgements in ways that help participants reevaluate their understanding and behavior (Joint Committee on Standards for Educational Evaluation, 1994). This utility standard was not present for either evaluation based on the fact that this is a retrospective study and activities for the program were created and implemented previously.

U7, timely and appropriate communicating and reporting, means the evaluation is continuously attending to the information needs of the audiences involved (Joint Committee on Standards for Educational Evaluation, 1994). The information needs of audiences was accomplished by both the original and newly revised logic models. U8, concerns for consequences and influence, means the evaluation should promote responsible use and guard against negative and misuse (Joint Committee on Standards for Educational Evaluation, 1994). The original logic model has nothing put in place to assure this utility standard. The newly revised logic model has the flowchart to help promote proper logic model use.

Table 12. Meta-Evaluation Feasibility Standard Results of the Original and Newly Revised Logic Models

Meta-Evaluation Feasibility Standards		
Feasibility Standards	**Original Logic Model**	**Newly Revised Logic Model**

F1 Project Management		X
F2 Practical Procedures		X
F3 Contextual Validity		X
F4 Resource Use	X	X

The feasibility standard F1, project management means, program evaluations should employ the most effective project management policies (Joint Committee on Standards for Educational Evaluation, 1994). Effective project management policies were not present in the original logic model evaluation but these strategies were seen and implemented in the newly revised logic model and this feasibility standard was supported by the newly revised logic model flow chart. F2, practical procedures, means program evaluation procedures should uphold practical and responsive to the program operations (Joint Committee on Standards for Educational Evaluation, 1994). This evaluation standard was seen in the newly revised logic model but not represented in the original model. F3, contextual validity, means program evaluations should be responsible for recognizing, monitoring, and balancing the cultural and political interest of all stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). This feasibility standard was accomplished because of the stakeholder interview. Although both evaluations included the stakeholder interview, the original logic model did not meet this standard because the original logic model does not state that a stakeholder interview is necessary. F4, resource use, means program evaluations are responsible for using resources as effectively and efficiently as possible (Joint Committee on Standards for Educational Evaluation, 1994). The newly revised logic model evaluation met this standard; however, it was not met in the original logic model evaluation.

Table 13. **Meta-Evaluation Proprietary Standard Results of the Original and Newly Revised Logic Models**

Meta-Evaluation Proprietary Standards		
Proprietary Standards	Original Logic Model	Newly Revised Logic Model
P1 Responsive and Inclusive Orientation		X
P2 Formal Agreements		X
P3 Human Rights and Respect	X	X
P4 Clarity and Fairness		X
P5 Transparency and Disclosure		X
P6 Conflicts of Interest		X
P7 Fiscal Responsibility		

Proprietary standard P1, Responsive and Inclusive Orientation, means program evaluations have a responsibility to be responsive to stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). The original logic model evaluation did not meet this standard due to the fact that the evaluation is summative, but the newly revised logic model does meet this standard. P2, formal agreements, means program evaluation expectations should be made explicit in order to assure the needs, expectations, and cultural contexts of clients (Joint Committee on Standards for Educational Evaluation, 1994). This standard was accomplished by the newly revised logic model but was not achieved with the original model. P3, human rights and respect, means program evaluations should be designed and conducted in a way that helps to protect the human and legal rights of participants and stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). Both the original logic model and the newly revised logic model achieved this standard. P4, clarity and fairness, means program evaluations should maintain

understanding and fairness for addressing the needs and purposes of stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). This standard was achieved with the newly revised logic model evaluation but was not with the original logic model evaluation. P5, transparency and disclosure, means program evaluations should deliver comprehensive explanations of findings, limitations, and conclusions to all stakeholders (Joint Committee on Standards for Educational Evaluation, 1994). This standard was accomplished by the newly revised logic model but not by the original logic model evaluation. P6, conflicts of interest, means evaluations should identify all real or perceived conflicts of interest that may compromise the evaluation (Joint Committee on Standards for Educational Evaluation, 1994). This standard was achieved by the newly revised logic model evaluation but was not achieved by the original logic model evaluation. P7, fiscal responsibility, is the assurance that program evaluations interpret all consumed resources and fulfil comprehensive financial procedures (Joint Committee on Standards for Educational Evaluation, 1994). This standard was not achieved by either of the logic model evaluations.

Table 14. Meta-Evaluation Accuracy Standard Results of the Original and Newly Revised Logic Models

Meta-Evaluation Accuracy Standards		
Accuracy Standards	**Original Logic Model**	**Newly Revised Logic Model**
A1 Justified Conclusions and Decisions		X
A2 Valid Information		X
A3 Reliable Information		X
A4 Explicit Program and Context Description	X	X
A5 Information Management	X	X

A6 Sound Designs and Analysis		X
A7 Explicit Evaluation Reasoning		X
A8 Communication and Reporting	X	X

Accuracy standard A1, justified conclusions and decisions, means program evaluation assumptions should be clearly justified in the culture and context of the program (Joint Committee on Standards for Educational Evaluation, 1994). This accuracy standard was adopted by the newly revised logic model evaluation but not in the original logic model evaluation. A2, valid information, means the program evaluation should evaluate what it was intended to and support valid interpretations (Joint Committee on Standards for Educational Evaluation, 1994). The original logic model evaluation did not meet this standard but the newly revised logic model did meet this standard. A3, reliable information, means the procedures within the evaluation should yield dependable information for users (Joint Committee on Standards for Educational Evaluation, 1994). The newly revised logic model evaluation achieved this standard but the original logic model evaluation did not. A4, explicit program and context descriptions, means programs should be documented along with their context in detail for evaluation purposes (Joint Committee on Standards for Educational Evaluation, 1994). Both logic model evaluations met this standard. A5, information management, means program evaluations should utilize systematic information collection, review, verification, and storage methods (Joint Committee on Standards for Educational Evaluation, 1994). Both logic model evaluations accomplished this standard. A6, sound design and analysis, means program evaluations should use design and analysis that is appropriate for the evaluation (Joint Committee on Standards for Educational Evaluation, 1994).

This standard is not met by the original logic model evaluation but is met by the newly revised logic model evaluation. A7, explicit evaluation reasoning, means all program evaluation reasoning should be clearly documented (Joint Committee on Standards for Educational Evaluation, 1994). This standard was not achieved by the original logic model evaluation but was achieved in the newly revised logic model evaluation. A8, communication and reporting, means communication should have a guard against misconceptions, biases, distortions, and errors (Joint Committee on Standards for Educational Evaluation, 1994). Both logic model evaluations accomplished this standard.

Table 15. Meta-Evaluation Evaluation Accountability Standard Results of the Original and Newly Revised Logic Models

Meta-Evaluation Evaluation Accountability Standards		
Evaluation Accountability	**Original Logic Model**	**Newly Revised Logic Model**
E1 Evaluation Documentation		X
E2 Internal Meta-Evaluation		X
E3 External Meta-Evaluation		X

Evaluation accountability standard E1, evaluation documentation, means program evaluations should document their purposes, designs, procedures, data, and outcomes (Joint Committee on Standards for Educational Evaluation, 1994). This standard was accomplished by the newly revised logic model evaluation but not by the original logic model evaluation. E2, internal meta-evaluation, means evaluators should use evaluation standards and other relevant standards to examine the accountability of the evaluation design, procedures, data, and outcomes (Joint Committee on Standards for Educational Evaluation, 1994). This standard was met by the

revised logic model but not by the original logic model evaluation. E3, external meta-evaluation, means program evaluation stakeholders should encourage external meta-evaluations using evaluation standards and other relevant standards (Joint Committee on Standards for Educational Evaluation, 1994). This standard was not accomplished by either logic model evaluation.

Meta-Evaluation Results

The main research question for this study was, **"Will the logic model become more effective after improving limitations and reevaluating its evaluation standards and guidelines?"** The meta-evaluation results from the original and newly revised logic models were used to conduct a T-Test and Wilcoxon Rank Sum Test, to determine if there were statically significant differences between the meta-evaluation results for the original logic model and the newly revised logic model.

Compiled in Table 16 is the total mean score for the revised logic model meta-evaluation was .93 while the mean score for the original logic model meta-evaluation was .27. This demonstrates that the revised logic model is more favorable with evaluation standards than the original logic model, but these values do not show statistical significance. Table 17 below shows the results of the T-Test which revealed a 2-tailed significance value (p-value) of .000. Therefore, the null-hypothesis was rejected in favor of a statistically significant difference between the original logic model scores and the revised logic model scores. As seen in Table 16, this study found that the revised logic model had a statistically significantly higher overall effectiveness (.93 ± .254 scores) at the end of the learning community program evaluation compared to the original logic model (.27 ± .450 scores), $t(58) = -7.071$, p = .000. The Wilcoxon Rank Sum Test results are listed below in Table 18, and indicate an exact p-value of .031 which is a statistically significant

value. The T-Test and the Wilcoxon Rank Sum Test both revealed a statistically significant p-value in favor of the revised logic model.

Table 16. Group Statistics Table: Original and Newly Revised Logic Model Meta-Evaluation

	Group	N	Mean	Std. Deviation	Std. Error Mean
Scores	Original	30	.27	.450	.082
	Revised	30	.93	.254	.046

Table 17. T-Test Table: Original and Newly Revised Logic Model Meta-Evaluation

		Equal Variances Assumed	Equal Variances Not Assumed
Levene's Test for Equal Variances	F	23.087	
	Sig	.000	
Test for Equality of Means	t	-7.071	-7.071
	df	58	45.758
	Sig. (2-tailed)	.000	.000
	Mean Difference	-.667	-.667
	Std. Error Difference	.094	.094
	95% Confidence Interval of the Difference — Lower	-.855	-.478
	95% Confidence Interval of the Difference — Upper	-.856	-.477

Table 18. Wilcoxon Rank Sum Test Table: Original and Newly Revised Logic Model Meta-Evaluation Scores

	Revised – Original
Z	-2.041[b]
Asymp. Sig. (2-tailed)	.041
Exact Sig. (2-tailed)	.063
Exact Sig. (1-tailed)	.031
Point Probability	.031

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

CHAPTER 5 – DISCUSSION

The purpose of this study was to produce a revised logic model based on the Joint Committee on Standards for Educational Evaluation (1994) and Stufflebeam's research (2001). A retrospective, descriptive research design was used on data obtained from the fall 2007, 2008, 2009, and 2010 cohorts that were admitted in the Learning Community at the Midwestern Higher Education Institution. The independent variable for the study is students who belong in the Learning Community during the fall 2007, 2008, 2009, and 2010 cohorts. The dependent variables for the study included students' GPA and graduation data.

This study was devoted to creating a newly revised logic model in order to test this model and the original model on a learning community educational program. The second phase of this study was to determine which logic model is more effective at evaluating the learning community program.

The stakeholder interview exposed the program's theory of change and the most relevant factors related to the learning community program's success, students' GPA and graduation. After the newly revised logic model was completed, it was determined the learning community program was effective at defining an appropriate threshold GPA for students in the learning community program. It was also determined that there was a significant relationship between GPA and graduation for students in the learning community program, and the threshold GPA used was a good indicator of graduation for students. Lastly, the meta-evaluation determined that the newly revised logic model was more effective than the original logic model.

To review, the research questions for this study included the following:

• Are evaluation standard characteristics missing from the original logic model?

• Which program evaluation characteristics, seen in other similar standardized models, help to make them more efficient and capable?

- Main Research Question: Will the logic model change and become more effective after addressing limitations and reevaluating its evaluation standards and guidelines?

Interpretation of Findings

This study revealed logic models have the potential to contribute greatly to educational programs as well as the field of program evaluation, with the addition of evaluation standards and research from Stufflebeam (2001). In consideration of the research found in Stufflebeam's (2001) *Evaluation Models,* the following additions were made to the revised logic model: Chi-Square test (which provides Cross-Break tables), the rejection of artificial cut scores, and the consideration of contextual influences. Given the program evaluation standards created by the Joint Committee on Standards for Educational Evaluation, the following additions were made: logic model flow chart, program theory identification, meta-evaluation.

Learning Community Findings

The independent variable in the study was students from the learning community at the Midwestern Higher Education Institution, and the dependent variables were student GPA and graduation status. The Chi-Square test indicated a statistically significant association between students who earn 2.5 or higher GPAs and graduation. The association between GPA and graduation is that students with high GPAs graduate more frequently than those with low GPAs. These results helped to support the GPA requirement that the program has put in place and show that the program is effective at identifying where students need to be academically in order to graduate.

The Chi-Square test results indicated there was a statistically significant difference ($p = .000$) between GPA and Graduation. Pearson r value helps to determine the strength of association

between variables. The Pearson's r value of .384 (p = .000) indicated the relationship between GPA and Graduation was almost moderate, but it was statistically significant for the sample size.

Therefore, the program evaluation of the learning community revealed the program has maintained a successful GPA for the students at the Midwestern Higher Education Institution who participate in this particular learning community. This GPA may not be suitable for other programs because of the very distinct nature and culture of the learning community used in this study.

Meta-Evaluation Findings

The mean score for the revised logic model meta-evaluation was .93, while the mean score for the original logic model meta-evaluation was .27. This demonstrated that the revised logic model is more promising than the original logic model because the revised logic model scored two times higher than the original model. As a result, the null-hypothesis was rejected in favor of a statistically significant difference favoring the results obtained from the revised logic model.

Theory-oriented evaluation models have become more recognized in program evaluations, and the logic model has been used widely because of this (Fitzpatrick et al., 2012). The objectives of this study was to transform the original logic model from being a static "framework" that is less amenable to change into a more dynamic and hence nimble evaluation model. This study helps to address the research found from Stufflebeam (2001) which indicated that program theory-based approaches, such as the logic model, were one of the worst in the field. Others, such as Suchman (1967), Langford (2010), and Weiss (1988), did not even consider the logic model a model at all, instead labeled it a "framework". "The logic model does not dictate any prescribed method or evaluation, nor does it imply any kind of evaluation model" (Bolden, 2007, p. 57). However, Stufflebeam's research, along with many others, did not discuss how to improve the logic model, and that is what is missing from the literature. This study, therefore, was designed to serve as a

catalyst to more research on this topic and improvements in the field of program evaluation and research.

The logic model findings from this study will help to promote research and program evaluation dialogue that will ultimately contribute to improving the field of program evaluation. Based on the findings from this study, further research could be done in many areas in order to help promote a more accurate logic model. Further investigation could be made in order to discover how other models could be improved. For example, Stufflebeam mentioned that there were four other approaches that he found needed improvements which included the following: politically controlled, public relations, accountability, and clarification hearings. Further investigation could be conducted in order to test methods that fit with these approaches in order to improve them.

Limitations

Threats to validity that are relevant to retrospective studies include history, maturation, selection bias, and single group threat. The single group threat is one that qualified as a threat to this particular study. Single group threat is when there is a lack of comparison or control group (Tofthagen, 2012). In order to control for this threat a comparison group was created from within the sample where major distinctions were made from the logic model interview.

In this study, external validity, generalizability, was a limitation as well. The participants were from the Midwestern Higher Education Institution, were Pell grant eligible, and had similar backgrounds. This homogeneity qualifies as a threat to validity. Therefore, the results of this study can only be generalized with caution to other programs. In addition, the sample was altered because participants who were not 18 or older could not be used in the study. This was limiting because it may have compromised variation within the sample, and the smaller sample size may have adversely affected the power of the study.

Recommendations for Future Research

The main goal of this research was to determine the effectiveness of the original logic model and how to make this model better educational evaluation method. This study did find that by adding more standards to the original logic model, the revised model did become more effective. However, more research could be done in order to determine which evaluation standards are most important to the logic model's effectiveness. This research could be used to help determine which groups from the meta-evaluation show the most difference.

Further research should be conducted in order to determine more ways to improve the logic model and other educational evaluation models and methods. For example, what other methods or statistical analyses could be added to the logic model in order to improve its use. This type of research can help to strengthen the models we currently use as well as offer more professional growth to the field of educational program evaluation.

Further research could also be done to help educational programs such as the learning community used in this study and determine what other factors or program elements help to promote graduation rates in college settings. This research can help universities and colleges to better support their students and ultimately help them to achieve academic success.

Conclusion

The main research question for this study was "Will the logic model become more effective after improving its limitations and reevaluating its evaluation standards?" The logic model was improved by adding various components that all helped to make the model more comparable to other similar models such as outcome/value added approaches and case study approach. Educational evaluations standards were the main focus for consideration for logic model revisions and what exactly would be added to the logic model. Evaluation standards are what helped to make

the program evaluation field a profession and continuous research in this field is needed in order

to continue to make the field relevant. This study, like others done previously, stands as an agent

of change for more developments and research for the logic model and others like it.

APPENDIX

Stakeholder Interview

Interview Questions	Interview Answers
What is the mission of the Learning Community?	The mission of the Learning Community is to support talented students to excel in academics, leadership, and service learning and to engage and maximize the academic talents of the Scholars throughout their learning experiences.
What are the goals of the learning community?	The goals of the learning community are that the scholars will develop a clear understanding of themselves as learners and will develop and strengthen the skills necessary to persist successfully as students and graduate.
What is the expected outcome of this program?	It is expected that with the support of LC staff, peer mentors and positive connections across campus, scholars will graduate from college as leaders in the community who also give back to the community.
Which problem is the program designed to solve?	In 2005, university leaders recognized that although Public School graduates who came to the university with particular scholarships had significant funding support, many still needed the social and academic support necessary to have successful college experiences. With generous funding support the Learning Community was developed to provide students with academic and social support.
Who is the program designed to help?	The program serves students who have earned two specific scholarships at the university.
Which activities are in place to help solve this problem?	Scholars have regular meetings with the learning community's Project Manager and are matched with Peer Mentors who are trained to help provide peer support. The Project Manager and Peer Mentors insure that all Scholars are aware of and take advantage of campus resources. Recognition events and programs highlight the scholars' successes and serve to reinforce the supportive networks the scholars have established. Community service projects help the scholars take ownership of the contributions they make in their communities and provide leadership

	opportunities. These experiences help strengthen the sense of belonging necessary for our Scholars to persist and graduate.
Which key characteristics make up a successful scholar? What does a successful program look like?	Successful scholars embrace challenges and seek out support to address them. They understand their strengths and learn ways to address opportunities for development. They ask questions and are open to the answers. Ultimately, successful scholars maintain high academic achievement, participate fully in the program, and persist to graduation.
What does a successful program look like?	The most successful program leaves plenty of room for students to grow.
How has the program changed over the years?	The most significant change since 2006 is the enhanced opportunity for students to engage in leadership development through community service projects.
If you had the opportunity to have a full scale evaluation of the LC and cost and time were not an issue, what would you want to evaluate?	It would be most helpful for us to understand how to more fully engage Scholars who feel overwhelmed and choose not take advantage of the supports built into the LC. Many scholars are quite busy with academics and family obligations and cannot find the time to participate, despite efforts of the Project Manager or Peer Mentors. We have seen that participation equals higher GPAs which we believe leads more graduates to finish the program.

REFERENCES

American Evaluation Association (2003). American Evaluation Association Guiding Principles for Evaluators. Retrieved from http://www.eva;.org/d/do/594

Astin, A. W. (1999). Student involvement: A Developmental theory for higher education. *Journal of College Student Development*, 40 (5), 518-529.

Baier, S. T. (2014). The Role of academic factors, self-efficacy, mentoring relationships, and learning communities in persistence and academic success of freshmen college students (Doctoral Dissertation). *Wayne State University Dissertations*. Paper 870.

Bandura, A. (1971). Social learning theory. *In Learning Theories*. Retrieved from http://www.learning-theories.com/social-learning-theory-bandura.html

Birckmayer, J. D. & Weiss, C. H. (2000). Theory-based evaluation in practice what do we learn? *Evaluation Review*, 24 (4), 407-431.

Brower, A. M. & Inkelas, K. K. (2007). Assessing learning community programs and partnerships. *Learning Communities and Educational Reform,* Summer, 1-11.

Bolden, K. F. (2007). *Applying Logic Modeling to the Higher Education Accreditation Process* (Doctoral Dissertation). Retrieved from UMI. (UMI no 3313774).

Campbell, D. & Stanley, J. (1963). Experimental and quasi-experimental designs for research. Chicago, IL: Rand-McNally.

Chen, H. T. (1990). *Theory-driven evaluations.* Newbury Park, California: SAGE Publications, Inc.

Chen, H. T. (2015). *Practical Program Evaluation: Theory-Driven Evaluation and the Integrated Evaluation Perspective (2nd ed.).* California: Sage Publications, Inc.

Christie, C. A., & Alkin, M. C. (2013). An evaluation theory tree. *Evaluation Roots: A Wider*

Perspective of Theorists' Views and Influences, 11-57.

Cooksy, L. J. & Caracelli, V. J. (2009). Metaevaluation in practice: Selection and application of criteria. *Journal of MultiDisciplinary Evaluation,* 6 (11), 1-15.

Cooksy, L. J., Gill, P., & Kelly, P. A. (2001). The Program logic model as an integrative framework for a multimethod evaluation. *Evaluation and Program Planning*, 24 (2), 119-128.

Cooper, J. (2009). *Developing and Using a Logic Model for Evaluation and Assessment of University Student Affairs Programming: A Case Study* (Doctoral Dissertation). Retrieved from UMI. (UMI no 3375267).

Davis, R. W. (2000). *Using Program Theory to Improve Social Program Evaluation: A Qualitative Study of the College Reach-Out Program in Florida* (Doctoral Thesis). Retrieved from UMI. (UMI no 9968299).

Dryer, J. J. M. & Makin, S. (1997). Using a program logic model that focuses on performance measurement to develop a program. *Canadian Journal of Public Health*, 88 (6), 421-425.

D'Souza, A. J. (2003). *An Evaluation of a Residential Learning Community Using Tinto's Model of Institutional Departure* (Doctoral Dissertation). Retrieved from UMI. (UMI no 310575).

Dwyer, C. A. (1996). Cut scores and testing: Statistics, judgement, truth, and error. *Psychological Assessment*, 8 (4), 360-362.

Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2012). *Program evaluation: Alternative approaches and practical guidelines (4th ed.).* Boston, Massachusetts: Pearson.

Frechtling, J. A. (2007). Logic Modeling Methods in Program Evaluation. San Francisco, California: Jossey- Bass.

Gabelnick, F., MacGregor, J., Mathews, R. S., and Smith, B. L. (1990). Learning community foundations. *New Directions for Teaching and Learning*, 41, 5-18.

Gardner, J. N. (1986). The freshmen year experience. *College and University*, 61 (4), 261-274.

Guba, E. G. (1990). *The Paradigm dialog.* Newbury Park, California: Sage Publications, Inc.

Hanssen, C. E., Lawrenz, F., & Dunet, D. O. (2008). Concurrent meta-evaluation: A critique. *American Journal of Evaluation,* 29 (4), 572-582.

Joint Committee on Standards for Educational Evaluation (1981). *Standards for evaluations of educational programs, projects, and materials.* New York, New York: McGraw-Hill Book Company.

Joint Committee on Standards for Educational Evaluation (1994). *The Program evaluation standards (2ⁿᵈ ed.).* Thousand Oaks, California: Sage Publication.

Johnson, B. (2001). Toward a new classification of nonexperimental quantitative research. *Educational Researcher, 30(2),* 3-13.

Julian, D. A. (1997). The Utilization of the logic model as a system level planning and evaluation device. *Evaluation and Program Planning*, 20 (3), 251-257.

Kahrig, T. (2005). *An Evaluation of the Residential Learning Communities Program at Ohio State University: An Analysis of Student Involvement, Satisfaction, Academic Success, and Retention* (Doctoral Dissertation). Retrieved from UMI. (UMI no 3197298).

Keppel, G. & Wickens, T. D. (2004). *Design and Analysis: A Researcher's Handbook (4ᵗʰ ed.).* Upper Saddle River, New Jersey: Pearson Prentice Hall.

Langford, L.L. (2010). *The Development and testing of an evaluation model for special education* (Doctoral Dissertation). Retrieved from UMI. (UMI no 3417501).

Lee, P. L. (2011). What's wrong with logic model? *LCSA*: Occasional Paper no 1. Retrieved May 26, 2015, from https://www.lcsansw.org.au/innovate-and-engage/lcsa-occasional-papers.

Lenning, O. T. & Ebbers, L. H. (1999). The Powerful potential of learning communities: Improving education for the future. *ASHE – ERIC Higher Education Report*, 26 (6), 1-173.

Levine, J. H. & Shapiro, N. S. (2000). Curricular learning communities. *New Directions for Higher Education*, 2000 (109), 13-22.

Lix, L. M., Keselman, J. C., & Keselman, H. J. (1996). Consequences of assumption violations revisited: A quantitative review of alternatives to the one-way analysis of variance f test. *Review of Educational Research,* 66 (4), 579-619.

Madaus, G. F., Scriven, M., & Stufflebeam, D.L. (1983). *Evaluation models*. Norwell, Massachusetts: Kluwer Nijhoff Publishing.

Mann, C. J. (2003). Observational research methods. Reseach design II: cohort, cross sectional, And case-control studies. *Emergency Medicine Journal,* 20, 54-60.

Patten, M. L. (2007). *Understanding Research Methods: An Overview of the Essentials (6th ed.).* Glendale, California: Pyrczak Publishing.

Patton, M. Q. (2013) Meta-evaluation: Evaluating the evaluation of the Paris Declaration. *The Canadian Journal of Program Evaluation*, 27 (3), 147-171.

Polush, E. Y. (2007). *Program Theory of a USDA Grants Program for use in Evaluation Based on Quantitative Content Analysis and Oral History Analysis* (Doctoral Dissertation). Retrieved from UMI. (UMI no 3283094).

Program Evaluation Resource Center. Date Accessed February 11, 2015. University of North Carolina at Greensboro. Retrieved from http://erm.uncg.edu/oaers/methodology-resources/program-evaluation/.

Provus, M. (1971). *Discrepancy Evaluation*. Berkeley, CA: McCutchan.

Renger, R. & Titcomb, A. (2002). A Three-step approach to teaching logic models. *American Journal of Evaluation*, 23 (4), 493-503.

Rossi, J. S. (2010). Chi-square test. *Corsini Encyclopedia of Psychology*.

Rubin, A. & Bellamy, J. (2012). *Practitioner's job to using research for evidence based practice. (2ⁿᵈ ed.).* Hoboken, NJ: John Wiley & Sons Inc.

Savaya, R. & Waysman, M. (2005). The Logic model. *Administration in Social Work*, 29 (2), 85-103.

Sawilowsky, S. (2005). Misconceptions leading to choosing the t-test over the wilcoxon man whitney test for shift in location parameter. *Theoretical and Behavioral Foundations of Education Faculty Publications*, 4 (2), 598-600.

Schnell, C. A., Louis, K. S., & Doetkott, C. (2003). The First-year seminar as a means of improving college graduation rates. *Journal of Freshmen Year Experience*, 15 (1), 53-76.

Schroeder, C. C., Minor, F. D., & Tarkow, T. A. (1999). Freshmen interest groups: Partnership for promoting success. *New Directions for Student Success*, 87, 37-49.

Scriven, M. (1991). *Evaluation Thesaurus* (4ᵗʰ ed.). New York: Sage.

Sidle, M. W. & McReynolds, J. (1999). The freshmen year experience: Student retention and student success. *NASPA Journal*, 36 (4), 288-300.

Smith, B. L. (2003). Learning communities and liberal education. *Academe*, 3 (3), 4-11.

Smith, B.L. & MacGregor, J. (2009). Learning communities and the quest for quality. *Quality Assurance in Education*, *17* (2), 118-139.

Smith, B. L., Macgregor, J., Matthews, R., & Gabelnick, F. (2009). Learning communities: Reforming undergraduate education. San Francisco, CA: Jossey Bass.

Stake, R.E. (1974). Nine approaches to educational evaluation. Urbana: University of Illinois,

Center for Instructional Research and Curriculum Evaluation.

Stake, R. E. (1976). Evaluating educational programs: The Need and the response. *Organization for Economic Cooperation and Development,* Paris France.

Stufflebeam, D. L. (2001). Evaluation models. *New Directions for Evaluation*, *89*, 7-98.

Stufflebeam, D. L. (2011). Meta-evaluation. *Journal of MultiDisciplinary Evaluation,* 7 (15), 99-158.

Stufflebeam, D. L. & Shinkfield, A. J. (2007). *Evaluation theory, models, and applications*. San Francisco, California: Jossey-Bass.

Suchman, E. A. (1967). *Evaluative Research*. Russel Sage Foundation.

Taylor-Powell, E. (2005). Logic Models: A Framework for Program Planning and Evaluation (Power Point Presentation). Accessed on February 15, 2015, from: www.uwex.edu/ces/pdande/evaluation/pdf/nutritionconf05.pdf

Tinto, V. (1975). Dropout from higher education: A Theoretical synthesis of recent research. *Review of Educational Research*, 45 (1), 89-125.

Tinto, V. (1987). *Leaving College*. Chicago: University of Chicago Press.

Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition*. Chicago: University of Chicago Press.

Tinto, V. (2000). What have we learned about their impact of learning communities on students? *Assessment Update*, 12 (2), 1-2.

Tofthagen, C. (2012). Threats to validity in retrospective studies. *Journal of Advanced Practitioners in Oncology*, 3 (3), 181-183.

United Way of America. A Guide to developing an outcome logic model and measurement plan. Accessed on February 15, 2015, from

http://www.yourunitedway.org/sites/uwaygrp.oneeach.org/files/Guide_for_Logic_Model

s_and_Measurements.pdf

U.S. Department of Justice. Planning the evaluation. *Center for Program Evaluation and*

Performance Measurement. Accessed On February 4, 2015, from

https://www.bja.gov/evaluation/guide/pe4.htm.

Wang, L. (2006). Social learning theories and information literacy teaching activities in higher

education. *Reference and User Services Quarterly*, 47 (2), 149-158.

Weiss, C. H. (1993). Where politics and evaluation research meet. *Evaluation Practice*, 14 (1), 93-

106.

Weiss, C. H. (1998). *Evaluation: Methods for Studying Programs and Policies*. Upper Saddle

River, NJ: Prentice Hall.

Wilcox, R. R. (1996). *Statistics for the Social Sciences.* San Diego, CA: Academic Press.

W.K. Kellogg Foundation. (2003). *Using logic models to bring together planning, evaluation,*

& action: Logic model development guide.

Wholey, J. S. (1981). Using evaluation to improve program performance. *Evaluation Studies*

Review Annual, 6, 55-69.

Wholey, J. S., Hatry, H. P., & Newcomer, K. E. (2010). *Handbook of practical program*

evaluation (3rd ed.). San Francisco, CA: Jossey-Bass.

Yarbrough, D. B., Shulha, L. M., Hopson, R. K., & Caruthers, F. A. (2011). The program

evaluation standards: A guide for evaluators and evaluation users (3rd ed.)

Thousand Oaks, CA: Sage.

Zientek, R. M. (2008). *The Impact of Themed Learning Communities on Academic*

Performance and Retention (Doctoral Dissertation). Retrieved from UMI. (UMI no

3320408).

ABSTRACT

A NEW LOGIC MODEL FOR CHANGE

by

ZSA-ZSA BOOKER

December 2016

Advisor: Dr. Shlomo Sawilowsky

Major: Education, Evaluation, and Research

Degree: Doctor of Philosophy

Logic models are defined as visual diagrams that help to explain the theory of change for a program. Over the years the logic model has become a common tool for educational programs who seek to apply for and obtain grant funding. However, the limitations of the logic model make it ineffective at managing evaluations. This study is a retrospective cohort design. The three main goals of this study are to (1) research logic model limitations and adapt a revised logic model that could effectively evaluate an educational program, (2) test both the original and revised logic models on an educational program, and (3) conduct a meta-evaluation in order to evaluate and compare the original and revised logic models. This will help to determine the two models effectiveness and if the original logic model was improved.

Keywords: logic model, evaluation standards, meta-evaluation

AUTOBIOGRAPHICAL STATEMENT

In 2008 Zsa-Zsa Booker graduated with a Bachelor of Science in Forensic Science from Marygrove College in Detroit, Michigan. In 2012 she graduated with a Master of Science in Library and Information Science from Wayne State University (WSU) in Detroit, Michigan.

Ms. Booker has worked at WSU since 2010, and she currently functions as a Project Manager, Adjunct Instructor, and Data Analysis Consultant. Her primary responsibilities at the university include managing the day-to-day operations of the Comerica Scholars program. Duties related to this position include the following: program development, administrative planning, curriculum development and instruction, and program assessments. Ms. Booker is also employed by Mission Lift in Detroit, Michigan where she is a Data Analysis Consultant and conducts both quantitative and qualitative methods and other related task for clients throughout Southeast Michigan.

Ms. Booker provides service to the community by working with organizations as a volunteer. She provides college and scholarship advice and support to students who participate in the College Club program at the Urban League of Southeastern Michigan. Ms. Booker also serves as a board member for the Pinnacle Achieving Scholars (PAS) Nonprofit Organization which is dedicated to the empowerment of high school students for the successful attainment of a college education.

Ms. Booker is privileged to be a recipient of the coveted Gates Millennium Scholarship (GMS) and has maintained the GMS scholarship from 2004 until the present year, 2016. Ms. Booker uses this fortunate opportunity as a platform to engage youth of the benefits of a college education. Ms. Booker aspires to help bridge the gap with minority representation in higher education by becoming a professional in the field.