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An Analysis of Evaluation Methods Implemented in Studies Published in the Journal of International Agricultural and Extension Education from 1994 to 2018: A 25 Year Review

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Abstract

Evaluation has been identified as a critical pathway to meet the grand challenges facing agriculture to feed the world. Understanding evaluation models and practices used in articles published in the *Journal of International Agricultural and Extension Education* (JIAEE) allowed us to identify areas of focus, need, and improvement. This content analysis assessed JIAEE articles published from 1994 to 2018 for evaluation methods implemented according to characteristics outlined by Stufflebeam and Coryn (2014). This study initially identified 384 possible articles for consideration. Upon further assessment, 81 articles were identified as maintaining characteristics appropriate for review. Of these articles, the majority (70%) did not specifically identify an evaluation approach, even though 21% of all feature articles published over the past 25 years can be considered an evaluation. Few published evaluation articles specifically identified an evaluation approach; rather, the majority merely described the methods without using evaluation terminology, and the majority of the examined articles did not substantially cite evaluation literature (53%). Additionally, the majority of published evaluation articles were quantitative (56%). Researchers publishing in JIAEE should be assured that qualitative and mixed method evaluation studies are also acceptable. Evaluation studies focused on Stufflebeam and Coryn's evaluation criteria of feasibility, safety, equity, and probity should be encouraged. Additionally, workshops or training opportunities to advance understanding in evaluation processes and procedures may be valuable.

Keywords: Evaluation, Evaluation Methods, Content Analysis, JIAEE

Introduction

Evaluation is a critical part of program development as it enables the improvement of both processes and products within international development initiatives. Multiple methods of evaluation have been used to determine both people and programmatic needs and abilities. These have largely been in the areas of human capacity, programmatic needs assessments, program capacity and impact, and to better understand programs through planning, design, and implementation assessments (Baker, Bassegy, Jimoh, & Akande, 2015; Edgar, 2010; Ghimire, Suvedi, Kaplowitz, Richardson, 2017; Harder, Ganput, Moore, Strong, & Lindner, 2013; Jayaratne, Taylor, Edwards, Cartmell, Watters, & Henneberry, 2017; Kanté, Edwards, & Blackwell, 2013; Kelsey, 2018; Meagy, Rashid, Barker, & Islam, 2013). While there are many different models that can be used to guide an evaluation, some methods may be more appropriate than others. Many researchers involved with the Association of International Agricultural and Extension Education (AIAEE) have utilized various evaluation methods. Published evaluation studies focused on approaches such as participatory evaluation (Chouinard, 2013), influences such as pressure on evaluators (Pleger, Sager, Morris, Meyer, & Stockmann, 2017), and settings such as in developing countries (Hansen, Klejnstrup, & Andersen, 2013) can facilitate the design of effective evaluations. As the discipline prepares to celebrate 25 years of knowledge dissemination for the *Journal of International Agricultural Extension Education*, it is appropriate that we analyze our evaluation methods for published articles during that time. This analysis allows us to both celebrate our efforts and identify areas of improvement for the future.

Fitzpatrick, Sanders, and Worthen (2011) noted that evaluation's role was to

improve an organization's performance by "instilling new ways of thinking" (p. 14). Recently, the Association for Public and Land-grant Universities (APLU), an association of more than 230 public research universities and systems in the United States, Canada, and Mexico and is dedicated to strengthening and advancing the work of public universities, developed a Challenge of Change Commission. This Commission identified seven grand challenges that focused on availability, access, and utilization to find better measures to feed the world by 2050 (APLU, Challenge for Change, 2017). Evaluation and assessment were outlined as a critical pathway to meet the demands of these challenges. There has been an increase in funding calls and focus to add social scientists to teams to determine critical needs. The grand challenges facing our world today call for an increased focus on human capacity and program assessment. It is a critical time for social scientists to be at the table, because "these gaps need to be identified, prioritized, and shared to drive the next generation of food and nutrition security discovery, engagement, and learning. Then, the necessary work must occur to help funders, universities, and communities work together to tackle the gaps and share the most successful models" (APLU, Challenge for Change, p. 107).

Using social science methods to collect and analyze data about overall program implementation, fidelity, and performance can assist with better understanding of areas of improvement (Fitzpatrick et al., 2011). "Agricultural extension services exist throughout the world with the primary function to facilitate learning and extend new knowledge and technologies in non-formal educational settings to improve agricultural productivity and increase farmers' incomes" (Suvedi & Vander Stoep, 2016, p. 1).

At the annual conference in 2001, Radhakrishna identified problems, challenges, and strategies for evaluating international agricultural and extension projects. Among his findings were 11 specific problems that ranged from lack of time to limited availability of project data. He also noted four models that were useful to evaluate international agricultural and extension education programs. Those models were: (a) Francine Jacob's evaluation model, (b) Robert Stake's evaluation framework, (c) Rockwell and Bennett's Targeting Outcomes of Program (TOPs) model, and (d) Kirkpatrick's evaluation framework.

Analyzing a publications' literature adds to understanding of where researchers contributing to *JIAEE* are securing their international agriculture and extension education information and provides insight on quality and depth. In 2010, Edgar completed an analysis of *JIAEE* citations from 1997 to 2006 that revealed citation trends. Additionally, Edgar, Rutherford, and Briers (2008) noted that analyzing key areas of research in journals allows for increased understanding on capacity and needs to expand programmatic areas and research and has the potential to identify patterns of publication.

Conceptual Framework

The conceptual framework was based upon defining evaluation and specific approaches associated with the evaluation process. Distinguishing between research and evaluation allowed us to set the stage for the context used in this study. Stufflebeam and Coryn (2014) defined evaluation as “the systematic process of delineating, obtaining, reporting and applying descriptive and judgmental information about some object's merits, worth, probity, feasibility, safety, significance, or equity. The result of an evaluation process is an evaluation as

product” (p. 696). Davidson (2004) defined evaluation as “the determination of something's quality, value, or importance or the product of such a determination” (Davidson, 2004, p. 240). Davidson (2004) further explained that research focuses on explaining “what's so” and evaluation answers, “so what” and discussed merit as quality or intrinsic value of something. Worth is defined as the value of something to an individual, an organization, an institution, or collective. The difference of purpose was used to distinguish between research and evaluation by Boulmetis and Dutwin (2014). They identified that evaluation results provide feedback to stakeholders for program or project improvement while research explains the linkages between the observed phenomena and knowledge base on the phenomena to the audience of the professional in the field.

Stufflebeam and Coryn (2014) identified eight value criteria that would indicate an evaluation: merit or quality, worth, need, probity, feasibility, safety, significance, and equity. Stufflebeam and Coryn (2014) identified 23 approaches for evaluation. The authors categorized these into two categories: six pseudo-evaluations and 17 legitimate approaches. These approaches were calcified based on nine descriptors: (a) advance organizers—that is, the main cues that evaluators use to set up a study; (b) main purposes served; (c) sources of questions addressed; (d) questions that are characteristic of the approach; (e) methods typically employed; (f) pioneers in conceptualizing the approach plus others who have extended its development and use; (g) key considerations in determining when to use the approach; (h) strengths of the approach; and (i) weaknesses of the approach (Stufflebeam & Coryn, 2014). The authors shared that different approaches would be appropriate for different purposes.

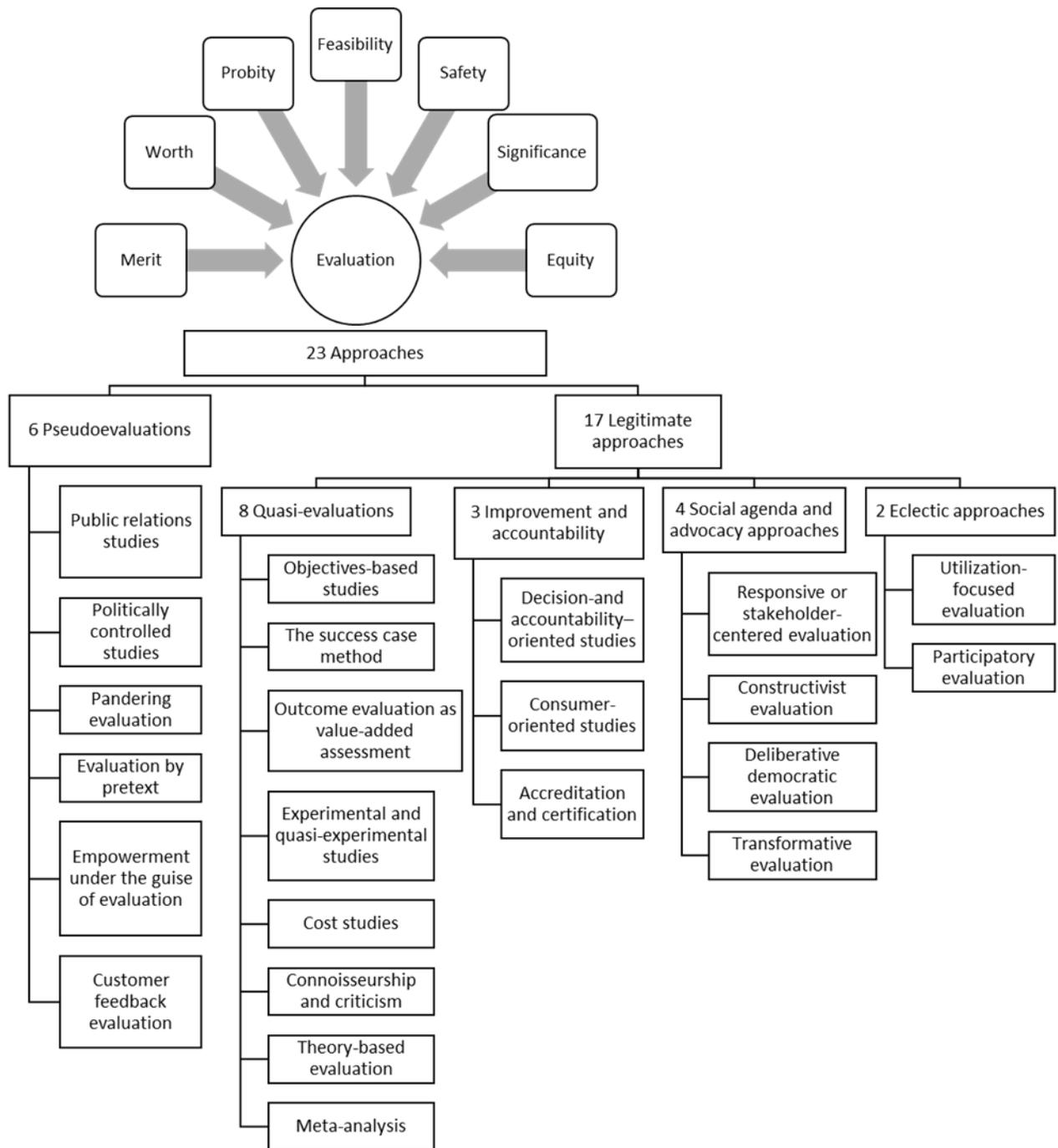


Figure 1. Conceptual framework for review of JIAEE articles based upon Stufflebeam and Coryn (2014).

Purpose

The purpose of this study was to analyze the use of evaluation methods implemented in studies published in the *Journal of International Agricultural and Extension Education (JIAEE)* from spring 1994 to May 2018. Questions that guided the study included:

- (a) How prevalent is the publishing of evaluation results in *JIAEE*?
- (b) How and to what extent do *JIAEE* authors use evaluation approaches to frame their methods?
- (c) How do *JIAEE* authors use evaluation literature to guide their studies?

Methods

Content analysis was initially used in the 1930s and 40s as a quantitative measure, involving tabulating the frequencies of content units (Berelson, 1952). Over time, researchers gained an appreciation for qualitative approaches within the method to interpret meaning from the content (Hsieh & Shannon, 2005). Content analysis can be described as a research method that uses keyword searches of narrative material to determine the presence of certain words or themes. Cavanagh (1997) described the method as a flexible way to analyze text data. Several authors in our profession have used similar approaches to determine factors for what we teach and publish (Acker & Grieshop, 2004; Edgar, 2010; Kelsey, 2018). The researchers for this study used a systematic approach to search and locate articles within the *JIAEE* over the past 25 years.

We adopted Stufflebeam and Coryn's (2014) definition of evaluation which is "the systematic process of delineating, obtaining, reporting, and applying descriptive and judgmental information about some object's merit, worth, probity, feasibility, safety, significance, equity, sustainability, and/or

transportability. The result of an evaluation process is usually a tangible product, especially a printed, summative evaluation report" (p. 696). Following this definition, eight criteria were considered to categorize an article as an evaluation study. The eight criteria included merit, worth, need, probity, feasibility, safety, significance, and equity.

Based upon evaluation literature, three checklists were created to guide article selection: differences between research and evaluation, defining evaluation, and evaluation approaches. The checklist created to facilitate understanding of the difference between research and evaluation articulated the fundamental differences between the two (Boulmetis & Dutwin, 2014). The checklist related to defining evaluation was created to enable clear understanding of the definition of an evaluation by articulating the eight criteria required to be classified as an evaluation (Stufflebeam & Coryn, 2014). Finally, the checklist created based on the 23 approaches identified by Stufflebeam and Coryn (2014) provided definitions and characteristics of each approach. These checklists were peer reviewed and then used as a tool to evaluate each article using consistent descriptions.

Prior to initiating the study, we conducted an initial screening of *JIAEE* articles to verify if the research was plausible. We used the keyword "evaluation" to search the journal and we located 55 articles that represented the most visible evaluation studies. We then placed them into a spreadsheet containing article title and lead author. We randomly pulled six of these to test the two-stage screening checklist and data collection sheet. The researchers used emic perspective as evaluation professionals to review each article by what was evaluated, what model or approach was used, and the reason for inclusion of the model for the evaluative study. For the second stage, we identified

and matched the evaluation model or approach with the criteria identified in the framework, providing our justification for the match. This initial screening revealed that most studies do not articulate a named evaluation approach; however, there were enough evaluation studies to justify our research.

The initial data collection recorded 435 entries in *JIAEE* from spring 1994 to May 2018. Article screening took place in three phases (see Figure 1). First, initial screening excluded certain articles. Book reviews, commentaries, conference papers, seminal articles, and tools of the profession were excluded from the sample. The summer issues of *JIAEE* comprise conference articles, therefore summer issues were not counted as part of the sample. However, an exception was made for summer issues that had feature articles. For instance, the feature articles in the summer 2005 issue were counted. All remaining feature articles (articles that undergo double blind and peer review process) were inputted into a spreadsheet, and included year, volume, number, and title. There were 384 feature articles, with one being removed due to removal from website. Second, the 383 articles were reviewed by looking at the purpose and abstract of the article to identify whether the article met the definition of an evaluation, following the guide sheet created earlier. This resulted in 125 yes; 49 maybe, and 209 no, in regard to whether we

believed it was an evaluation. Third, the 125 articles deemed “yes” were then reviewed in their entirety. We read through the entire article and identified characteristics of the evaluation based upon the eight characteristics (Stufflebeam & Coryn, 2014) and classified them accordingly. Articles were disqualified if we were unable to understand the evaluation approach (e.g., study of qualifications without identifying a standard, a needs assessment without a defensible purpose). This resulted in 81 selected articles. For each of the 81 articles, we specifically considered the methods, findings, conclusions, discussion, and recommendations to identify or assign an evaluation approach using the guide sheet developed outlining the 23 approaches. An additional approach (i.e., Kirkpatrick’s Evaluation Model) was added based upon email correspondence with Coryn (18th September 2018). Of the 81 selected articles, only 24 articles specifically named an evaluation approach. The remaining 57 articles were assigned an evaluation approach based upon the description of the process they followed in the findings and overall purpose of the study. We then analyzed the articles containing a named approach (24 articles) and assigned each article the approach that represented that method based on the contextual framework. Further, the methods of each article were analyzed to determine if evaluation literature was used to frame the study.

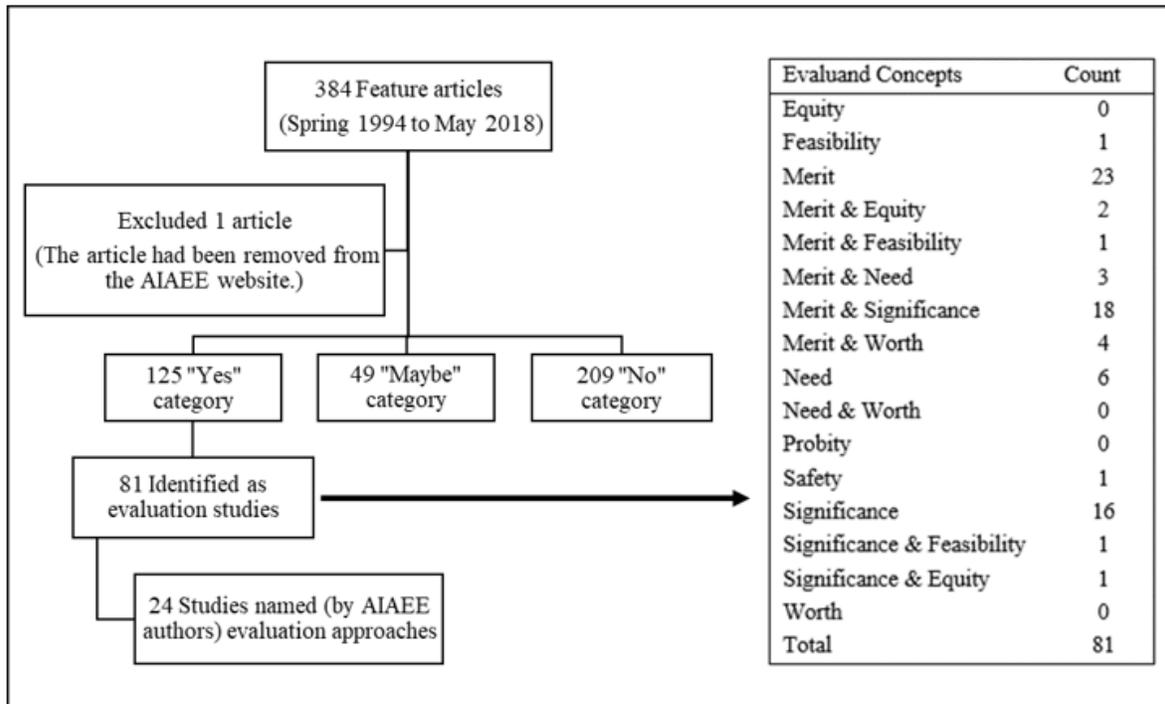


Figure 2. Flowchart depicting the article screening process.

Findings

How prevalent is the publishing of evaluation results in *JIAEE*?

Eighty-one out of 383 feature articles (21%) met the definition for an evaluation and were categorized into an evaluation approach based upon our conceptual framework. Analysis of these articles considering the eight evaluation characteristics revealed that very little attention is being paid to several areas of the evaluation process. Aspects including equity, feasibility, safety, and probity were not widely addressed in the articles examined. Most of the published evaluations were focused on significance and merit. Most of the articles (62; 77%) reflected findings focused on program development and improvement.

How and to what extent do *JIAEE* authors use evaluation approaches or models to frame their methods?

Of the 81 articles examined, only 24 articles (30%) specifically identified an evaluation approach (see Table 1). The remaining articles (57) described the methods they followed which allowed us to categorize the approach based upon the conceptual framework (see Table 2). Most of the categorized articles (74 out of 81) used approaches that Stufflebeam and Coryn (2014) classified as the strongest program evaluation approaches. Among the 81 examined articles, 13 were identified as qualitative, 45 were identified as quantitative, and 23 were identified as mixed methods.

Table 1

Evaluation Approaches Identified in *JIAEE* Articles Published from Spring 1994 to May 2018

| Evaluation approach | Number |
|--|--------|
| A system for monitoring and evaluating agricultural extension projects by Cernea and Tepping (1977) | 1 |
| Bennett's hierarchy for program evaluation (Bennett, 1976) | 2 |
| Bennett's hierarchy for program evaluation (Bennett, 1976) and retrospective program impact (Davis, 2003). | 1 |
| Borich (1980) needs assessment model | 4 |
| Context, Input, Process, and Product (CIPP) | 1 |
| Case study as an evaluation approach | 1 |
| Davies (1973) conceptual model for training effectiveness | 1 |
| Expertise-oriented evaluation | 1 |
| Formative evaluation | 2 |
| Kirkpatrick's (1994) evaluation framework | 2 |
| Participatory action research as an evaluation approach | 1 |
| Quasi-experimental study as an evaluation approach | 1 |
| SWOT analysis | 3 |
| Systems-theoretical approach (Rice & Foote, 2001) | 1 |
| Targeting outcomes of program (TOP) model (Bennett & Rockwell, 1995) | 2 |
| Total | 24 |

Table 2

Assigned Evaluation Approaches based on Stufflebeam and Coryn’s (2014) Classification

| Legitimate Approaches | ^a Named | ^b Assigned | Total |
|--|--------------------|-----------------------|-------|
| Accreditation and Certification | 0 | 0 | 0 |
| Connoisseurship and criticism | 1 | 1 | 2 |
| Constructivist evaluation ^c | 0 | 0 | 0 |
| Consumer oriented studies ^c | 0 | 7 | 7 |
| Cost studies | 0 | 2 | 2 |
| Decision and accountability-oriented studies CIPP ^c | 5 | 6 | 11 |
| Deliberative Democratic Evaluation | 0 | 0 | 0 |
| Experimental and quasi-experimental studies ^c | 3 | 9 | 12 |
| Meta-analysis | 0 | 0 | 0 |
| Objectives-based studies ^c | 0 | 7 | 7 |
| Outcome evaluation as value added assessment ^c | 1 | 4 | 5 |
| Participatory Evaluation | 1 | 0 | 1 |
| Responsive or Stakeholder-Centered Evaluation ^c | 6 | 6 | 12 |
| The success case method ^c | 3 | 14 | 17 |
| Theory based evaluation | 1 | 0 | 1 |
| Transformative Evaluation | 0 | 0 | 0 |
| Utilization-Focused Evaluation ^c | 1 | 1 | 2 |
| Kirkpatrick Model | 2 | 0 | 2 |
| Total | 24 | 57 | 81 |

^a“Named” column represents the articles which included approaches named by *JIAEE* authors within their articles. ^b“Assigned” column represents articles which did not include an identified approach but we were able to assign an evaluation approach based upon the authors’ description. ^cStufflebeam and Coryn (2014) classified nine approaches as the strongest program evaluation approaches.

How do *JIAEE* authors use evaluation literature to guide their studies?

Of the 81 articles examined, only 47% (38 articles) referenced evaluation literature. Seventeen percent (14 articles) of the articles used completed evaluation studies as a guide for their study without referencing a model.

Conclusions, Implications, and Recommendations

Our examination of the evaluation methods implemented in studies published in *JIAEE* over the past 25 years provides

insight into the prevalence of evaluation studies as well as the approaches or models used. Findings revealed that evaluations are published in *JIAEE* to a moderate degree; 21% of the feature articles published over the past 25 years can be considered an evaluation. A limited number of these published evaluations specifically identified an evaluation approach, rather the majority merely described the methods without using evaluation terminology. Further, most of the examined articles did not substantially cite evaluation literature. This observation confirmed the claim by Miller (2010)

indicating that evaluators often did not clearly report connections between select evaluation theories and their practices.

Based upon findings, we concluded there is a need for increased awareness of evaluation literature among authors contributing to *JIAEE*. The review of articles revealed that few authors used published evaluation research to support their methods or results. Thus, an opportunity to use literature published in refereed journals such as the *American Journal of Evaluation* was missed by authors. Given that less than half of the published articles examined referenced evaluation literature, workshops related to conducting and publishing evaluations would be valuable. The addition of evaluation literature strengthens and clarifies methods, which in turn increases the understanding of the reader. Authors should be encouraged to use models in published evaluation literature and cite them accordingly rather than using a previously conducted evaluation as the basis for their approach.

Stufflebeam and Shinkfield (2007) noted, "... if evaluators do not apply evaluation theory ... then it is important to ask why they do not. Perhaps the approaches are not sufficiently articulated for general use, or the practitioners are not competent to carry them out, or the approaches lack convincing evidence that their use produces the needed evaluation results" (p. 62). Few evaluation models were specifically noted by authors. The Borich (1980) needs assessment model was popular among authors with four separate studies using this model. Of the four models noted as useful by Radhakrishna (2001), we only identified two of those models (i.e., Kirkpatrick's model and Targeting Outcomes of Program (TOPs) model) articulated within the 81 articles examined. However, we recognize it is possible that elements of these models

may be represented without the models being identified. Additional examination of the methods of each article would be needed in order to make that determination.

However, it is notable that models were only specifically identified in 24 of the 81 articles examined. Awareness of the diverse models that exist would add to the capacity of authors publishing in *JIAEE*. The infrequency of authors articulating evaluation models used in published evaluations indicate an opportunity for professional development related to evaluation tools that may be useful for agricultural extension education. It is possible that authors are unaware of evaluation literature that could benefit their evaluation efforts. It is also possible that authors are hesitant to use terms related to evaluation and select terms more closely associated with research for fear of rejection by reviewers.

Evaluation findings are usually program specific and offer guidance for others with the caution of not generalizing findings to a population. Authors should be reminded to take additional precaution in avoiding the generalization of evaluation findings. Further, given that findings revealed a slant toward quantitative methods, potential authors should be assured that qualitative and mixed methods are also acceptable. In addition, findings reveal an opportunity to broaden the focus of the evaluation processes to include additional evaluation characteristics beyond significance and merit. Within the context of agricultural extension and education, studies focused on feasibility, safety, equity, and probity across contexts would be valuable.

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