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Evaluation of Learning Assistant Training Seminar Effectiveness

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ABSTRACT

The Learning Assistant Program at Bowling Green State University is growing, and a training program for the LAs was established in the Fall Semester of 2016. In order to evaluate the effectiveness of this program in reaching its goal, a survey was administered to both trained and untrained LAs upon the conclusion of the program in December of 2016. The results were analyzed throughout the following spring to determine whether or not the goal of helping LAs integrate learning theory and effective practices for engaging students was achieved. In order to evaluate the effectiveness of the program, transformative learning in four characteristics was studied, including confidence, skill, perspective, and identity, as prescribed by the Gwozdek, Smiler, and Springfield rubric. Findings indicate that students who serve as LAs make gains in all four characteristics, and evidence suggests that the training program did, in fact, have an impact on transformative learning of the LAs, and was thus effective in its goal.

INTRODUCTION

The Learning Assistant program at Bowling Green State University is in its early stages, having been in existence several years. With a rise in demand for Learning Assistants, who were effectively utilized by seven faculty members campus wide, across various disciplines, a process by which to train the Learning Assistants is now being developed and standardized. New to the program for Fall of 2016 is the Learning Assistant Training Seminar, which aims to establish this baseline. The project at hand sought to answer the following question:

Is the Learning Assistant Training Seminar effective in achieving its goal, which is to help LAs integrate learning theory and effective practices for engaging students?

Literature Review

Education at the university level has been lecture-based since the dawn of the university system, dating back to 1088 (Park, 2014). As the expectation for young adults to attend university rose, the class sizes rose as well. Increased class size often leads to decreased individualized attention, and a general lack of focus from the students (Allen, 2005). The reform of education to provide better opportunities for students involves a plethora of concepts, including active learning.

Active learning occurs when students are involved with activities that require conscious student understanding of the task at hand (Eison, 2010). Meaningful learning occurs when a student is able to relate new information with previous knowledge, making connections that will enhance learning (Stalheim-Smith, 1998). In a large lecture-hall, however, it can be difficult for a professor to facilitate these activities and be certain that each student is experiencing meaningful learning.

One solution to this large-classroom, one professor dilemma is the dawn of the Learning Assistant. The Learning Assistant model was first proposed at the University of Colorado Boulder, and has since spread nationwide (Goertzen, 2011). The program came to Bowling Green State University within the past decade, thanks to Dr. Karen Sirum.

A Learning Assistant (LA) is an undergraduate who has successfully completed a course, who is hired to help teach the course the next time. LAs facilitate group work in the large lecture hall setting introductory classes in the Science, Technology, Engineering, and Mathematics fields, commonly referred to as STEM. Perhaps one of

the most valuable roles played by a Learning Assistant is the facilitation of active learning activities during lecture (Otero, 2010). By providing more individualized attention to students, meaningful learning is fostered and student success has been shown to increase (Goertzen, 2011).

The LA program is not only beneficial to the students in large lecture halls, but also to the students serving as LAs. Throughout previous semesters, surveys completed by LAs commented on personal growth in professional, personal, and educational capacities. This beckons the idea of transformative learning, which is defined as learning that results in transformative changes which alter the student in a significant way, changing the state of the learner (Gwozdek, 2015).

These changes may occur in several dimensions of a student's life, such as perspective, skill, confidence, pride, and identity. Gwozdek, Smiler, and Springfield have developed a rubric by which to evaluate such changes in these five categories. Transformative changes are identified throughout open responses by key-phrases that demonstrate significant transformation, such as "I now feel," "life-changing," "I used to think of myself as," and similar statements separating past self from present self. These changes are considered "big-T" transformations, and are coded as TR. Individuals who underwent these types of changes will be referred to as transformed.

In addition to transformative changes, partially-transformative changes can also occur. These are defined as changes that alter the extent or amount a student is capable of, without elevating the student to a different state of learning. Partially-transformative changes are identified by key-phrases in student's open responses, including "better," "improved," or "somewhat." These changes are recognized as positive achievements, but are not considered to be quite as significant when utilizing the rubric developed by Gwozdek, Smiler, and Springfield (Gwozdek, 2015). These changes are considered "little-t" transformations, and are coded as tR. Individuals who displayed these types of learning gains will be referred to as partially transformed.

METHODS

As a result of the still-growing Learning Assistant Program at BGSU, it is not rare for an up and coming Learning Assistant to have never witnessed a Learning Assistant in action before. To remedy this dilemma, a training course is offered and is a paid fulfillment of their obligations to the job. The training course was introduced in the Fall Semester of 2016, and it became apparent that it would be necessary to evaluate the training sessions in order to understand the outcomes of holding training.

Responses from all LAs were considered, both those who attended training and those who did not. The students were randomly assorted on a spreadsheet, with identifying labels removed. With two distinct styles of questions on the survey, open-ended and Likert-scale, two different methods of assessment had to be used.

Evaluation of a training course is not a novel concept, so developing a rubric from scratch regarding open-ended questions related to training would be inefficient. Several rubrics were reviewed, but the Gwozdek, Smiler, and Springfield rubric was eventually selected as being the best fit for coding and evaluating the survey responses.

The rubric is attached, and can be found as Figure A in the Appendix. The rubric was used to code the open-response questions responded to by the LAs of Fall 2016, as well as a select few of the Likert scale questions.

First, the rubric was carefully reviewed, and colors were assigned for each of the traits mentioned by the rubric. Confidence was indicated by red, Pride by orange, Skills by blue, Perspective by green, and Identity by purple. It was also decided that, for changes classified as "partially-transformative," the color of the text would be

changed to the appropriate color. For “transformative” changes, the background color of the cell in the Microsoft Excel sheet would be changed to the appropriate color.

Then, the survey was reviewed question by question to judge whether or not the questions asked could be indicative of one or more of the traits. Each question was scanned for key words or phrases that would reveal transformation in any of the learning traits, as suggested by the rubric. For example, one Likert question asked that students rank from “No apparent” to “Exceptional” the progress they had made in several aspects of being a Learning Assistant. One question read:

“As a result of my participation in the LA Training Seminars, I think I’ve made progress in learning how to find, evaluate, and use resources to help students better understand concepts.”

This question could indicate a partially-transformative advance in skills, which is indicated by the presence of specific skills listed in the statement. The main idea of this question is: has the LA become better at helping students through outside resources.

Evidence of learning on this scale system was classified as students who described their progress as “Moderate,” “Substantial,” or “Exceptional.” Moderate is included as evidence of learning, because students who chose this option over “Non-apparent” or “Slight” have responded in a way that indicates a personal observation of partially-transformative change, as result of the LA Training Seminar.

Another Likert-style question was pertaining specifically to LA Training Seminar Two, asking students to rank on a four point scale from “Strongly Disagree” to “Strongly Agree” the truthfulness of the following statement:

“I am prepared to prompt classroom discussion by answering questions with questions.”

The keyword in this phrase is “prepared”- which is characteristic of a change in a student’s confidence in their ability. Those students who indicated that their response was “Agree” or “Strongly Agree” were considered to have undergone a partially-transformative change in confidence.

Each question was reviewed individually as demonstrated above, and questions that did not demonstrate any of the traits from the rubric were discarded for the purpose of this analysis. The survey can be found as Figure B in the Appendix. The questions along with their assigned qualities are as follows, in Figure 1:

Trait	Relevant Survey Questions
Confidence	31b, 33a
Skills	27c, 27d, 27e, 27f, 30d, 30e, 30g, 32e, 32f, 33a
Perspective	27d, 27f
Identity	27b, 30c

Figure 1: Questions from the survey that correlate with each of the transformative learning traits.

The analysis began within a Microsoft Excel spreadsheet containing each answer provided by each student with identifiers removed. Both trained and untrained student answers were included, and fifty-four participants in all were considered.

The questions were arranged by columns, each column containing one question at the top, followed by rows of each response from the students. In order to efficiently code the Likert responses, each column was considered one by one, and the proper coloring was applied to the proper response phrases. Answers that did not display any signs of learning, transformative or partially-transformative, were left in black font.

Some of the Likert responses allowed for open-responses to explain student answers. These short answers, along with responses to the open-ended questions posed, were intensively reviewed for evidence of transformation. This evidence sometimes appeared in the form of phrases directly proposed by the rubric, such as:

"In the beginning of the semester, I was not confident in my abilities or preparedness but I wanted to try. I think I improved throughout the semester because I became more comfortable with the students/being an authority figure/answering questions, but I still don't feel like I did as well as I could have if I had previous teaching experience and more knowledge of the class material. I haven't had [this introductory-level course] in a few years so this was difficult for me and I felt very challenged."

This response demonstrates transformative learning in the area of confidence, using language such as "more comfortable," regardless of describing room for improvement. Being transformed in learning does not mean that further transformation cannot occur.

When asked "What ideas and strategies of yours were implemented into the classroom," one student responded the following:

"I tried to utilize more leading questions, as well as wait time."

The skills described here were coded as partially transformative in the trait of skills, and could not be considered transformative due to lack of self-comparison of past and present state. Each open response was coded as demonstrated above.

RESULTS

Of the fifty-four participants in this survey response pool, thirty-three attended at least three of the five LA Training Seminar sessions throughout the Fall Semester of 2016. Twenty-one of the students were untrained, meaning that they attend less than three sessions, with the majority of these untrained students attending zero sessions.

Any questions that pertained to specific training sessions had the option of "Did not attend this session," as well as the Likert-scale options. As described in methods, one question was coded to be confidence-based, stating:

"Pertaining LA Training Seminar Two, I am prepared to prompt classroom discussion by answering questions with questions."

Of the fifty-three students who replied to this specific question, six did not attend this training session. Of those students who did attend Seminar Two, 98% agreed that they are confident in this skill, both strongly and generally, which was recorded to be a partially-transformative learning gain. The remaining 2% was one individual who did not feel as though a learning gain occurred in this aspect.

Several other questions pertaining to student confidence were identified, and can be found on the survey where indicated by Figure 1, found in the Methods section.

Each Likert-style question was evaluated similarly to above, and a student demonstrating one or more instances of partially-transformative learning in the category of confidence was considered to have displayed partially-transformative learning gains in confidence.

Likert-Style questions could, at most, discuss only partially-transformative gains. Without open-ended descriptions of personal evaluation of change, a fully-transformative gain could not be identified. All four traits considered were evaluated in the same manner, and the numbers of students who displayed partially-transformative learning gains are described in Figure 2.

Partially-Transformative Learning Gains

Trait	Untrained Students	Trained Students	Total Students
Confidence	14	33	47
Skills	20	33	53
Perspective	13	30	43
Identity	14	32	46

Figure 2: Numbers of individuals who achieved partial transformation in each of the traits, both trained and untrained.

Open-responses were also carefully scanned for evidence of language indicating transformative learning gains. One example of such was in response to the following prompt:

“Many of you began in your LA positions with reservations about your abilities or preparedness for the LA role. Explain your reservations at the beginning of the semester, and explain if and how they have changed as a result of participating in the LA training seminar.”

One student responded:

“At the beginning of the semester it was difficult to always answer questions with questions and not give the answer but throughout the semester I have improved on that.”
This response demonstrates transformation in two different traits: both confidence and skill. The LA clearly demonstrated transformative learning in the aspect of skill by creating a self-comparison of past-self and present-self in the technique of responding to student questions with questions. There is also evidence of confidence in this response, as he or she does not hesitate to clearly state self-improvement.

Each open response was characterized in a similar manner, and the Figure 3 summarizes the findings.

Transformative Learning Gains

Traits	Trained Students	Untrained Students	Total Students
Confidence	8	1	9
Skills	2	0	2
Perspective	0	0	0
Identity	1	1	2

Figure 3:Numbers of individuals who have achieved transformative learning in each of the traits, both trained and untrained.

The totals of students who displayed transformative and partially-transformative learning are shown in the Figure 4. Those who underwent transformation each also displayed partially-transformative changes as well, but were counted only for their highest level of transformative learning.

Recall that a student who was classified as having undergone partially-transformative changes are not entirely unchanged in their ability, they simply did not demonstrate having been substantially transformed from one state of learning to the next state, in the context of this survey.

Transformative Gains by Category

Traits	Transformed, Trained	Transformed, Untrained	Partially-transformed, Trained	Partially-transformed, untrained	Total
Confidence	8	1	26	14	49
Skills	2	0	31	20	53
Perspective	0	0	30	13	43
Identity	1	1	30	14	46
					191

Figure 4: Transformative gains separated by category, including both partially and fully transformed individuals both trained and untrained.

This same data is displayed in Figure 5 in the form of a bar graph, which more clearly demonstrates the percentages of transformation that occurred within the Learning Assistant Fall 2016 population.

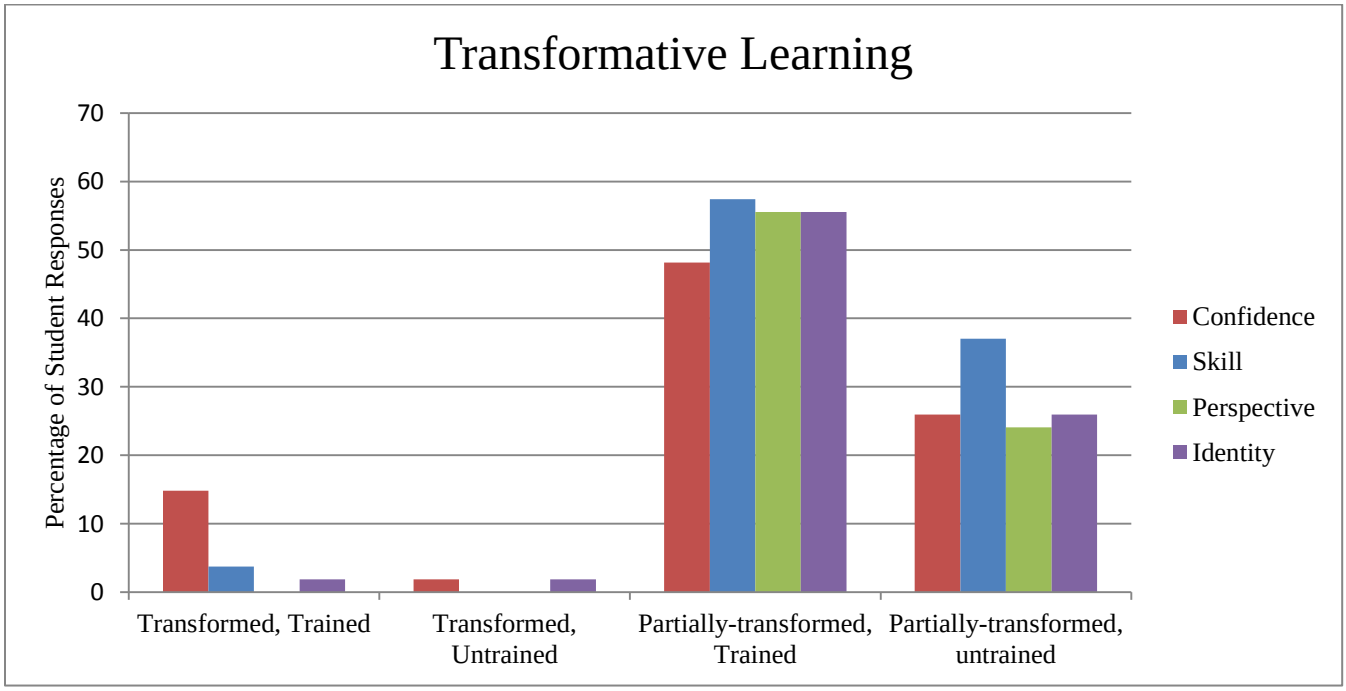

Figure 5: Bar graph showing percentages of LAs transformed in each of the categories as color-coded by the key to the right, including both trained and untrained populations.

Of the fifty-four students surveyed, thirty-two completed at least four of the five training sessions held throughout the semester. This was 59% of the surveyed population.

Upon initial review, the survey responses appeared to be overwhelmingly positive, with individuals self-scoring highly on Likert scale questions and using positive language to describe their experiences. There were a few individuals who seemed extremely dissatisfied, but they were in the minority.

The responses can be broken down according to trait displayed by positive or negative responses on the Likert scale questions.

Confidence can be displayed in a few questions with Likert scales, but one of the most-emphasized topics within the LA program is the benefit of prompting student thought and response through answering questions with questions. It was important to those organizing the training sessions that students who received certification were confident in their ability to do such. Figure 6 shows the responses a question that, pertaining to LA Training seminar two, stated:

"I am prepared to prompt classroom discussion by answering questions with questions."

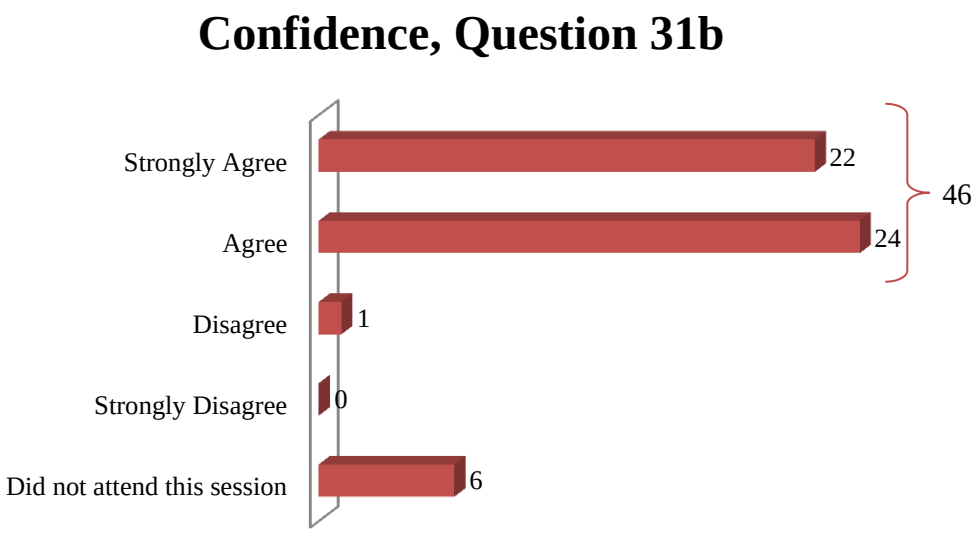

Figure 6: Student responses to question 31b, displayed in the form of a bar graph.

Fifty-three students answered this question, meaning that one individual chose to leave no response. Of these fifty-three students, forty-seven attended training session two, and six did not. Of the forty-seven individuals who attended this training session, forty-six felt confident in their ability to respond to a situation with this technique.

In total, forty-nine individuals made transformative learning gains in confidence, thirty-four of which had attended at least three of the five training sessions held. The other fifteen made gains throughout their own experiences, or through attending this one individual training session and choosing to not attend at least two others. Of the individuals who made transformative gains in confidence, 69.4% completed the training program at the end of the semester.

Skill was the most frequently reported gain throughout responses, with ten Likert-Scale questions pertaining to this topic. One skill that is imperative to being an effective LA is that of turning a closed question into an open

question. Figure 7 displays the responses to question 32 on the survey, which referenced LA Training seminar three, stating:

"I understand how to turn a closed question into an open question."

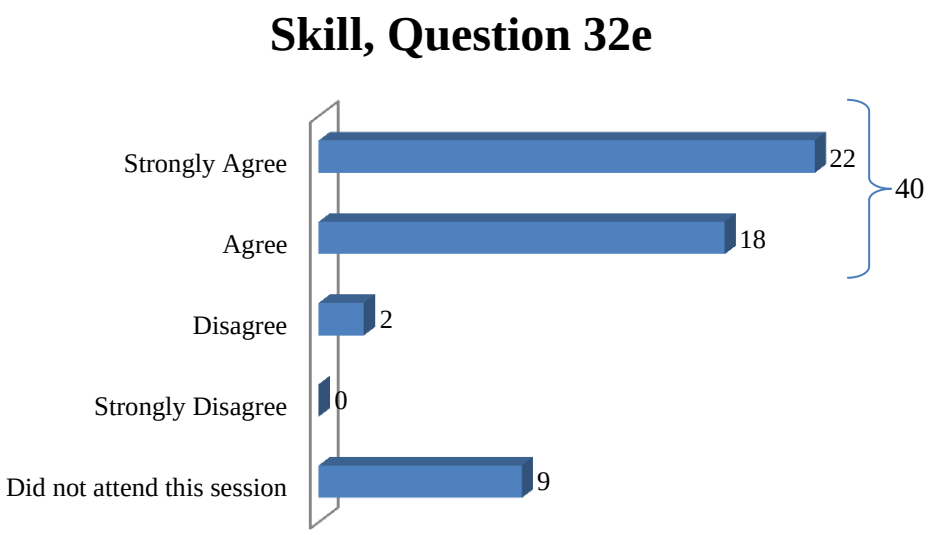

Figure 7: Student responses to question 32e, displayed in the form of a bar graph.

Fifty-one students responded to this question, leaving three individuals who did not indicate their skill-level on the transformation of questions. Of the fifty-one responses, forty-two were trained, forty of which agreed that they were competent in this skill. In total, fifty-three individuals made transformative learning gains in skills. Thirty-two of these individuals attended at least three of the five training sessions, and twenty of these students did not complete training, gaining the skills needed while working in the field. Of the individuals who made transformative gains in skills, 62.3% completed the training program at the end of the semester.

Perspective was more difficult to gauge based on the Likert-Scale questions posed, but one question in particular stood out to be indicative of transformative learning gains in perspective. This question pertained specifically to seminar one, and a wider array of responses was received and are shown in Figure 8. Question 27 stated that:

"As a result of participation in LA Training Seminars, I think I've made ____ progress in developing specific skills, competencies, and points of view needed to display professionalism."

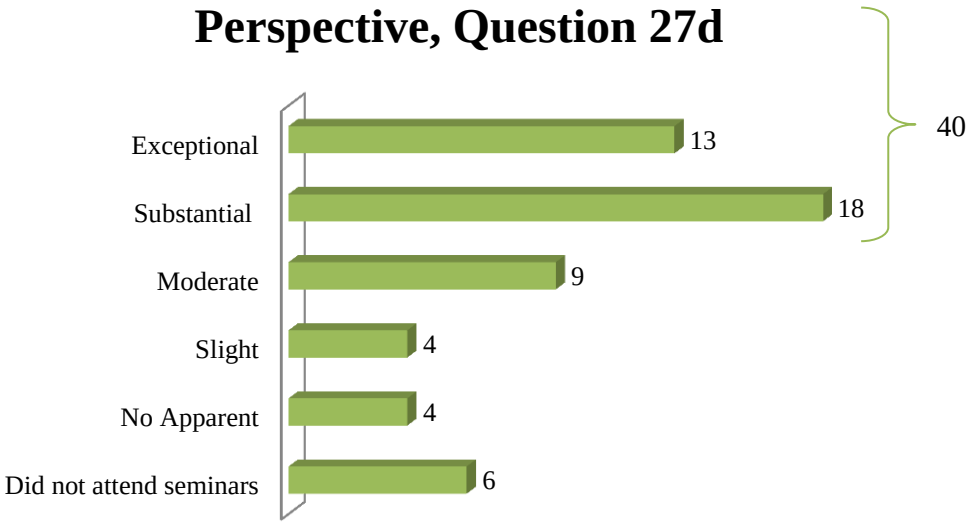

Figure 8: Student responses to question 27d, displayed in the form of a bar graph.

All fifty-four students responded to this question, with six responses indicating that no training sessions had been attended. Responses that indicated moderate to exceptional progress were interpreted as perspective gains, totaling forty in all. In total, forty-three students made transformative learning gains in perspective. Thirty of these students completed training sufficiently, meaning three of five sessions were attended, and thirteen were untrained. Of the individuals who made transformative gains in perspective, 93.0% completed the training program at the end of the semester.

Identity was much like perspective, in that it was not easily recognized within the Likert-Scale questions. One very telling question was asked, however, about identity, and this question pertained to LA Training seminar one. Figure 9 displays responses to question 30c, which stated:

"I realize that LAs can play an important role in student success."

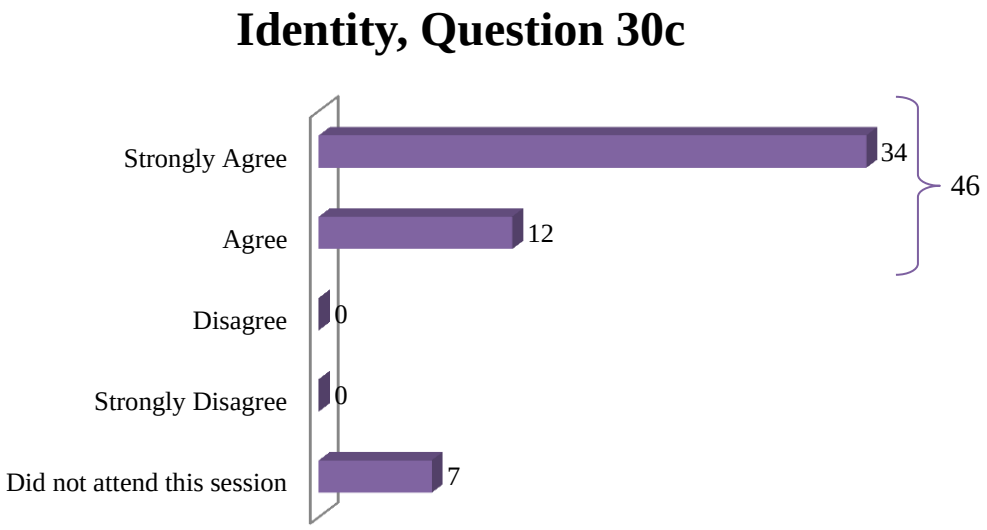

Figure 9: Student responses to question 30c, displayed in the form of a bar graph.

This question received fifty-three responses, forty-six of which indicated agreement with this state of identity. Seven individuals self-identified as not attending these sessions. Identity is a unique category among the four in that all forty-six of the transformed individuals can be identified through this question. There are, however, two individuals who excelled beyond the partial transformation and attained transformation of identity, as found in their open-responses. Of the forty-six individuals who made transformative gains in identity, thirty one were trained and fifteen were untrained. This means that, of the individuals who made transformative gains in perspective, 67.4% completed the training program at the end of the semester.

Further analysis of the data, prior to coding the open responses and color-coding Likert responses, aligned largely with the initially positive impressions described. For each of the fifty-four students surveyed, there was opportunity for transformative or partially-transformative learning gains in four different categories each. This means that there was an opportunity for two-hundred and sixteen instances of gain. Of these opportunities for gain, one-hundred and ninety-one gains were made in total. This means that 88.4 percent of the possible indicators of transformation were identified in this population.

This total can be further divided into those who underwent transformative learning partially, and those who were fully transformed from one state of learning to the next.

Partially Transformative Gains account for 93% of these transformative gains observed within the surveyed population.

Fully Transformative Gains account for 7% of the transformative gains made within the population. Those who accomplished both transformation and partial transformation were counted only in this population, as each individual was considered at their highest level of achievement.

Transformation of Individuals

	Partially Transformed	Transformed	Total Surveyed
Trained	23	10	33
Untrained	18	2	20
Total	41	12	53

Figure10: Summation of partially transformed and transformed individuals, differentiating between those who were trained and those who were untrained.

In total, only one student displayed no sign of transformative learning gain in the context of the survey. This suggests that the Learning Assistant Program at BGSU has an impact on student transformation.

The question, however, is whether or not the training sessions influenced this student transformation. In Figure 10, there are a total of fifty-three students transformed by the LA program as a whole, with thirty-three of those students having been trained.

Data from the categorical analysis can be used to answer this question, as the percentage of transformations of any extent from each category that were experienced by trained individuals can be averaged together to see what the total impact of training was on LA transformative learning.

	Number of Students Transformed	Percentage Trained and Transformed
Confidence	49	69.4
Skills	53	62.3
Perspective	43	93.0
Identity	46	67.4

Figure 11: Individuals transformed in each characteristic, as well as the percentage of each of these groups of individuals who fulfilled training requirements.

The average of these four percentages is 73.0%, indicating that 73% of individuals who experienced transformative gains were trained in the Fall of 2016.

To better understand the impact of training on transformation, a rate of transformation calculation was done. The results are demonstrated in Figure 12, which shows that the rate of transformation was higher for trained individuals than it was for those who were untrained.

	Partially-Transformed	Transformed	Rate of Transformation
Trained	23	10	10/23 = 0.43
Untrained	18	2	2/18 = 0.11

Figure 12: Rate of transformation calculations, comparing the trained and untrained populations. The rate analysis was chosen for this comparison due to its ability to directly compare qualitative values.

CONCLUSIONS

Significance

The survey was written with the intention of gauging the effectiveness of the training programs, as well as to receive feedback on the program as a whole. The first portion of the survey focused on the overall program, asking questions regarding LA classrooms, roles played, and personal reflection. This feedback is all read and used in order to better the program by addressing issues that arise, and sharing the innovative strategies mentioned among the LAs. The second portion of the survey sought to understand the impact of the LA Training program, and these questions were written specifically for this study.

The goal of the LA Training program was to help LAs integrate learning theory and learn effective practices for engaging students. The effective practices would be best demonstrated by someone who is proficiently skilled, confident, has good perspective about their relationship with students, and who understands their identity within the program.

The evaluation of the survey takes these traits and examines each individually, finding that transformation of some sort happens in nearly all of the LAs. The majority, with 73%, of these gains occur in students who attended at least three of the five offered training sessions.

Furthermore, the majority of students who achieved total transformation from one learning state to the next were those who attended training. Of the twelve individuals who were fully transformed between states, only two were untrained. That amounts to 83% of totally transformed individuals having attended training, which indicates a strong correlation between training and total transformation.

Figure 12 demonstrates the rate of transformation that occurred in both trained and untrained populations of LAs who served in the Fall of 2016. The rate of transformation in the untrained population was 11%, while the rate of transformation in the trained population was 43%. This difference of 32% illustrates the significance of LA training on the transformation of students involved in the LA program.

These findings suggests that the training does, in fact have an impact on transformative learning gains for LAs, and thus the training program has a positive impact on the understanding of learning theory and effective practices of Learning Assistants.

Limitations

Several limitations presented themselves throughout this study.

First, the LAs involved in the program were encouraged to attend training through several methods, including several reminders that the training seminars were a fulfillment of their job requirements. With this said, however, several students self-selected to not attend training. This means that the untrained control group was self-selected as such. It is acknowledged here that perhaps those less dedicated to the program may have been less likely to undergo and display evidence of transformation.

Another limitation was that of the fifty-four LAs from this semester, only a portion of the LAs had never served as an LA in previous semesters. This means that the remaining portion of the population was still required to

attend training, due to Fall 2016 being the inaugural year of this portion of the LA program, but had perhaps already learned from their own experiences in the field.

These returning LAs may have already reached their transformative learning peak at some point throughout their experience, and were thus not heavily transformed through the training sessions. This does not imply that they were unchanged by their experience in the LA program, but rather did not require further transformation in areas such as skillset or confidence.

The rate of transformation, as shown in Figure 12, allows for the potential for confounding variables. These could include the LA's gender, GPA, major, age, and year in college. The rate numbers are significant and support the conclusion, but confounding variables could be further explored in the next population that the survey is administered to.

Finally, the survey itself presented several limitations. The survey was written prior to choosing a rubric by which to evaluate responses, so the questions did not beckon responses indicating transformative learning.

Likert questions, for example, are less than ideal in the realm of this rubric. Likert questions are useful when seeking ratings of responses, but are limiting in their response format. These questions force students to choose that they were at a certain point on the scale, with minimal amounts of choices. The open-ended questions, however, allow for more expression of transformation. Open-ended responses can be coded based on ideas expressed and the language used to express such ideas.

Application of Findings

Due to the limitations of the survey administered to the LAs of Fall 2016, a new survey was developed to better evaluate the effects of the LA Program and training seminars. This survey was more open-ended, using ideas and language from the Gwozdek, Smiler, and Springfield paper that accompanied the rubric utilized, and can be found in the Appendix as Figure C.

The conclusion that training was, in fact, impactful on the transformative learning gains of Learning Assistants will help to further develop the program and potentially encourage the LAs-in-training that attentiveness within the training sessions is imperative to the impact the LA program can have on their professional and personal lives.

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