



# The Effectiveness of Nutrition Education: Comparing Registered Dietitian Educators and Dietetic Interns



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## Abstract and Objectives

The Marshall University Nutrition Education Program (MUNEP) is an obesity prevention, grant-funded program through the USDA's Supplemental Nutrition Education Program-Education (SNAP-Ed). The MUNEP provides nutrition education to low-income children in needy, rural schools in grades K-2, where at least 50 percent of the children receive free- or reduced-priced meals. The method of lesson delivery includes a model that utilizes both professional-level registered dietitian nutritionists (RDNs) and dietetic interns (DIs). To date, no evaluation has been completed to determine the effectiveness of lesson delivery comparing professional-level RDN educators to dietetic intern educators.

The objective of this dissertation research was to retrospectively examine differences in knowledge and behavior change among participants based on pre-/post-scores after an intervention of nutrition education lessons by professional-level RDN educators and DI educators between August 2016 and March 2018; and to compare the effectiveness of professional-level RDN educators/DI educators through teacher focus groups.

Through mixed method analysis, this review showed a statistically significant difference in knowledge gain from pre- to post-test, but did not show any difference in student behavior change. No significant difference between the mean post-test scores from children who were taught by professional-level RD educators versus dietetic interns was found.

Several themes emerged from teacher focus groups, including the empowerment of professional-level RDNs in the classroom. Professional-level RDN educators used this empowerment to encourage taste sampling of foods and to enhance children's participation in the program. The taste-sampling experience was found to be the most important aspect of the program. This experience was critical to knowledge gain and behavior change of participants.

## Methods and Participants

Methods for this research included a mixed-method, retrospective-review of (15) knowledge/behavior-change questions on second grade student pre-/post-tests (n=1160) comparing RDN/DI educators. Results of teacher focus groups (n=4), with teachers (n=30) examining the effectiveness of RDN/DI educators in program implementation were also reviewed. Statistical analysis included independent t-test for overall healthy eating knowledge of mean post-test scores of professional-level RDN educators compared to DIs; independent t-test for overall healthy eating knowledge change that occurred from pre-test to post-test; Bonferroni post-hoc ANOVA analysis comparing mean post-test score of students based on socio-economic status. Thematic analysis occurred through partial logging and transcription of focus group data.

## Results

**Question 1:** Is there a difference in overall healthy eating knowledge for second grade students who participated in the MUNEP?

Table 1. Question 1 Results

Test Type	Mean	Std. Deviation	t-test Stat.	Probability
Pre-Test N= 657	4.41	1.48	12.1	.000*
Post-Test N= 503	5.53	1.58		*Significance attained at the p<0.05 level

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## Results, cont'd

**Question 2:** Is there a difference in overall healthy eating knowledge for second grade students when comparing schools with a professional-level RDN educator to schools with a DI educator?

Table 2. Question 2 Results

Pre-/Post Test by Educator Type	Mean	Std. Deviation	t-test Stat.	Probability
DI Educator N= 42	5.21	1.53	1.359	.175*
RDN Educator N= 461	5.56	1.59		*Significance attained at the p<0.05 level

**Question 3:** Is there a difference in overall healthy eating behavior for second grade students who participated in the Marshall University Nutrition Education Program?

Table 3. Question 3 Results

Test Type	Mean	Std. Deviation	t-test Stat.	Probability
Pre-Test N=42	657	.515	.372	.710*
Post-Test N=461	503	.495		*Significance attained at the p<0.05 level

**Question 4:** Is there a difference in overall healthy eating behavior for second grade students when comparing schools with a professional-level RDN educator to schools with a DI educator?

Table 4. Question 4 Results

Pre-/Post Test by Educator Type	Mean	Std. Deviation	t-test Stat.	Probability
DI Educator N= 42	6.88	.452	.709	.479*
RDN Educator N= 461	6.82	.499		*Significance attained at the p<0.05 level

Table 5. Post-Hoc Ancillary findings

Free and Reduced Rate of the School	N	Mean	Standard Deviation	F value	Probability attained
50%-59.9%	45	6.1778	1.38644	3.066	.017
60%-69.9%	32	5.8438	1.39375		1.000
70%-79.9%	89	5.6517	1.65214		1.000
80-89.9%	48	5.4167	1.54139		1.000
90-100%	289	5.3806	1.60092		1.000
Total	503	5.5328	1.58756		*Significance attained at the p<0.05 level

**Post-Hoc Analysis:** There was a statistically significant difference in how well children performed on the post-hoc review of post-test data, based on socio-economic status as it related to the percentage of children in the school who received free and reduced-priced meals. This is important as it connected to focus groups findings regarding the taste-testing experience. Many teachers noted a connection between the socio-economic status of children and the importance of food exposure, as most children who attend NEP schools come from low-income homes and do not have exposure to a wide variety foods. Thus, having exposure to new foods through nutrition education is critical.

**Question 5:** What are the most effective aspects of the program from the participating teacher's point-of-view?

**Questions 6:** To what extent is there a difference between professional-level RDN educator schools and intern-educator schools with regard to teachers' perception of the Marshall University Nutrition Education Program?

## Results, cont'd

**Question 5**

**Theme 1**

- Taste testing is the most effective component of the program.

**Theme 2**

- RND educators encouraged taste-testing of foods.

**Theme 3**

- Food tasting encouraged knowledge and behavior change among participants.

Figure 1. Question 5 Themes

**Question 6**

**Theme 1**

- RDN educators used learner-centered approaches to learning, which enhanced lessons.

**Theme 2**

- RDN educators were empowered in the classroom. DI educators were not empowered, which supports the spiral learning theory of the AND Career Development Guide.

Figure 2. Question 6 Themes

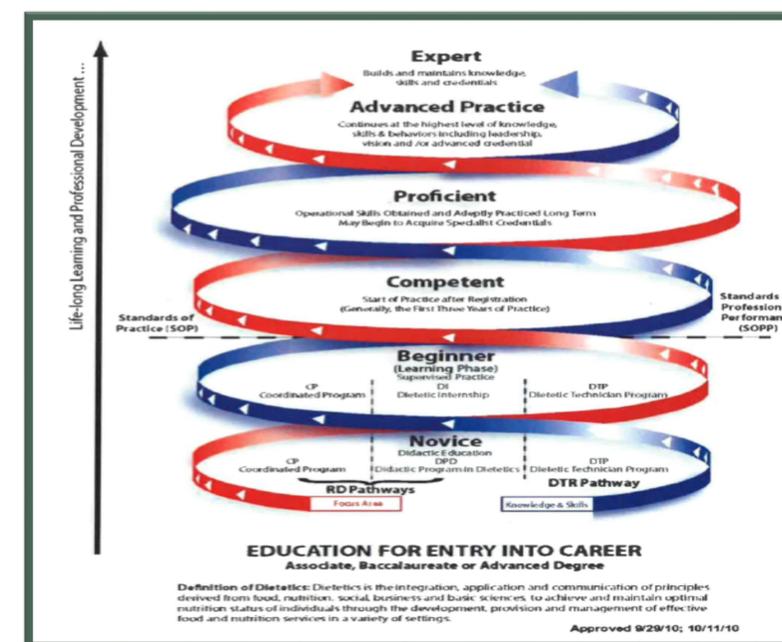


Figure 3. Dietetics Career Development Guide

## Conclusion

The MUNEP successfully increased knowledge gain for students who received the nutrition education intervention. This is consistent with findings from similar nutrition education programs and should be considered an indicator of short-term success of the program. Although there was no difference in behavioral change, this research uncovered issues with internal validity and reliability of the pre-/post- test, which likely influenced the results. Teacher focus groups reinforced the taste-testing experience as the most critical component of the program, and tied taste testing to kinesthetic learning and behavioral change in students. Focus group findings also support the spiral learning theory through career development, qualifying the need for further development and training for the MUNEP supervised practice experience.

## References

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