

Assessing the Effectiveness of a Train-the-Trainer Model for a Family- and Community-based Research Intervention for At-risk Youth with Type 1 Diabetes

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Background

The “Diabetes Inspired Culinary Education” study (DICE) is a two-group waitlist randomized controlled trial aiming to improve diabetes management and quality of life among at-risk 8-14-year-old youth with type 1 diabetes mellitus (T1DM). The intervention is an innovative 10 lesson culinary nutrition program delivered weekly over the dinner hour in the Case Western Reserve University (CWRU) Teaching Kitchen Facility. Efficacy of the intervention will be assessed at 3 timepoints (T1, T2, T3). The DICE research team, composed of undergraduate and graduate CWRU students, was divided into two independent arms: intervention implementation (II) and data collection (DC). The II team is responsible for delivering the 90-minute in-person educational lessons to participating children and their family each week of programming. The DC team will be responsible for collecting data on participating families at each data collection time point. To assure protocol compliance, data reliability/validity, and intervention fidelity, research team training on each arm’s respective duties was essential and developed. The DICE training was divided into two portions: asynchronous and in-person; and was delivered via a train-the-trainer (TTT) model.

Population

- Graduate and undergraduate students from CWRU who were assigned to one of two research team arms: data collection or intervention implementation

Objectives

- **Objective:** create effective training/education for DICE research assistants through a multi-stage training/education platform: asynchronous foundational training followed by a two-day in-person team-specific training
- **Objective:** assess the effectiveness of the TTT model through pre- and post-training quantitative assessments and post-training qualitative feedback

Activities/Deliverables

Over the course of 3 months (Sept - Nov 2023), asynchronous/foundational training was created for the data collection and intervention implementation teams. The next 3 months (Dec '23 - Feb '24), in-person training was created for both teams. In January and February of 2024, the live trainings were conducted.

Deliverables include:

- Asynchronous/foundational training slide deck
- Two-day in-person group training specific for each team.

Results

Table 1. Change (pre-training to post-training) in Knowledge Across DICE Training Competencies

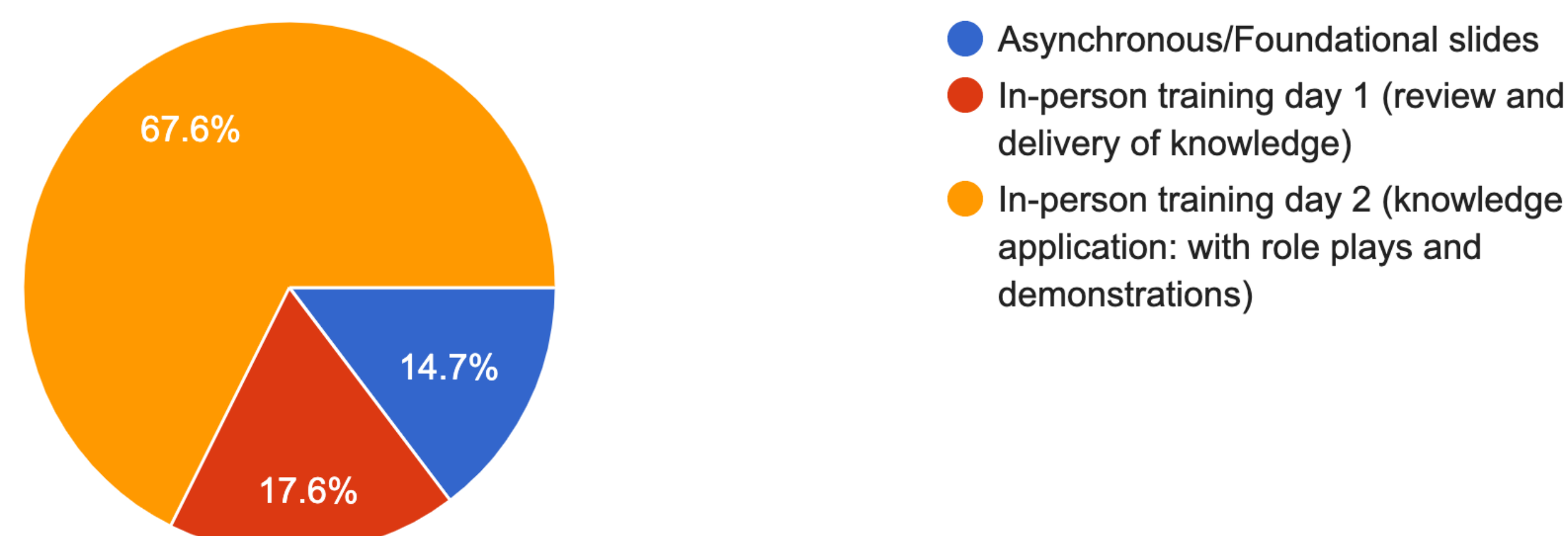
Data Collection Team (N = 18)	Mean Pre-training score	Mean Post-training score	P-value	Intervention Implementation Team (N = 22)	Mean Pre-Training score	Mean Post-training score	P-value
T1DM Knowledge (max score: 12)	5.56	7.44	<0.0001	T1DM Knowledge (max score: 12)	6.00	8.14	<0.0001
T1DM Disparities (max score: 3)	1.00	1.72	<0.0008	T1DM Disparities (max score: 3)	0.64	1.55	0.0006
Underserved Populations* (max score: 5)	2.67	3.17	0.0348	Underserved Populations* (max score: 5)	2.73	3.50	0.0004
Research Ethics and Study Design (max score: 4)	1.78	2.61	<0.0001	Research Ethics and Study Design (max score: 4)	2.09	2.36	0.0829
Summative Score (max score: 24)	10.89	14.89	<0.0001	Summative Score (max score: 24)	11.36	15.50	<0.0001

*Working with underserved populations: health literacy and cultural sensitivity

Post-training Research Assistant Feedback

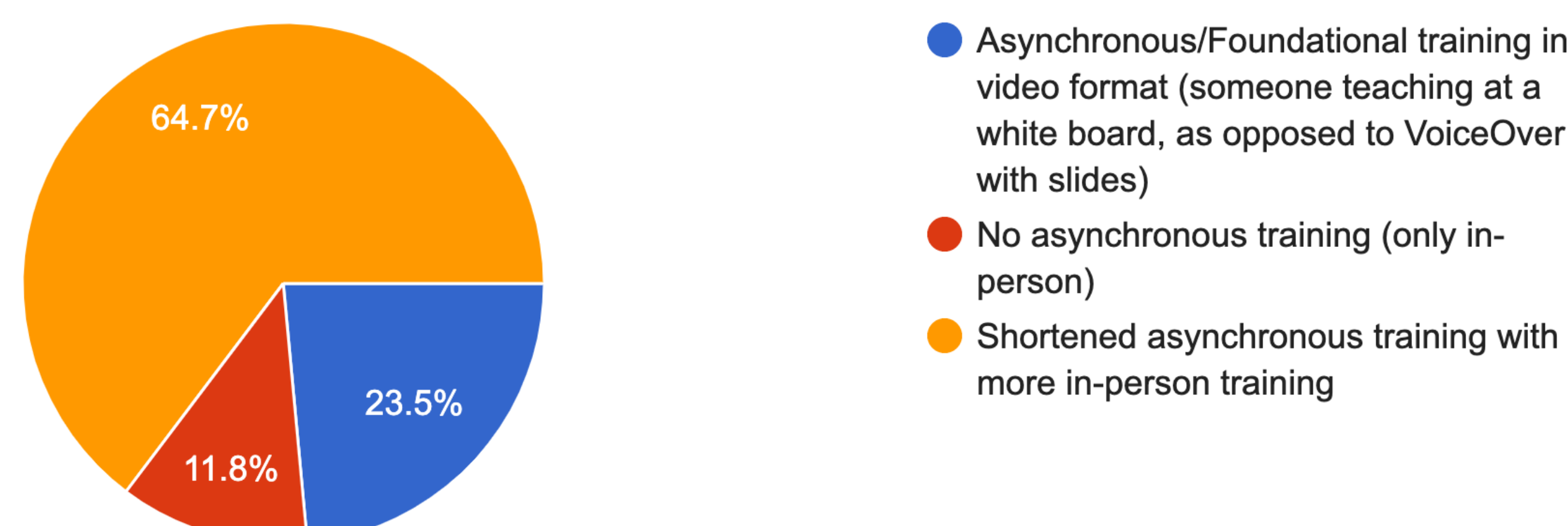
Which component of the DICE research team training best prepared you for your role on the DICE research team?

34 responses



Now that you have the opportunity to execute your role on the DICE research team, what would have made the training more effective for you?

34 responses



Methods

This research study utilized the TTT model to educate intervention implementation and data collection research assistants through a multi-stage training platform beginning with individual asynchronous training followed by a two-day in-person group training specific for each team.

Each team was assessed via pre- and post-training competencies in the following areas: T1DM knowledge; T1DM disparities; working with underserved populations (which included health literacy and cultural sensitivity); and research ethics and study design. Post-training, the research assistants were asked to provide feedback on the training through a two-question survey.

Lessons Learned

- The TTT model is an effective educational platform in a clinical nutrition setting as evidenced by the pre- to post-training results
- A multi-stage training platform - asynchronous slides followed by in-person training - is an effective way to execute the TTT model; however an emphasis should be placed on in-person/hands-on training

Public Health Implications

The TTT model is an effective educational platform in a public health setting by way of training individuals to become educators for various populations. Specific to DICE, this was achieved via training research assistants to work with underserved populations in the following areas: T1DM disparities, health literacy, and cultural sensitivity.

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References

DICE Research Study Protocol - 2023



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