Evaluation Plan & Evaluation Pilot

For information on the GREAT with Data Initiative, please visit https://grided.epri.com/great_with_data.html

# Evaluation Plan at-a-glance

1. Kirkpatrick Model of Evaluation
2. Develop a Stakeholder Matrix for Reporting (who, when, and what)
3. Establish Metrics & Key Performance Indicators
4. Construct & conduct an Evaluation Pilot
5. Gather midstream feedback (formative evaluation)
6. Create all instruments to measure outcomes
7. Continue to measure, document, share results & iterate

1. Kirkpatrick Model of Evaluation

Established (50+ years) internationally-recognized framework for evaluating training programs
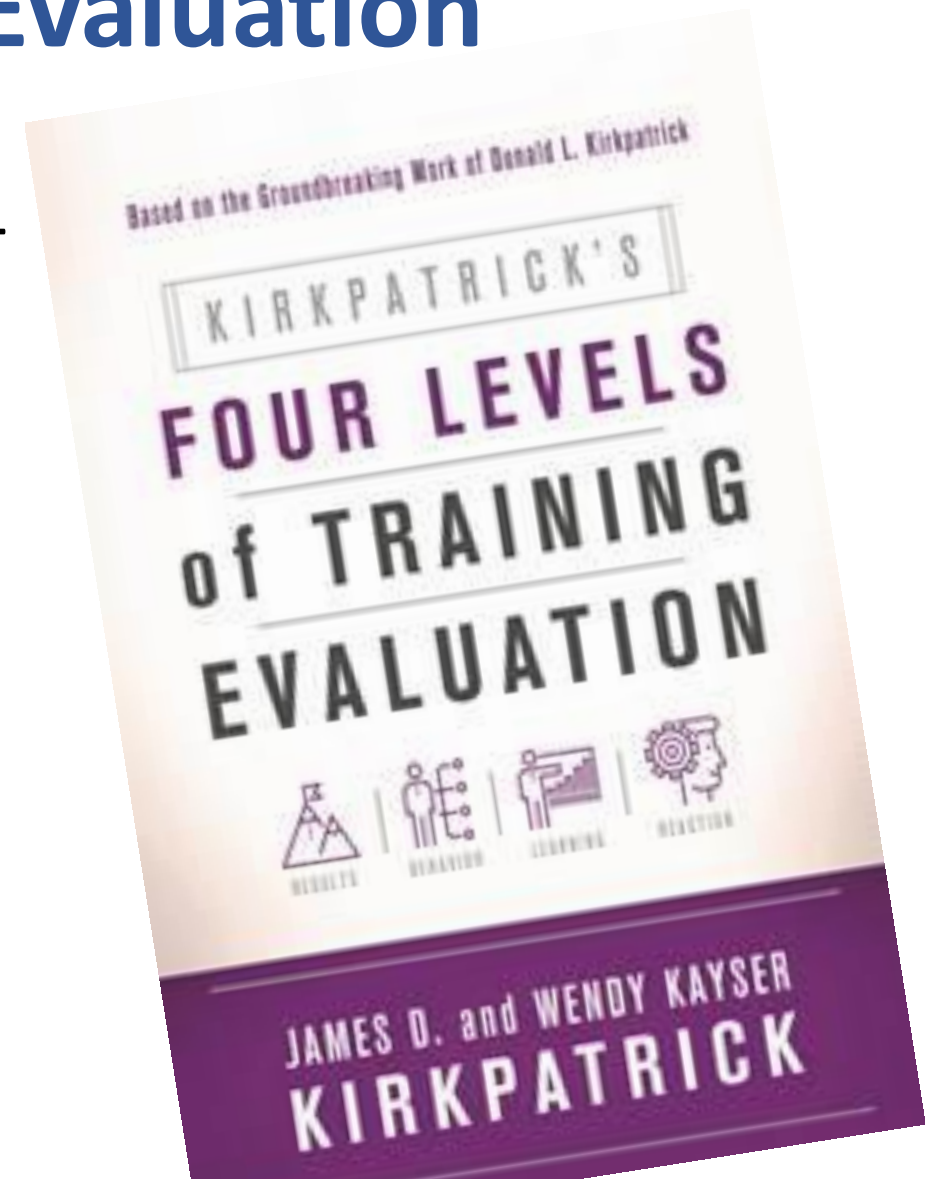
Kirkpatrick Model of Evaluation
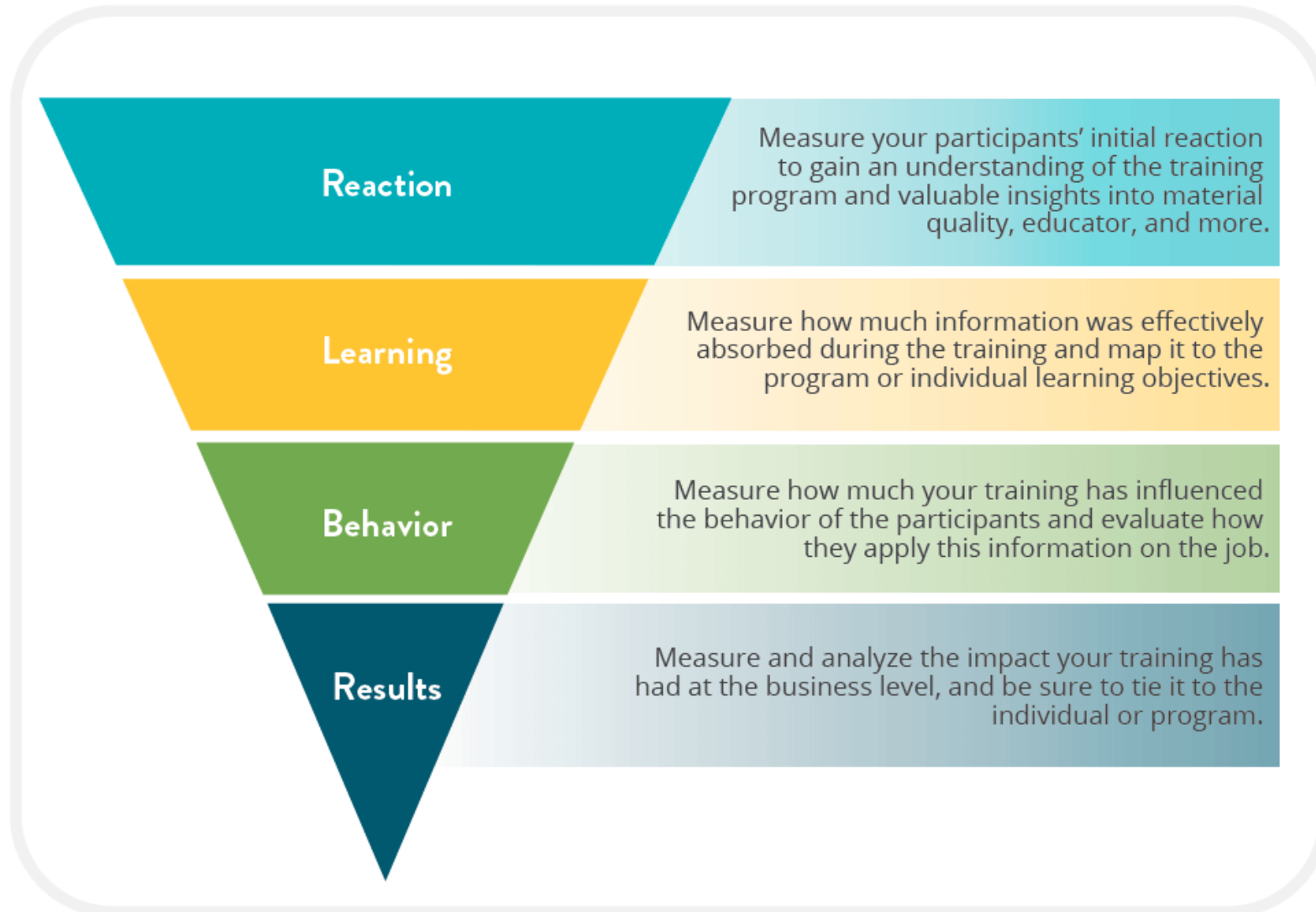
Levels of Evaluation

Level 1 – Reaction: Engagement, relevance, satisfaction, attitudes

Level 2 – Learning: Grades, confidence, commitment, motivation

Level 3 – Behavior: Retention, performance outcomes, application of learning

Level 4 – Results: Metrics, KPIs, Impact

Clear, definable, inarguable Success

2. Stakeholder Matrix

Stakeholders	Course			Quarter	Semi-Annual	Annual
	Midterm	Final	Outcomes	Results	Metrics	Report
Participants/Students	X		X			
Instructors/Faculty	X	X	X		X	X
Utility Advisors				X	X	X
Partner Universities		X	X	X	X	X
Affiliate Universities				X		X
EPRI	X	X		X	X	X
Department of Energy				X		X

3. Establish Metrics & KPIs

Outcomes that are **readily** available and can be **consistently and accurately tracked** over time

GREAT with Data KPIs and End of Project Goals*

		Status (projected for BP1)	Threshold	Target	Distinguished
Utility Advisor Engagement	# of utility advisors	12	15	20	30
	Utility advisor satisfaction	TBD	85%	90%	95%
Professional Training Program	# of short courses offered	4	40	65	100
	Avg. short course enrollment	21	15	18	20
	# of "unique" participants	135	400	750	1,200
	PDHs issued	1,450	7,200	14,000	24,000
	CBT hours created	3	80	90	100
	hours of CBT completions	3	2,500 hrs	8,000 hrs	15,000 hrs
	# of credentials issued	TBD	50	60	75
	Learning outcomes	TBD	80%	85%	90%
	Student satisfaction	TBD	85%	90%	95%
University Engagement	# of enriched university courses	15	8	12	15
	# of relevant university course offerings	17	50	80	100
	# of "unique" students in relevant courses	350	1,000	1,500	2,000
	Student satisfaction	4.19	4.0/5.0	4.1/5.0	4.2/5.0
	# of Affiliate universities	21	20	35	50
	# of HBCUs	3	3	5	10
	# of undergrade student projects	5	40	60	80
	# of students in UG student projects	26	200	300	400
Communication and Outreach	# of workshops	2	8	15	20
	Avg. workshop enrollment	39	15	25	35
	# of conference engagements	TBD	4	8	15
	Online Shared Learning Forum visits	TBD	2,000	5,000	10,000
Overall Project Goals	Student Preparedness	4.22	4.0/5.0	4.1/5.0	4.2/5.0
	Post-Training Student Preparedness	TBD	4.0/5.0	4.1/5.0	4.2/5.0

Threshold, target, and distinguished KPIs represent end of project goals.

KPI Definitions

Utility Advisor Engagement	# of utility advisors	# of utilities who are members of GridEd
	Utility advisor satisfaction	Average satisfaction/expectations across key activities from the annual satisfaction survey of utility advisors
Professional Training Program	# of short courses offered	#of live in-person or live-online short courses provided
	Avg. short course enrollment	Average enrollment in all short courses (short courses capped at 30 people)
	# of "unique" participants	list of unique email addresses from all registrants in GREAT with Data Courses
	PDHs issued	# of PDHs issued through professional training courses
	CBT hours created	# of Computer Based Training (CBT) hours created and uploaded to an e-learning platform (such as EPRI|U)
	hours of CBT completions	# of CBT hours completed by students/participants
	# of credentials issued	# of credentials issued through the GREAT with Data Initiative
	Learning outcomes	The average grade from students who take a learning assessment from GREAT with Data Courses
	Student satisfaction	Average results from course satisfaction surveys following each short course and CBT completion
University Engagement	# of enriched university courses	# of university courses for which course materials are developed and "eventually" provided to an online repository
	# of relevant university course offerings	# of offerings of a course at the 5 partner universities that are related to GREAT with Data topics
	# of "unique" students in relevant courses	# of unique students in course that been created or modified through the GREAT with Data initiative
	Student satisfaction	Average student rating of course satisfaction on post-hoc evaluation
	# of Affiliate universities	# of Affiliated universities that have been sponsored by utility advisors
	# of HBCUs	# of Historically Black Colleges and Universities (HBCU) which have been nominated as Affiliate universities
	# of undergrade student projects	# of projects EPRI has sponsored through GridEd
	# of students in UG student projects	# of students listed as participants in projects EPRI has sponsored through GridEd
Communication and Outreach	# of workshops	# of live in-person live-online workshops provided as a special tech transfer activity
	Avg. workshop enrollment	Average enrollment in workshops (no cap on workshop attendance)
	# of conference engagements	# of conference engagements (posters, presentations, booths, etc.) to promote the GREAT with Data initiative
	Online Shared Learning Forum visits	# of visits to the Data Analytics Center of Excellence
Overall Project Goals	Student Preparedness	Average student improvement between week 4 and week 16 on sum of the knowledge + confidence + motivation post-hoc questions
	Post-Training Student Preparedness	Average alumni "agrees" (4.0) on sum of the preparedness for job questions

4. Evaluation Pilot

Multi-method / Multi-format data collection

- Student reactions
- Faculty narratives
- Stakeholder input
- Objective tests & quizzes
- Grades & learning outcomes
- Quantitative metrics

Purpose = To ensure:
- ✓ Reliability
- ✓ Validity
- ✓ Practicality

Results: Evaluation Pilot

✓ RELIABLE: Survey instruments administered multiple times to multiple courses at multiple universities.

✓ VALID: Multiple formats used with multiple stakeholders triangulated on same outcomes

✓ PRACTICAL: All measures demonstrated high response rates, ease of collection, and buy-in from stakeholders

➢ All measures went through testing, application and several reiterations based on responses and feedback from users

Evaluation Pilot during COVID shutdown

+ Student **satisfaction** with course & instructor **increased in spite of** courses immediately transitioning to virtual delivery

+ **Response rates** for the PILOT measures were **higher** than response rates to the standard university course evaluations

− Learning outcomes and final grades for each course were omitted from analysis due to change in grading policy (students given "A" grades, students allowed to choose Pass/Fail option)

5. Midstream Evaluation

Gathering and ACTING on feedback while course is in session to make improvements to delivery while it still matters to students

➢ 16-item form (validated from 300,000+ responses since 2001)

Results: Midstream vs. Final Evaluation

Student satisfaction with **quality of courses**

- Week 4 = 86% vs. Week 16 = 92% satisfaction

Student satisfaction with **quality of instruction**

- Week 4 = 90% vs. Week 16 = 94% satisfaction

Overall student response rate: **75.9%** (vs. GEARED* = 55.2%)

Average comments per student: **39.3 words** (vs. GEARED* = 34.1)

*Grid Energineering for Accelerated Renewable Energy Deployment (GEARED) was a 5-year federally funded program sponsored by the U.S. Department of Energy. For information on the GEARED, please visit https://gearedusa.org/

6. Evaluation Instruments

Instrument	Description	Notes
Midstream Evaluation	Average student rating of course satisfaction at 25% course progress milestone	Each relevant university course
University End of Course Evaluation	Average student rating of course satisfaction at 100% course progress milestone	Each relevant university course
Professional Training Course Evaluation	Average rating of satisfaction on post-hoc evaluation	Each relevant professional course
Computer-based Training Evaluation	Average rating of satisfaction on post-hoc evaluation	Each relevant CBT
Workshop Satisfaction Survey	Average rating of satisfaction on post-hoc evaluation	Each relevant workshop
Job Preparedness Survey of GREAT Alumni	Survey of all alumni who took a course to understand how the GREAT with Data courses helped prepare them for their jobs	Annual survey
Utility Advisory Satisfaction Survey	Level 1 measures of satisfaction with progress on key grant activities as judged by Utility Advisors	Annual survey
Course Prioritization Survey	Input from stakeholders to prioritize 32 courses categorized by 4 topics in order to meet stakeholder needs	Annual survey
Value of Credentials Survey	Determine value of credentials to key stakeholders	Special one-time survey

7. Assure success through ongoing evaluation

Faculty will continue to accurately report key metrics over time (e.g., unique students) via the shared metrics template

EPRI-U and instructors will continue to track all key metrics against specific target numbers on quarterly basis

Utility Advisors & Affiliate Universities will continue to review and rate progress on project goals via online satisfaction forms