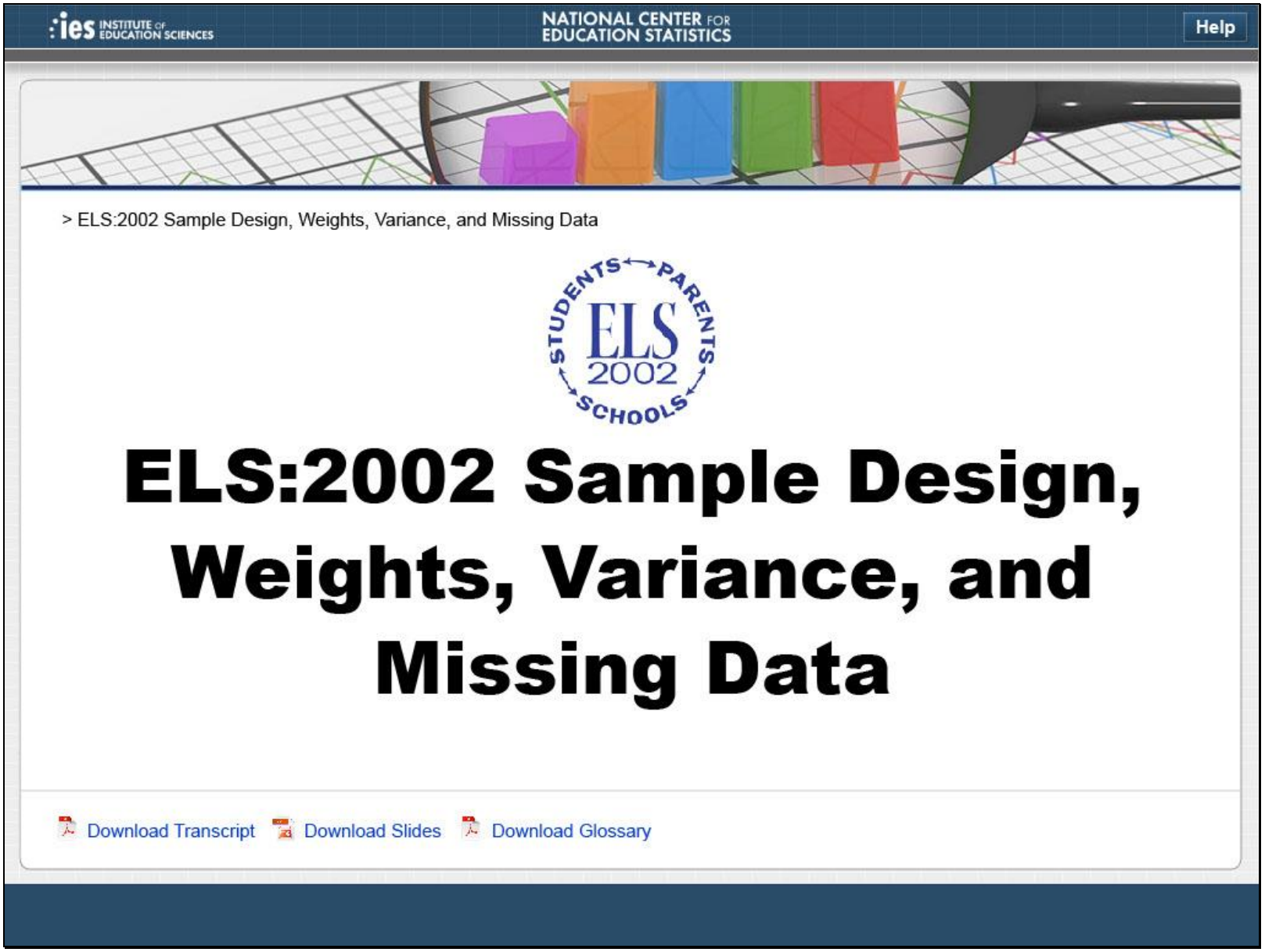
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> ELS:2002 Sample Design, Weights, Variance, and Missing Data
STUDENTS PARENTS SCHOOLS
ELS 2002
ELS:2002 Sample Design, Weights, Variance, and Missing Data
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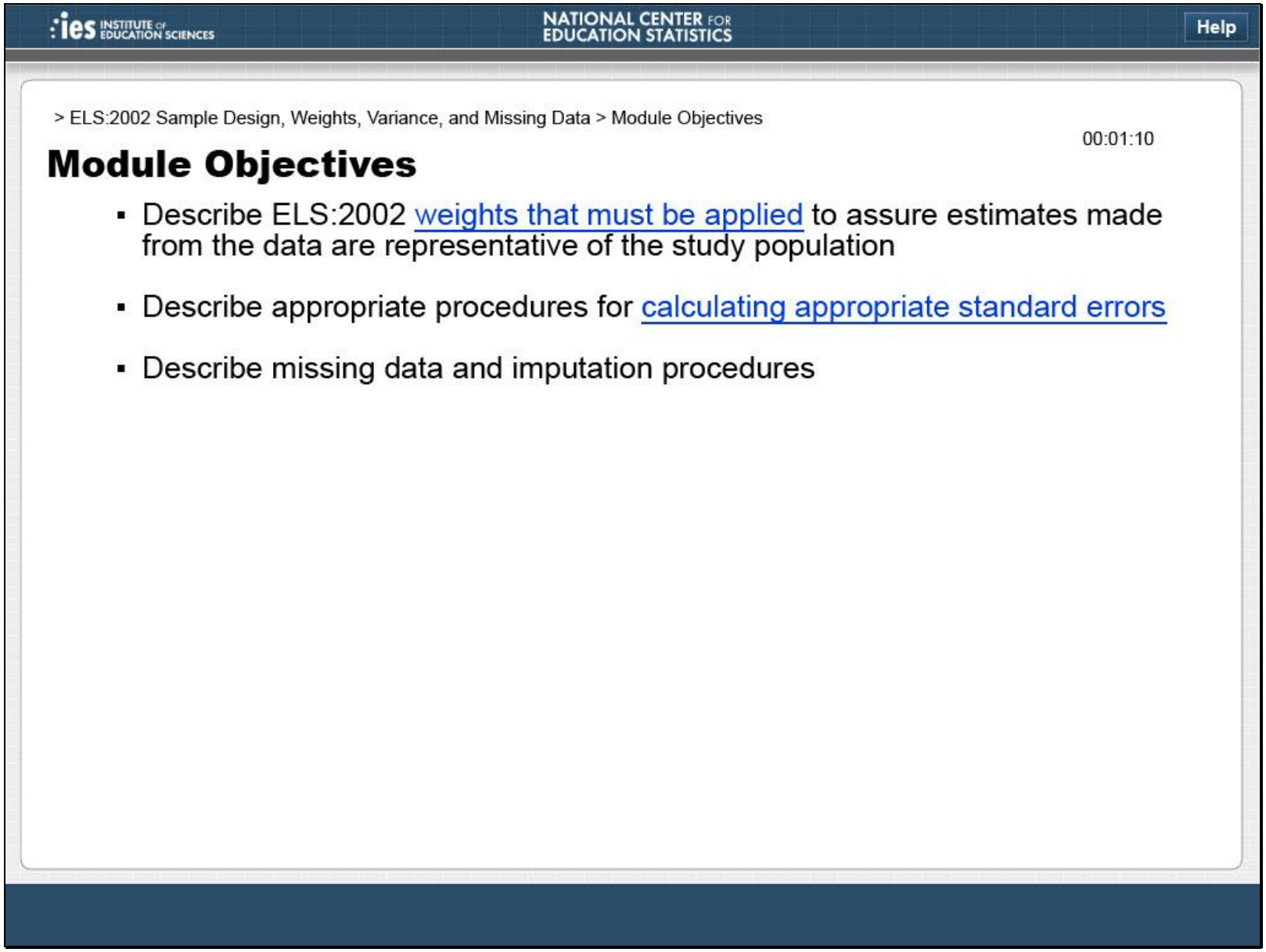
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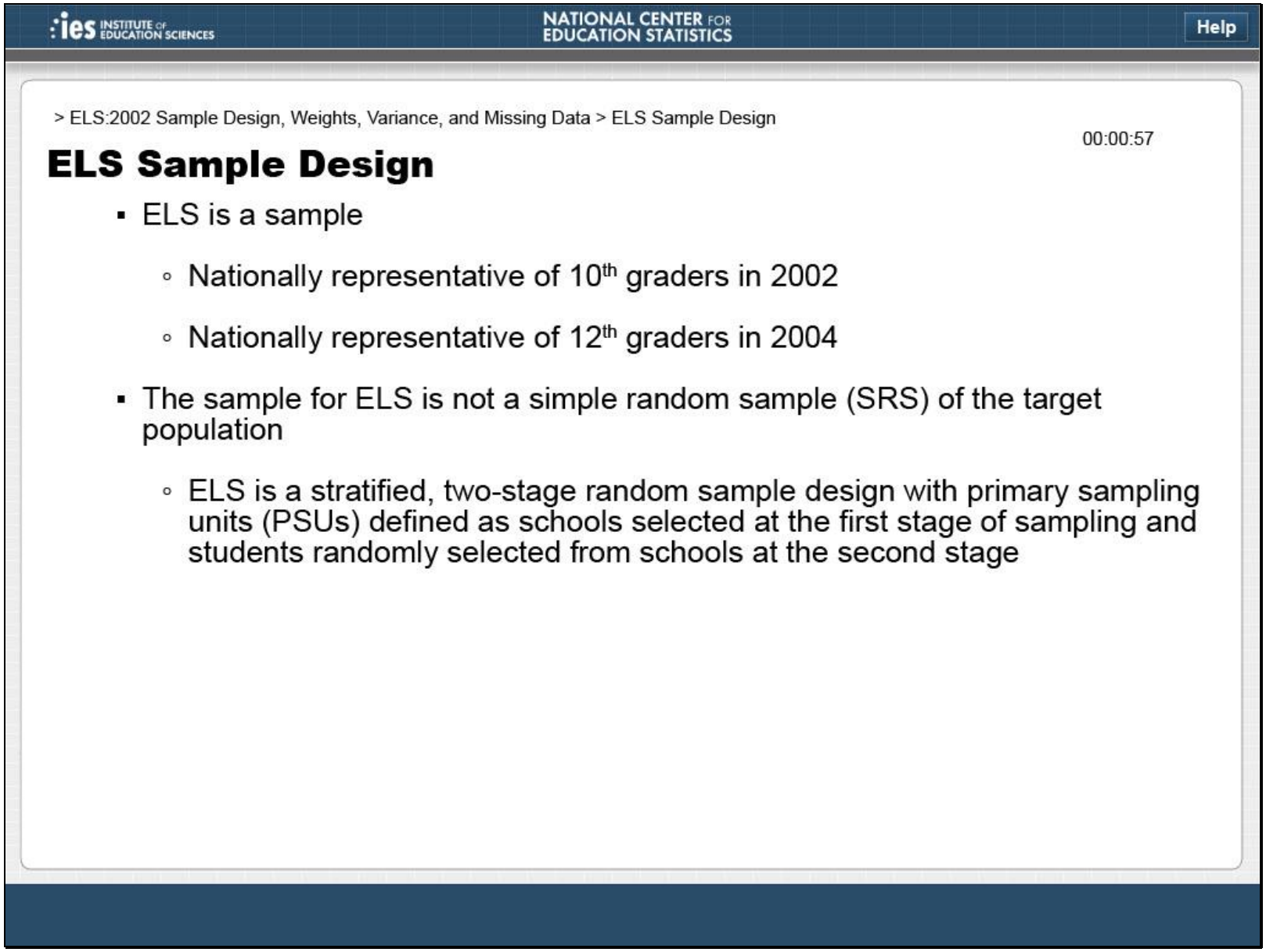
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Module Objectives
00:01:10
Module Objectives
Describe ELS:2002 weights that must be applied to assure estimates made from the data are representative of the study population
Describe appropriate procedures for calculating appropriate standard errors
Describe missing data and imputation procedures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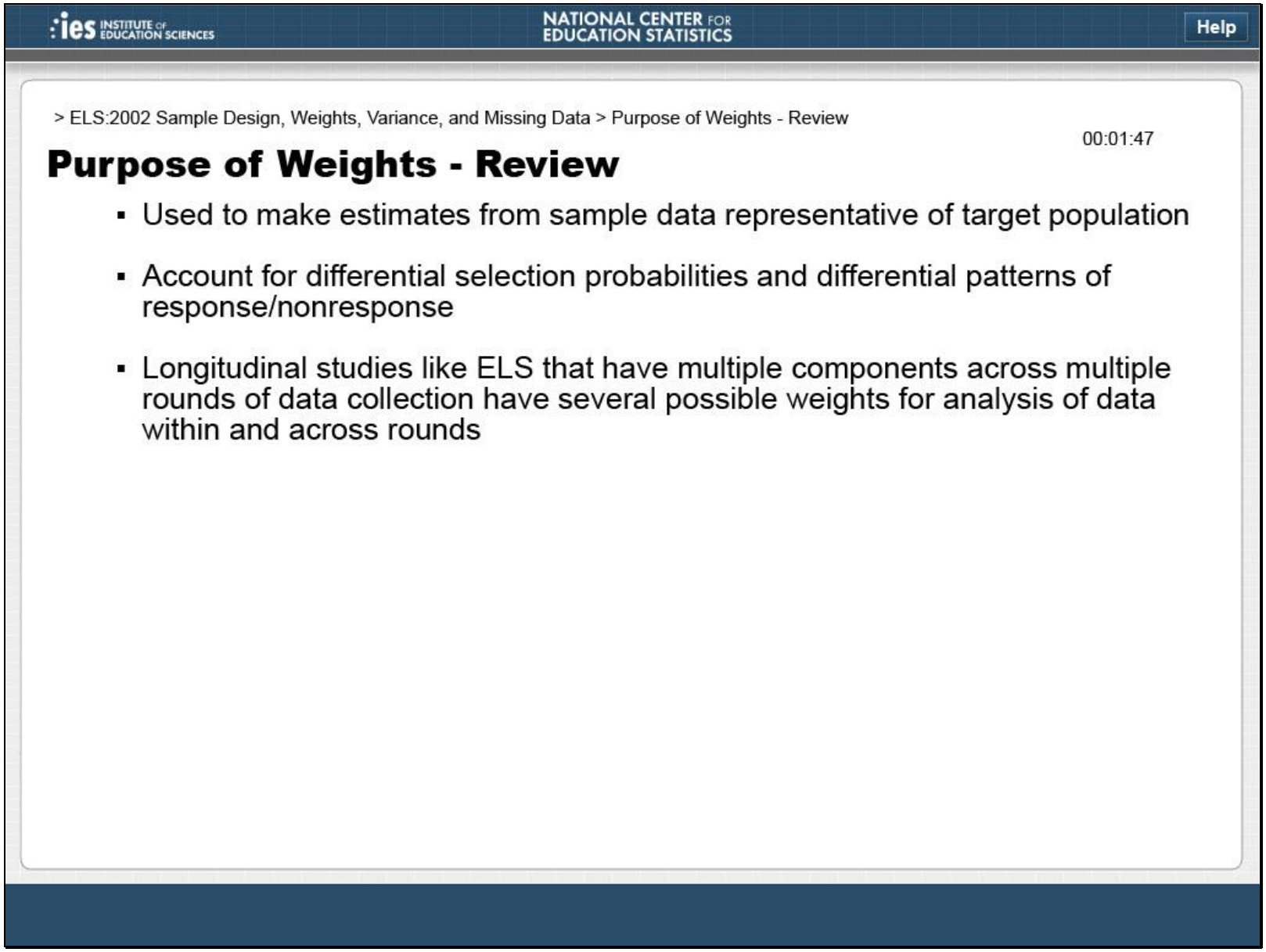
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > ELS Sample Design
00:00:57
ELS Sample Design
ELS is a sample
Nationally representative of 10th graders in 2002
Nationally representative of 12th graders in 2004
The sample for ELS is not a simple random sample (SRS) of the target population
ELS is a stratified, two-stage random sample design with primary sampling units (PSUs) defined as schools selected at the first stage of sampling and students randomly selected from schools at the second stage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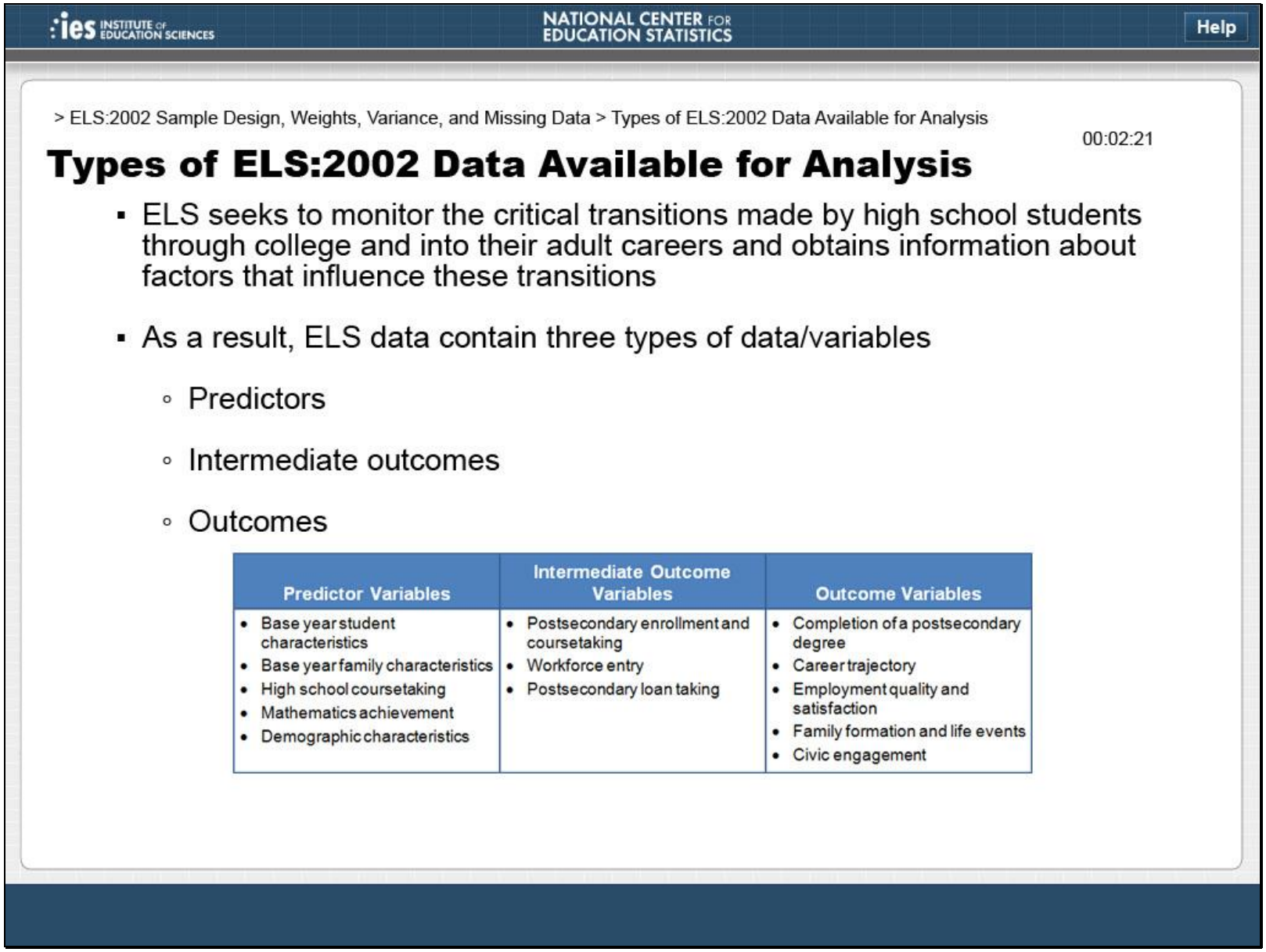
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Purpose of Weights - Review
00:01:47
Purpose of Weights - Review
Used to make estimates from sample data representative of target population
Account for differential selection probabilities and differential patterns of response/nonresponse
Longitudinal studies like ELS that have multiple components across multiple rounds of data collection have several possible weights for analysis of data within and across rounds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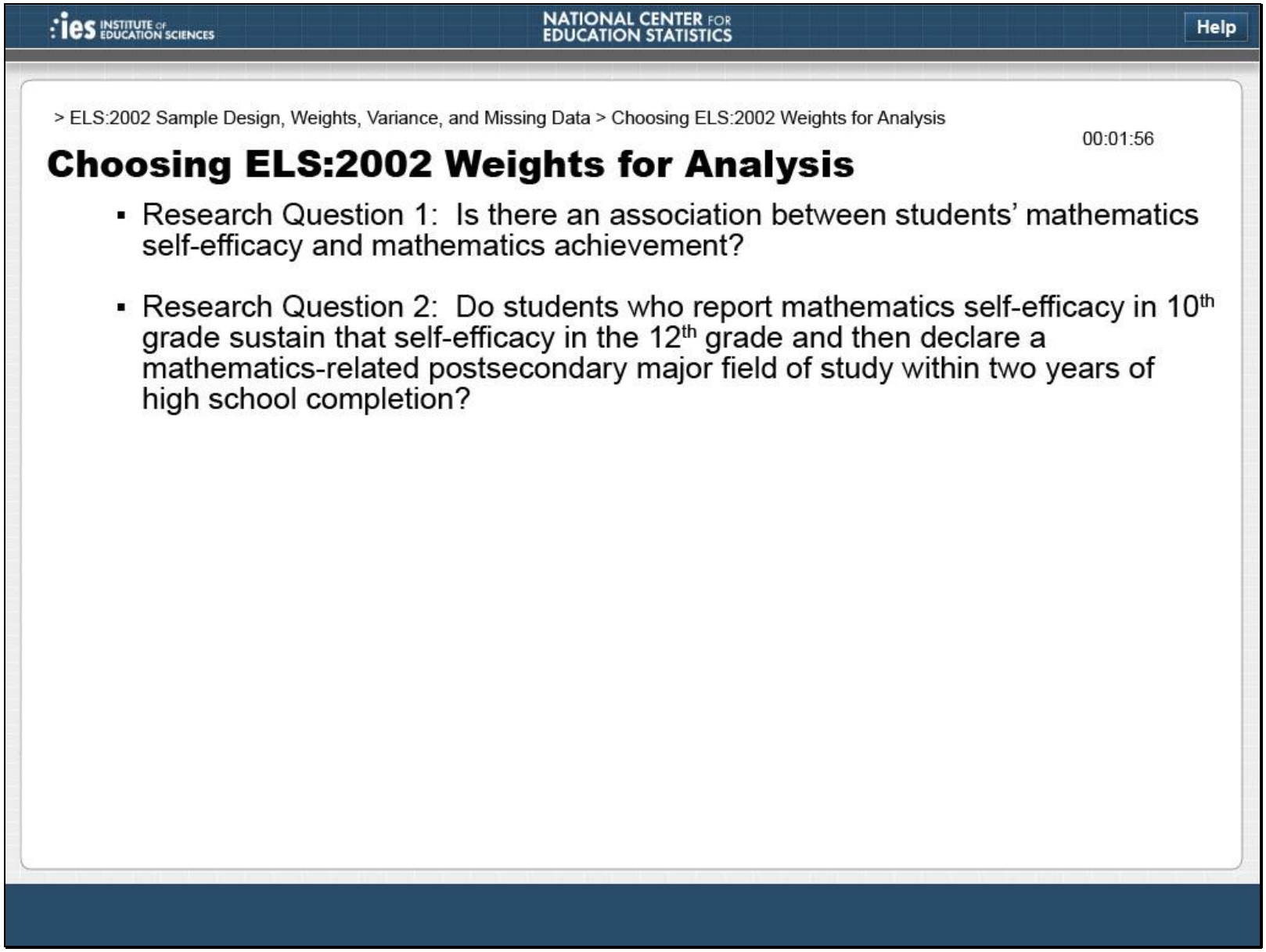
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Types of ELS:2002 Data Available for Analysis
00:02:21
Types of ELS:2002 Data Available for Analysis
ELS seeks to monitor the critical transitions made by high school students through college and into their adult careers and obtains information about factors that influence these transitions
As a result, ELS data contain three types of data/variables
Predictors
Intermediate outcomes
Outcomes
Predictor Variables
Base year student characteristics
Base year family characteristics
High school coursetaking
Mathematics achievement
Demographic characteristics
Intermediate Outcome Variables
Postsecondary enrollment and coursetaking
Workforce entry
Postsecondary loan taking
Outcome Variables
Completion of a postsecondary degree
Career trajectory
Employment quality and satisfaction
Family formation and life events
Civic engagement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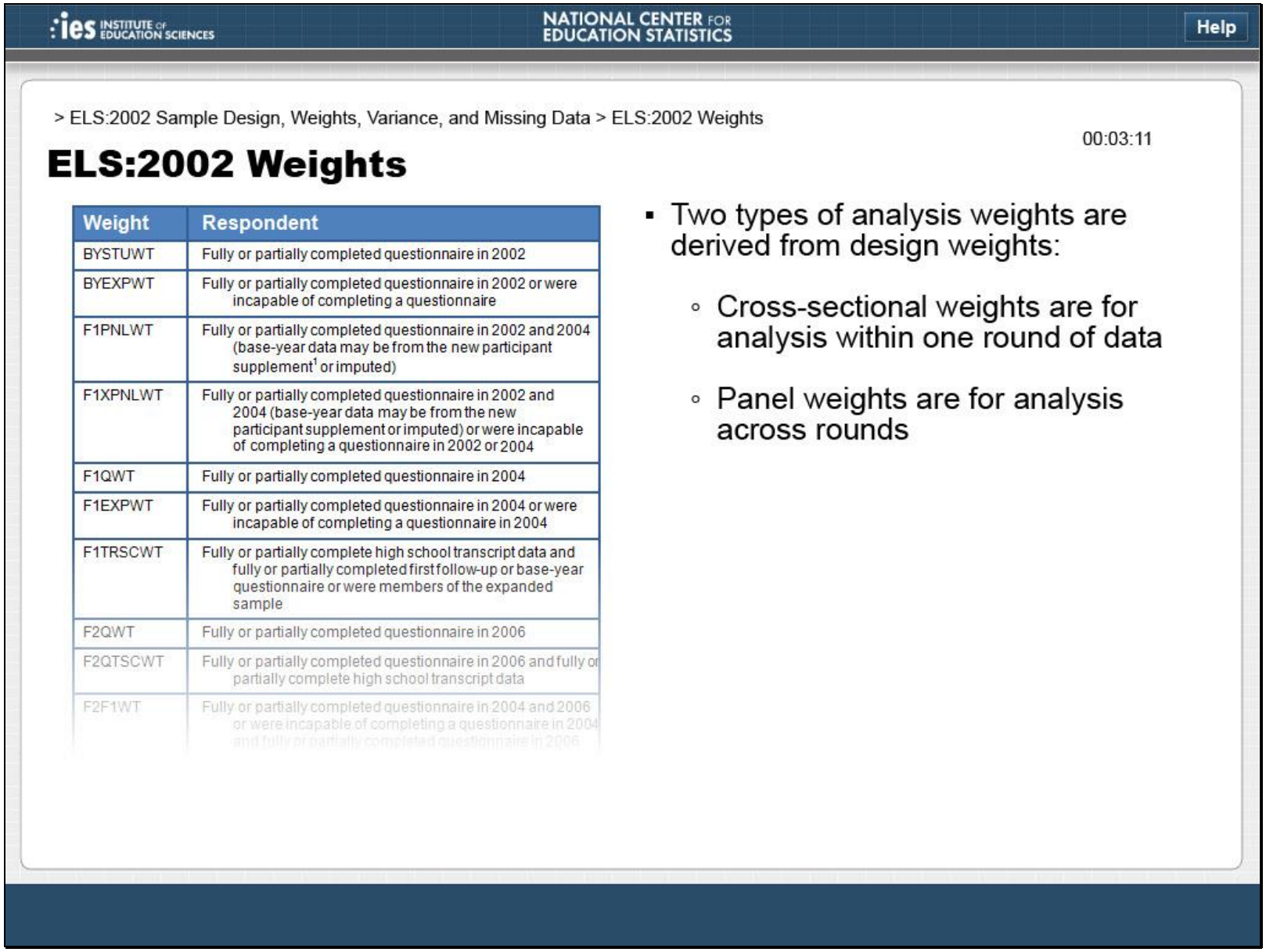
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Choosing ELS:2002 Weights for Analysis
00:01:56
Choosing ELS:2002 Weights for Analysis
Research Question 1: Is there an association between students' mathematics self-efficacy and mathematics achievement?
Research Question 2: Do students who report mathematics self-efficacy in 10th grade sustain that self-efficacy in the 12th grade and then declare a mathematics-related postsecondary major field of study within two years of high school completion?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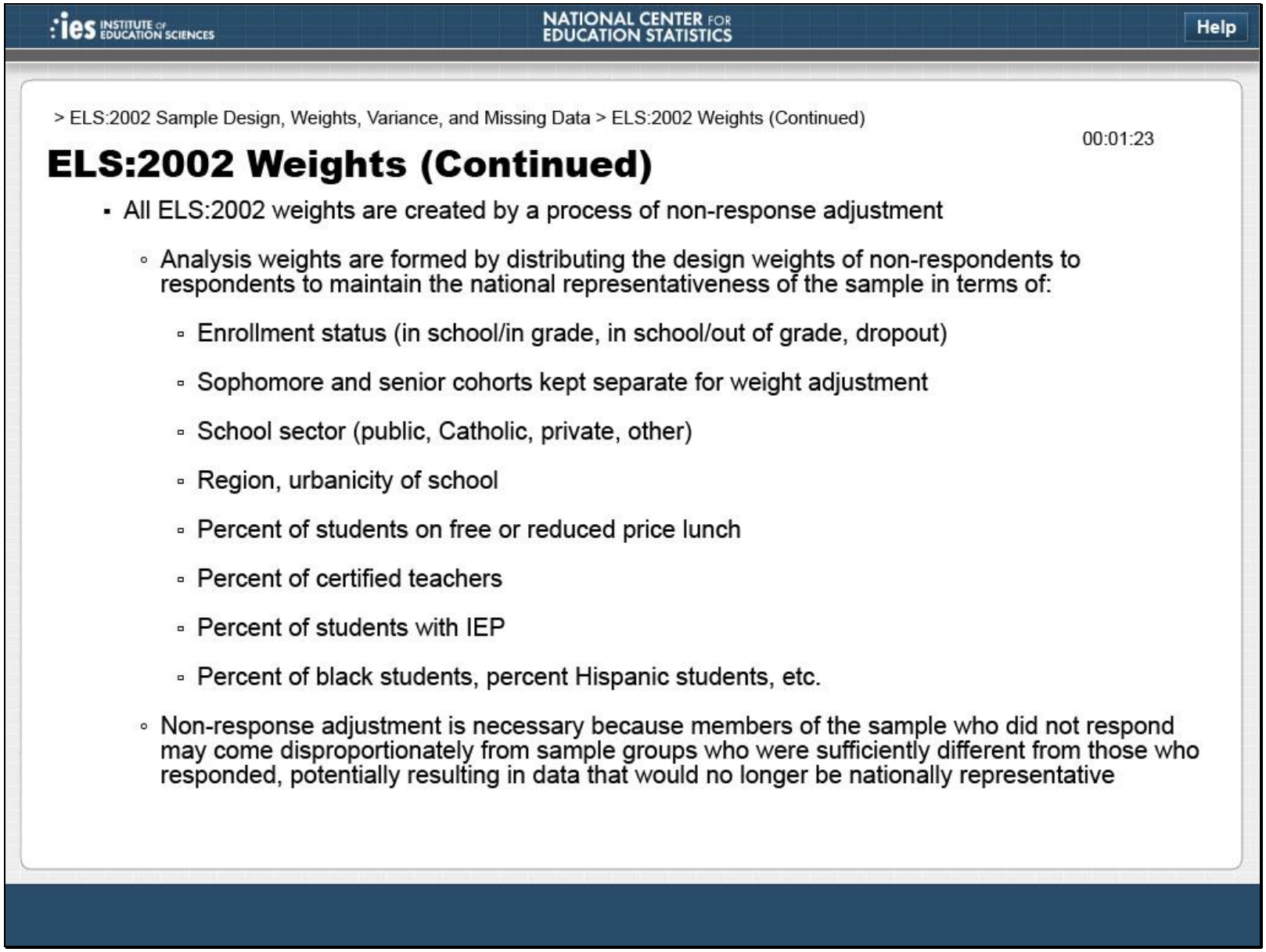
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > ELS:2002 Weights
00:03:11
ELS:2002 Weights
Weight
Respondent
BYSTUWT
Fully or partially completed questionnaire in 2002
BYEXPWT
Fully or partially completed questionnaire in 2002 or were incapable of completing a questionnaire
F1PNLWT
Fully or partially completed questionnaire in 2002 and 2004 (base-year data may be from the new participant supplement[1] or imputed)
F1XPNLWT
Fully or partially completed questionnaire in 2002 and 2004 (base-year data may be from the new participant supplement or imputed) or were incapable of completing a questionnaire in 2002 or 2004
F1QWT
Fully or partially completed questionnaire in 2004
F1EXPWT
Fully or partially completed questionnaire in 2004 or were incapable of completing a questionnaire in 2004
F1TRSCWT
Fully or partially complete high school transcript data and fully or partially completed first follow-up or base-year questionnaire or were members of the expanded sample
F2QWT
Fully or partially completed questionnaire in 2006
F2QTSCWT
Fully or partially completed questionnaire in 2006 and fully or partially complete high school transcript data
F2F1WT
Fully or partially completed questionnaire in 2004 and 2006 or were incapable of completing a questionnaire in 2004 and fully or partially completed questionnaire in 2006
Two types of analysis weights are derived from design weights:
Cross-sectional weights are for analysis within one round of data
Panel weights are for analysis across rounds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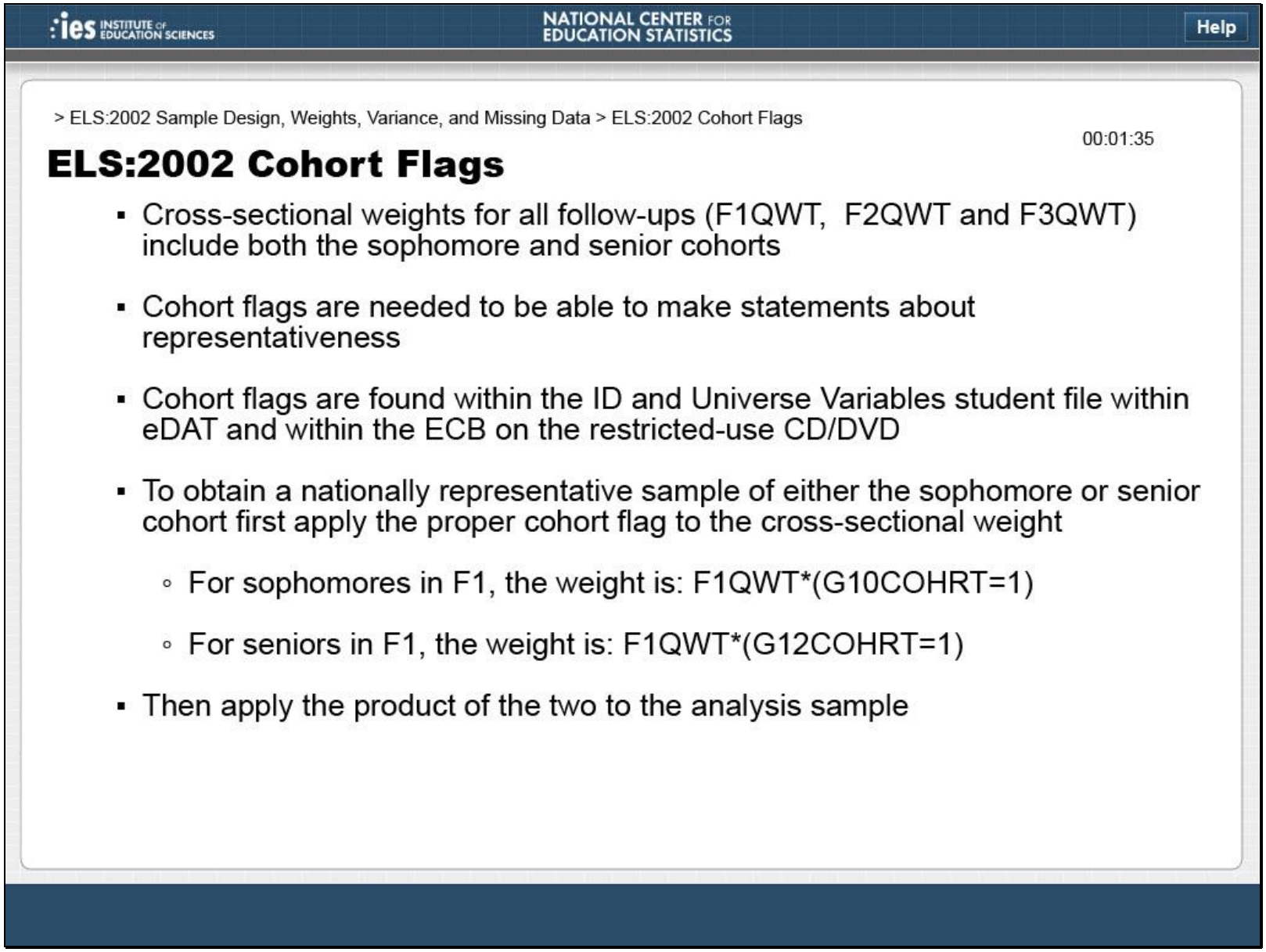
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > ELS:2002 Weights (Continued)
00:01:23
ELS:2002 Weights (Continued)
All ELS:2002 weights are created by a process of non-response adjustment
Analysis weights are formed by distributing the design weights of non-respondents to respondents to maintain the national representativeness of the sample in terms of:
Enrollment status (in school/in grade, in school/out of grade, dropout)
Sophomore and senior cohorts kept separate for weight adjustment
School sector (public, Catholic, private, other)
Region, urbanicity of school
Percent of students on free or reduced price lunch
Percent of certified teachers
Percent of students with IEP
Percent of black students, percent Hispanic students, etc.
Non-response adjustment is necessary because members of the sample who did not respond may come disproportionately from sample groups who were sufficiently different from those who responded, potentially resulting in data that would no longer be nationally representative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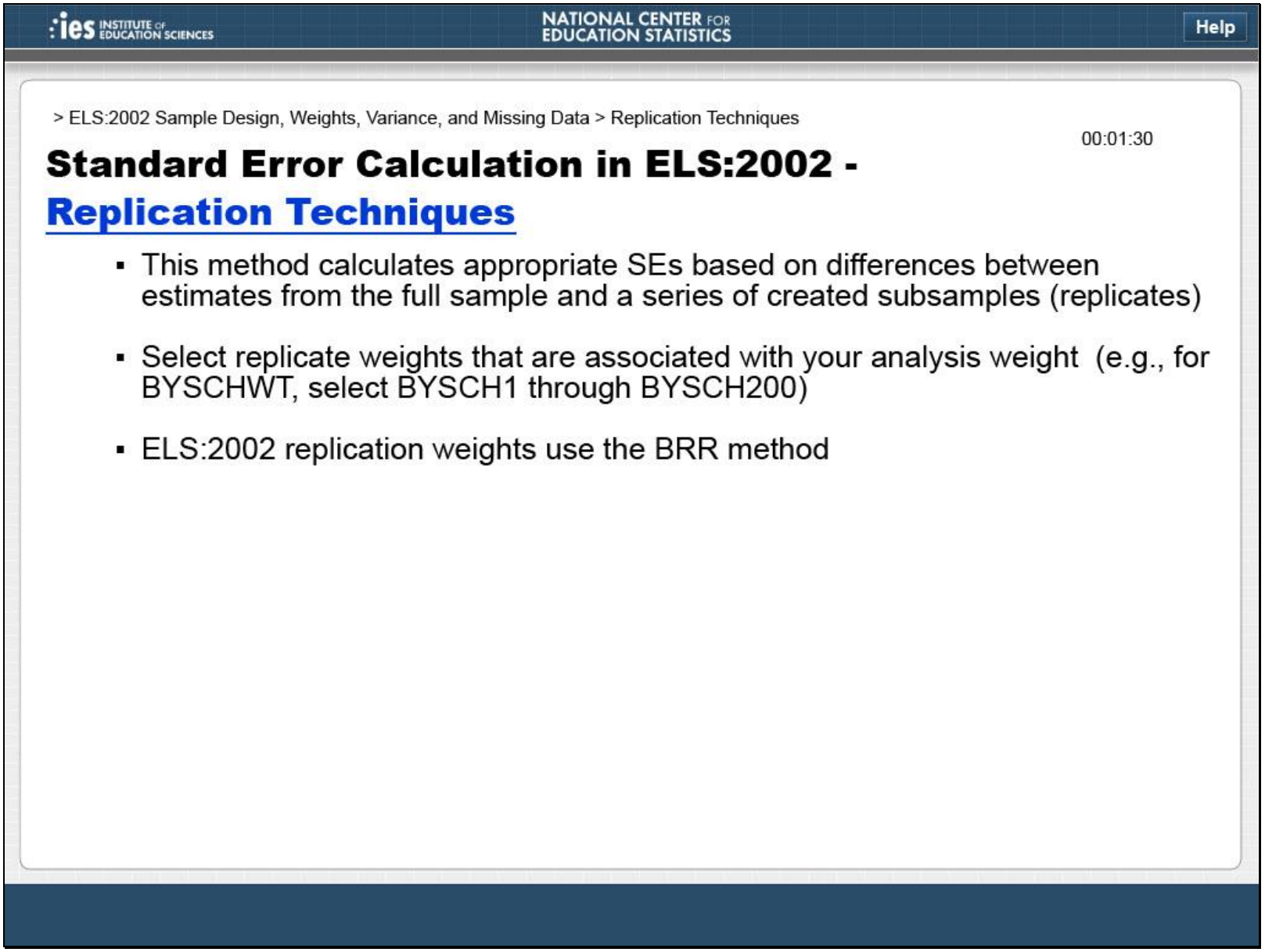
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > ELS:2002 Cohort Flags
00:01:35
ELS:2002 Cohort Flags
Cross-sectional weights for all follow-ups (F1QWT, F2QWT and F3QWT) include both the sophomore and senior cohorts
Cohort flags are needed to be able to make statements about representativeness
Cohort flags are found within the ID and Universe Variables student file within eDAT and within the ECB on the restricted-use CD/DVD
To obtain a nationally representative sample of either the sophomore or senior cohort first apply the proper cohort flag to the cross-sectional weight
For sophomores in F1, the weight is: F1QWT*(G10COHRT=1)
For seniors in F1, the weight is: F1QWT*(G12COHRT=1)
Then apply the product of the two to the analysis sample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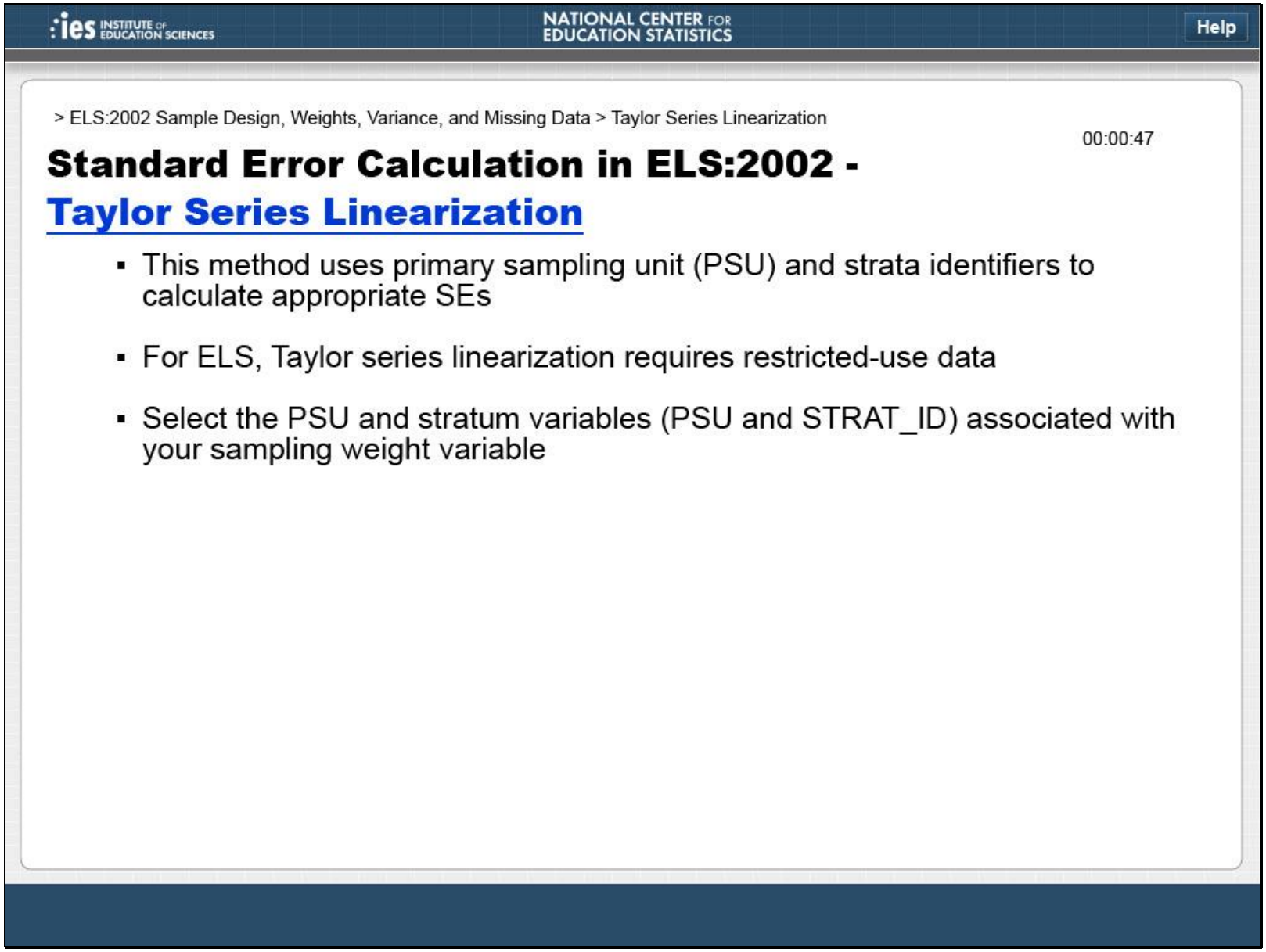
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Replication Techniques
00:01:30
Standard Error Calculation in ELS:2002 -
Replication Techniques
▪ This method calculates appropriate SEs based on differences between estimates from the full sample and a series of created subsamples (replicates)
▪ Select replicate weights that are associated with your analysis weight (e.g., for BYSCHWT, select BYSCH1 through BYSCH200)
▪ ELS:2002 replication weights use the BRR method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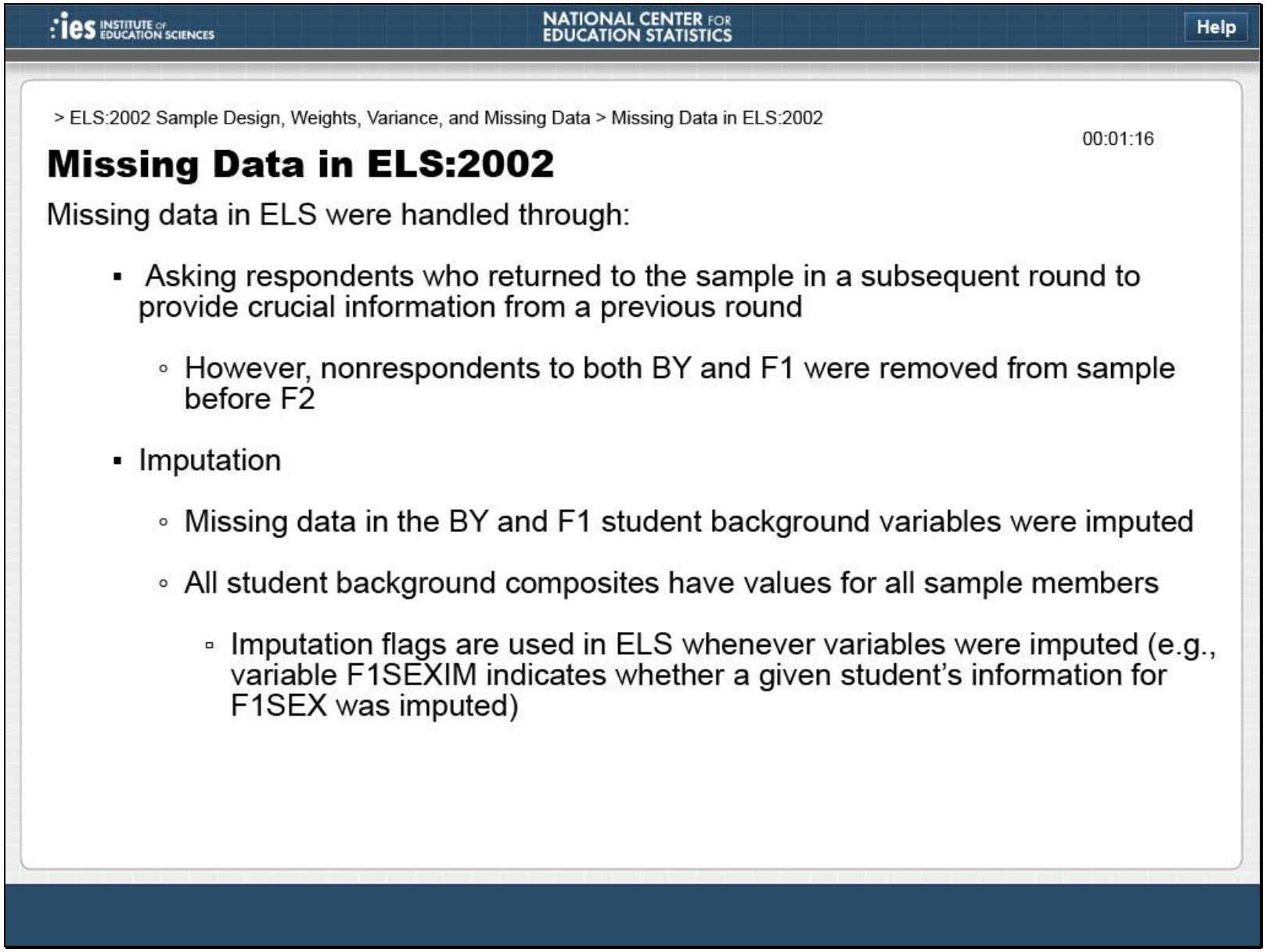
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Taylor Series Linearization
00:00:47
Standard Error Calculation in ELS:2002 -
Taylor Series Linearization
▪ This method uses primary sampling unit (PSU) and strata identifiers to calculate appropriate SEs
▪ For ELS, Taylor series linearization requires restricted-use data
▪ Select the PSU and stratum variables (PSU and STRAT_ID) associated with your sampling weight variable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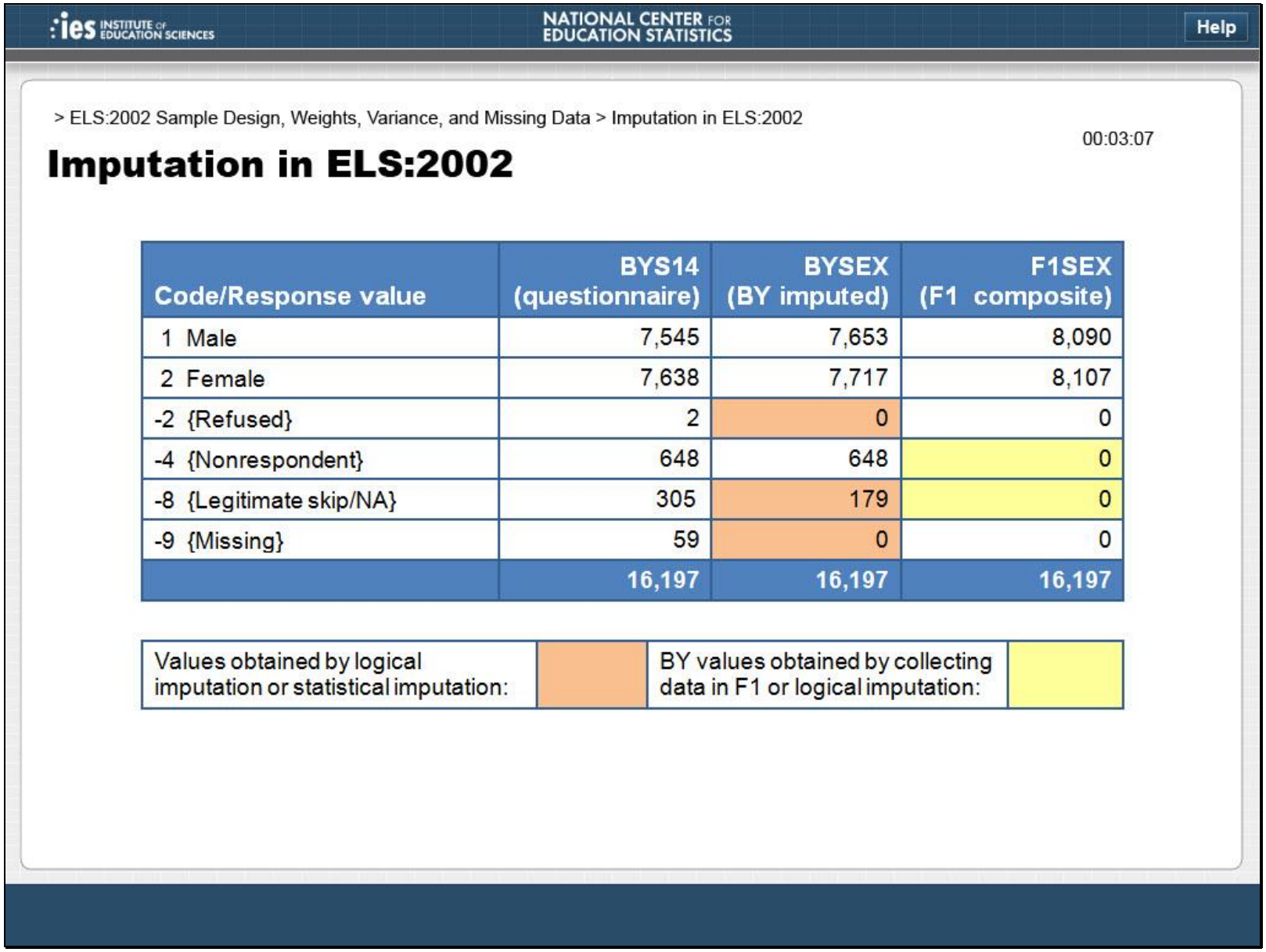
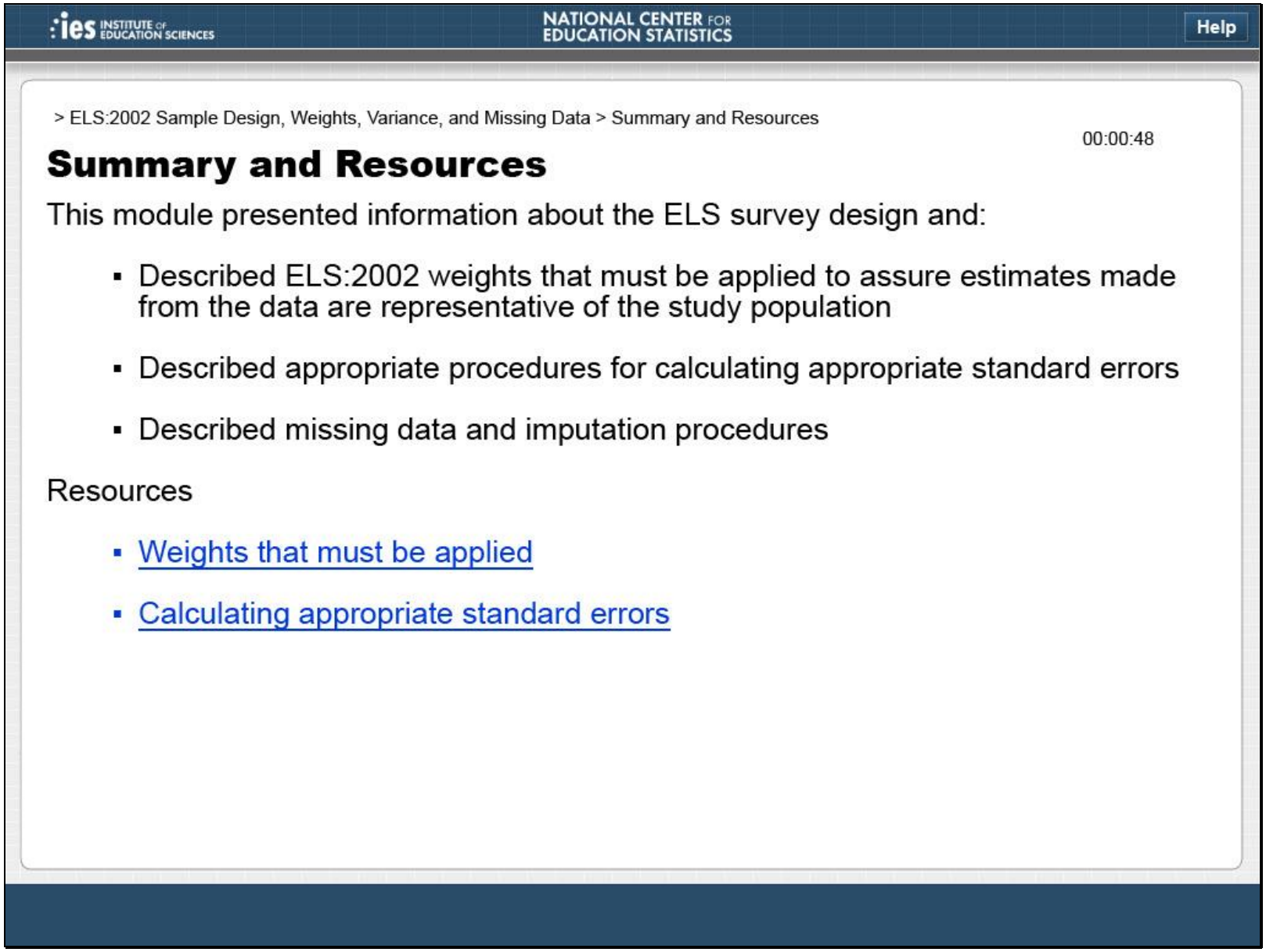
> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Missing Data in ELS:2002
00:01:16
Missing Data in ELS:2002
Missing data in ELS were handled through:
Asking respondents who returned to the sample in a subsequent round to provide crucial information from a previous round
However, nonrespondents to both BY and F1 were removed from sample before F2
Imputation
Missing data in the BY and F1 student background variables were imputed
All student background composites have values for all sample members
Imputation flags are used in ELS whenever variables were imputed (e.g., variable F1SEXIM indicates whether a given student's information for F1SEX was imputed)



Code/Response value	BYS14 (questionnaire)	BYSEX (BY imputed)	F1SEX (F1 composite)
1 Male	7,545	7,653	8,090
2 Female	7,638	7,717	8,107
-2 {Refused}	2	0	0
-4 {Nonrespondent}	648	648	0
-8 {Legitimate skip/NA}	305	179	0
-9 {Missing}	59	0	0
	16,197	16,197	16,197

Values obtained by logical imputation or statistical imputation:		BY values obtained by collecting data in F1 or logical imputation:	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> ELS:2002 Sample Design, Weights, Variance, and Missing Data > Summary and Resources
00:00:48
Summary and Resources
This module presented information about the ELS survey design and:
Described ELS:2002 weights that must be applied to assure estimates made from the data are representative of the study population
Described appropriate procedures for calculating appropriate standard errors
Described missing data and imputation procedures
Resources
Weights that must be applied
Calculating appropriate standard errors