

Inclusion

Observing Inclusion in STEM Classes: Academic and Social Participation of Students with and without Intellectual or Developmental Disabilities --Manuscript Draft--

Manuscript Number:	INCLUSION-M-20-00006R2
Article Type:	Research Article
Keywords:	inclusion, general education access, observational study, severe disabilities
Corresponding Author:	Emily Kuntz University of Oklahoma Norman, OK UNITED STATES
First Author:	Emily M Kuntz
Order of Authors:	Emily M Kuntz Erik W Carter, Ph.D. Kaitlyn Cassady, M.Ed. Victoria F Knight, Ph.D.
Manuscript Region of Origin:	UNITED STATES
Abstract:	<p>Calls to support inclusive educational experiences for students with intellectual and developmental disabilities (IDD) have been longstanding. General education STEM classes may provide a rich context for promoting the inclusion of these students within a relevant curricular area. To assess inclusive class participation, we directly observed 15 secondary students with IDD—along with a comparison group of their classmates without disabilities—in STEM-related classes. We focused on academic, social, and contextual measures. Although some similarities were found in the academic and social participation of students and their classmates, key differences were observed in the areas of what they learned, who they conversed with, and how they learned. We present recommendations for future research and practice aimed at strengthening inclusive educational experiences.</p>

January 19, 2021

Dear Dr. Scott,

We value the feedback provided by you and the reviewers on our manuscript entitled “Observing Inclusion in STEM Classes: Academic and Social Participation of Students with and without Intellectual or Developmental Disabilities.” We appreciate the opportunity for the manuscript to be improved for *Inclusion*. We have made the revisions in response to the feedback. Below, we detail the ways in which we addressed each recommendation.

Reviewer #1

- 1. In STEM as a point of access, add citations to some of the claims classified under “literature.”**

We have added example citations.

- 2. What is this study’s definition of inclusive classrooms? The authors should make clear whether that means students with disabilities are physically present in the classroom or there is unstated criterion to classify these classrooms as inclusive.**

We added a clarifying statement in the Introduction’s Study Purpose paragraph (page 5). As evidenced by the Content Alignment of the focus students’ instruction, rarely were students receiving alternate content or instruction.

- 3. One student attended for 15 minutes daily, but inclusion criteria stated students had to spend 30 minutes in general education in order to be a part of the study. The authors should explain how that student met inclusion criteria.**

We have made changes to the section on Participants with IDD (page 6) and Observational Procedures (page 10) to better reflect that we did aim to select students who attended their general education class for at least 30 min per day. However, upon learning the student only stayed in her class for 15 min, we increased the number of observations to have a comparable number of recorded intervals. No other students were excluded from the study based on this criterion.

- 4. One student only participated in the beginning of the study. Was his data dropped or used differently in the analyses?**

We retained his data in the analyses as “James”. The only difference in his data was that we had fewer intervals of data compared to those focus students who we were able to observe as planned.

- 5. Regarding the 3rd point in the Discussion (the focus students having different types of interactions than controls), the authors make an anecdotal remark, but they have an opportunity to use data to investigate whether instructional grouping (i.e., working with the paraprofessional while other students work in peer groups) could account for this.**

Yes, this is a good point. However, the only instructional grouping in which a paraprofessional (or other adult) was expressly included was “1:1.” Only five focus students had a least one interval coded as “1:1.” Therefore, even in instructional

groupings with peers, focus students still often interacted with the paraprofessional. The anecdotal remark largely refers to how teachers formed instructional groupings, for which we did not code. We noticed that, when grouping students in the class, teachers often allowed focus students to work with the same peers (often those with disabilities supported by the same paraprofessional) rather than intentionally assigning peer groups that would facilitate social connections.

6. The 4th limitation is inherent to observational studies. I would not regard this as a limitation of this particular study.

We have removed this limitation from the manuscript.

Reviewer #2

1. It is recommended that STEM be mentioned briefly in the introductory paragraph.

In the first paragraph (page 3), we have mentioned STEM classes as providing inclusive context and content while allowing for the learning of both academic and functional skills as mentioned previously in the paragraph.

2. Acronyms should be spelled out before used (see ID).

We have written out acronyms as requested.

Reviewer #3

1. Highlight in the Introduction and literature review that several of the transition-related predictors of post-school success are related not only to inclusive education, but also to specific CTE/vocational/occupational coursework related to STEM instruction.

We agree with the reviewer that access to CTE and vocational classes are a predictor of better post-school outcomes. However, only a few of the classes we observed in would be properly categorized CTE/vocational (e.g., collision repair, digital design). While we agree that there is some overlap between STEM and CTE, we are reluctant to make the connection to this predictor literature in light of the small number of participating students who attended such classes.

2. Expand on the implications for policy in the Discussion and give those more prominence alongside implications for research and practice.

We have expanded up on the implications for policy in the Discussion.

Thank you for considering our work for publication in Inclusion. Please let us know if you need any additional information. We look forward to hearing back from you.

Sincerely,

The Authors



**Observing Inclusion in STEM Classes: Academic and Social Participation of Students with
and without Intellectual and Developmental Disabilities**



Click here to access/download

Edited Manuscript

Inclusive Class Participation manuscript 01 19 2021
Edited.docx

January 19, 2021

Dear Dr. Scott,

We value the feedback provided by you and the reviewers on our manuscript entitled “Observing Inclusion in STEM Classes: Academic and Social Participation of Students with and without Intellectual or Developmental Disabilities.” We appreciate the opportunity for the manuscript to be improved for *Inclusion*. We have made the revisions in response to the feedback. Below, we detail the ways in which we addressed each recommendation.

Reviewer #1

- 1. In STEM as a point of access, add citations to some of the claims classified under “literature.”**

We have added example citations.

- 2. What is this study’s definition of inclusive classrooms? The authors should make clear whether that means students with disabilities are physically present in the classroom or there is unstated criterion to classify these classrooms as inclusive.**

We added a clarifying statement in the Introduction’s Study Purpose paragraph (page 5). As evidenced by the Content Alignment of the focus students’ instruction, rarely were students receiving alternate content or instruction.

- 3. One student attended for 15 minutes daily, but inclusion criteria stated students had to spend 30 minutes in general education in order to be a part of the study. The authors should explain how that student met inclusion criteria.**

We have made changes to the section on Participants with IDD (page 6) and Observational Procedures (page 10) to better reflect that we did aim to select students who attended their general education class for at least 30 min per day. However, upon learning the student only stayed in her class for 15 min, we increased the number of observations to have a comparable number of recorded intervals. No other students were excluded from the study based on this criterion.

- 4. One student only participated in the beginning of the study. Was his data dropped or used differently in the analyses?**

We retained his data in the analyses as “James”. The only difference in his data was that we had fewer intervals of data compared to those focus students who we were able to observe as planned.

- 5. Regarding the 3rd point in the Discussion (the focus students having different types of interactions than controls), the authors make an anecdotal remark, but they have an opportunity to use data to investigate whether instructional grouping (i.e., working with the paraprofessional while other students work in peer groups) could account for this.**

Yes, this is a good point. However, the only instructional grouping in which a paraprofessional (or other adult) was expressly included was “1:1.” Only five focus students had a least one interval coded as “1:1.” Therefore, even in instructional

groupings with peers, focus students still often interacted with the paraprofessional. The anecdotal remark largely refers to how teachers formed instructional groupings, for which we did not code. We noticed that, when grouping students in the class, teachers often allowed focus students to work with the same peers (often those with disabilities supported by the same paraprofessional) rather than intentionally assigning peer groups that would facilitate social connections.

6. The 4th limitation is inherent to observational studies. I would not regard this as a limitation of this particular study.

We have removed this limitation from the manuscript.

Reviewer #2

1. It is recommended that STEM be mentioned briefly in the introductory paragraph.

In the first paragraph (page 3), we have mentioned STEM classes as providing inclusive context and content while allowing for the learning of both academic and functional skills as mentioned previously in the paragraph.

2. Acronyms should be spelled out before used (see ID).

We have written out acronyms as requested.

Reviewer #3

1. Highlight in the Introduction and literature review that several of the transition-related predictors of post-school success are related not only to inclusive education, but also to specific CTE/vocational/occupational coursework related to STEM instruction.

We agree with the reviewer that access to CTE and vocational classes are a predictor of better post-school outcomes. However, only a few of the classes we observed in would be properly categorized CTE/vocational (e.g., collision repair, digital design). While we agree that there is some overlap between STEM and CTE, we are reluctant to make the connection to this predictor literature in light of the small number of participating students who attended such classes.

2. Expand on the implications for policy in the Discussion and give those more prominence alongside implications for research and practice.

We have expanded up on the implications for policy in the Discussion.

Thank you for considering our work for publication in Inclusion. Please let us know if you need any additional information. We look forward to hearing back from you.

Sincerely,

The Authors