

# Inclusion

## Work-Based Learning Experiences and Students with Intellectual Disability

--Manuscript Draft--

<b>Manuscript Number:</b>	INCLUSION-SPECIAL_E-M-21-00030R1
<b>Article Type:</b>	Research Article
<b>Keywords:</b>	intellectual disability; work-based learning; transition; employment
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<b>Manuscript Region of Origin:</b>	UNITED STATES
<b>Abstract:</b>	<p>The purpose of this study was to describe the extent to which students with intellectual disability participate in work-based learning experiences and determine whether student characteristics (e.g., gender, race/ethnicity, grade level, and support needs) relate to student participation in these activities. An online questionnaire was emailed to high school special education teachers in four states who had a state issued teaching license in intellectual disability. A total of 266 teachers completed the questionnaire. Descriptive and inferential statistics were used to answer the research questions. Students participated in a variety of work-based learning experiences, with more students participating in school experiences than community experiences. The majority of work experiences were in one of three career clusters: (a) hospitality and tourism, (b) business, management, and administration, or (c) general work skills. Amount of time spent in work experiences varied greatly, with students spending more time in school experiences than community experiences. Student support needs and grade level were related to participation in community experiences. Grade level was also related to the amount of time students spent in school and community experiences.</p>

## **Work-based Learning Experiences and Students with Intellectual Disability**

### **Abstract**

The purpose of this study was to describe the extent to which students with intellectual disability participate in work-based learning experiences and determine whether student characteristics (e.g., gender, race/ethnicity, grade level, and support needs) relate to student participation in these activities. An online questionnaire was emailed to high school special education teachers in four states who had a state issued teaching license in intellectual disability. A total of 266 teachers completed the questionnaire. Descriptive and inferential statistics were used to answer the research questions. Students participated in a variety of work-based learning experiences, with more students participating in school experiences than community experiences. The majority of work experiences were in one of three career clusters: (a) hospitality and tourism, (b) business, management, and administration, or (c) general work skills. Amount of time spent in work experiences varied greatly, with students spending more time in school experiences than community experiences. Student support needs and grade level were related to participation in community experiences. Grade level was also related to the amount of time students spent in school and community experiences.

*Keywords:* intellectual disability, work-based learning, transition, employment

### **Work-Based Learning Experiences and Students with Intellectual Disability**

The Individuals with Disabilities Education Act (IDEA, 2004) states that one of the purposes of special education is to prepare students with disabilities for post-school life. To accomplish this purpose, IDEA (2004) requires that all students with disabilities age 16 or older receive transition services. Transition services include “instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation” (IDEA, 2004, §300.43). These services are designed to facilitate students’ progress towards post-school goals. For students whose post-school goals are to obtain employment, transition services may include participation in work-based learning experiences (WBLEs). During WBLEs, students learn about careers and gain employment skills within school or community settings. The Workforce Innovation and Opportunity Act (WIOA, 2014) emphasizes the importance of WBLEs by identifying them as one of five pre-employment transition services vocational rehabilitation counselors must provide students with disabilities.

There are many different types of WBLEs in which students with disabilities may participate. Within the school setting, WBLEs include career and technical education courses, school-based enterprises, on campus jobs, and job clubs and vocational organizations (Mazzotti & Test, 2015). WBLEs may also occur within the special education classroom (Bouck, 2012; Dymond et al., 2014). In the community, WBLEs include short, one day events, such as career exploration or job shadowing (Luecking, 2020). They also include intensive experiences where students receive instruction over an extended period of time (e.g., work sampling, service learning, internships, apprenticeships, paid employment; Luecking, 2020).

Students with disabilities who participate in certain WBLEs have improved post-school employment outcomes (see Mazzotti et al., 2021; Shandra & Hogan, 2008). Of the WBLEs available to students with disabilities, paid work has received the most attention in the literature and has been identified as a predictor of post-school employment (Mazzotti et al., 2016; Mazzotti et al., 2021; Test et al., 2009). Students with ID who have paid work during high school are more likely to be employed after graduation (Carter et al., 2012; Hasazi et al., 1985; Joshi et al., 2012; Simonsen & Neubert, 2012; Sitlington et al., 1992). There is also evidence that students with disabilities who participate in internships are more likely to be employed after graduation than students who do not participate in internships (Shandra & Hogan, 2008). Only one study has investigated the relation between student participation in school WBLEs and post-school employment outcomes. According to Shandra and Hogan (2008), students with disabilities who participate in school-based enterprises or career and technical education, are more likely to be employed after graduation.

Over half of students with ID are reported to participate in school sponsored work experiences (Bouck & Joshi, 2016; Joshi et al., 2012); however, participation varies by type of WBLE. For example, within the school setting, prior research found 37.0% of students with ID participated in on-campus jobs (Repetto et al., 2011), 24.3% participated in career and technical education (Dougherty et al., 2018), and less than 3.0% participated in job clubs or vocational organizations (Dymond et al., 2020). In the community, approximately a third of students with ID participated in job shadowing and less than 10% participated in internships or apprenticeships (Bouck & Joshi, 2016; Carter et al., 2011; Joshi et al., 2012). Participation in paid employment has ranged from 31.3% (Carter et al., 2011) to 47.1% (Kramer & Blacher, 2001). Researchers have yet to investigate the extent to which students with ID participate in special education

classroom vocational activities, school-based enterprises, career exploration, work sampling, and service learning.

Although some researchers have investigated the types of WBLEs in which students participate, there is minimal understanding of the duration of their experiences. Dymond (2020) suggests that the amount of time students spend in the community depends on their age, support needs, and desired post-school outcomes. Students who are older, have more significant support needs, and desire to work after high school may require more time in the community to meet their post-secondary goals. There is some evidence to suggest that students who spend more time at community WBLEs are more likely to be employed after graduation. Carter et al. (2012) found that students with severe disabilities who spent more than 25% of their day at community WBLEs were more likely to be employed after graduation than students who spent less than 25% of their day at community WBLEs. The amount of time spent in school WBLEs did not relate to students' post-school employment.

Participation in WBLEs may be related to student characteristics such as support needs, grade level, gender, and race/ethnicity. In regard to support needs, fewer students with severe ID participate in paid employment than students with mild ID (Bouck & Joshi, 2016; Carter et al., 2011; Joshi et al., 2012). In addition to support needs, students' age may impact whether they participate in WBLEs. According to Carter et al. (2011), as students with ID age, their odds of participating in paid employment increase. The extent to which students' gender and race/ethnicity are related to participation in WBLEs is mixed. Gold et al. (2013) found that females with ID were less likely to have paid employment compared to males with ID. In contrast, Baer et al. (2011) and Carter et al. (2011) found no significant differences between the participation of males and females with ID in paid employment. Regarding race/ethnicity, Carter

et al. (2011) found that Hispanic students with ID were less likely to have paid employment than white students with ID; however, Gold et al. (2013) and Baer et al. (2011) found that ethnicity was not significantly related to paid employment for students with ID.

Although research suggests that a large number of students with ID participate in WBLEs (Bouck & Joshi, 2016; Joshi et al., 2012), the extent to which students participate in the full range of WBLEs and the amount of time they spend engaging in WBLEs is unclear. Prior research also suggests that there may be a relation between student characteristics (e.g., gender, race/ethnicity, grade level, and support needs) and participation in WBLEs; however, this research has yet to investigate whether differences correlate with the location of the WBLE (i.e., school or community). The purpose of this study therefore was to describe the participation of students with ID in WBLEs and to identify the extent to which student characteristics relate to participation in school or community WBLEs. Students with ID were the focus of this study because they often have the poorest post-school employment outcomes (Newman et al., 2011) and thus may face the greatest challenges obtaining employment. The study addressed the following research questions:

1. What are the characteristics of students with ID who participate in WBLEs?
2. What are the types of school and community WBLEs in which students with ID participate?
3. How many experiences do students have within each type of school and community WBLE?
4. What career clusters do students focus on during school and community WBLEs?
5. How much time do students with ID spend in school and community WBLEs?

6. To what extent do student characteristics (e.g., gender, race/ethnicity, grade level, and support needs) relate to participation in school or community WBLEs?
7. To what extent do student characteristics (e.g., gender, race/ethnicity, grade level, and support needs) relate to the amount of time students spend in school or community WBLEs?

## **Method**

### **Participants**

The participants were high school special education teachers with a state issued teaching license in ID who had at least one student with ID age 14 or older on their caseload.

Participation was limited to teachers with licensure in ID because these teachers have specialized training to support the full range of students with ID. Teachers who did not have a teaching license in ID (e.g., learning disabilities, general special education) or served students 13 and younger were excluded.

To identify potential participants, state licensure requirements compiled by Sindelar et al. (2018) were reviewed. Of the nine states found to offer licensure in ID, five provided licensure based on severity of disability (e.g., mild/moderate, severe/profound). These five states were excluded because it was unclear whether teachers were prepared to serve students with the full range of ID. Participants were therefore recruited from four states with licensure in ID: Michigan, North Dakota, Wisconsin, and Wyoming. Once states were identified, an email was sent to each state's department of education to request (a) the names of all licensed high school special education teachers, (b) their teaching license(s), (c) their email address, and (d) the name and address of the school where they were currently employed. Across all four states, 3,229 teachers had a license in ID. Since states were unable to provide email addresses, an internet

search was conducted to identify teachers with publicly available email addresses. A total of 2,025 teachers were identified.

All teachers were invited to participate in the study. Of the 599 (29.6%) teachers who responded, 283 (87.6%) opted out. The most frequently reported reasons were that teachers did not have a student with ID age 14 or older on their caseload (61.7%), they did not have time (16.5%), or they were not interested in the study (12.9%). There were 316 teachers who completed at least a portion of the questionnaire. Fifty questionnaires were excluded because they did not provide responses to all items required for analysis (i.e., student characteristics, participation in WBLEs, time spent at WBLEs). The teacher and school demographics of the excluded questionnaires were compared with the complete questionnaires; there were no significant differences between groups. The final sample consisted of 266 teachers.

Most teachers were female ( $n = 233$ , 87.9%) with fewer teachers identifying as male ( $n = 32$ , 12.1%). Almost all teachers were white ( $n = 254$ , 95.5%); however, teachers who were biracial ( $n = 7$ , 2.6%), Black or African American ( $n = 3$ , 1.1%), American Indian/Alaska Native ( $n = 1$ , 0.4%), or Hispanic/Latinx ( $n = 1$ , 0.4%) also responded. The majority of teachers had master's degrees ( $n = 194$ , 73.2%) or a bachelor's degree ( $n = 69$ , 26.0%). Few teachers had a Doctoral degree ( $n = 2$ , 0.7%). Teachers provided instruction to students in multiple grade levels, with most teaching students in 9<sup>th</sup> to 12<sup>th</sup> grade (71.8% - 75.2%). Almost half of teachers taught post-secondary students (19 years old through school exit;  $n = 118$ , 44.4%). Schools from all four states were represented in the study; however, the majority were located in Michigan ( $n = 165$ , 62.0%) with fewer located in Wisconsin ( $n = 91$ , 34.2%), Wyoming ( $n = 6$ , 2.2%), or North Dakota ( $n = 4$ , 1.5%). Regarding school location, teachers taught at rural ( $n = 116$ , 43.8%), suburban ( $n = 98$ , 37.0%), or urban schools ( $n = 51$ , 19.2%). Approximately the same number of

teachers taught at schools with over 500 students ( $n = 143$ , 53.8%) or at schools with less than 500 students ( $n = 123$ , 46.2%). Most teachers taught at integrated schools that included students with and without disabilities ( $n = 197$ , 74.1%). Some teachers taught at special education schools only for students with disabilities ( $n = 57$ , 22.2%) whereas few teachers taught homebound ( $n = 4$ , 1.6%) or in other settings ( $n = 4$ , 1.6%).

### **Questionnaire**

The researchers developed a questionnaire informed by the literature on student participation in WBLEs (e.g., Luecking, 2020; Mazzotti & Test, 2015). Three university faculty members with expertise in ID and WBLE reviewed the instrument to establish content validity. The questionnaire consisted of four sections. The first section collected information on teacher demographics. The second section asked teachers to select the student with ID age 14 or older on their caseload with the most significant ID and answer all remaining questions thinking only about this one student. Students with more significant ID often have limited participation in WBLEs (see Bouck & Joshi, 2016) and thus we wanted to ensure they were represented in the study. Questions in section two gathered information on the selected student's characteristics and educational context as well as teacher beliefs about the student's vocational experiences.

Section three of the questionnaire asked teachers to provide information about the student's participation in special education classroom based vocational activities and four school WBLEs (i.e., on-campus jobs, vocational/career and technical education courses, school-based enterprises, and school-based job clubs/vocational organizations) during the last school year (i.e., 2017-2018). Section four asked about the student's participation in seven community WBLEs (i.e., career exploration, job shadowing, work sampling, service learning, internship, and apprenticeship, paid employment). Within sections three and four, teachers first received a

definition for one WBLE (e.g., career exploration; see Table 1 for definitions) and then were asked if their student participated in that particular WBLE during the prior school year. If the answer was “no”, the next WBLE was defined and the question was repeated. If the answer was “yes”, the teacher was asked to think about the student’s most recent participation in the WBLE and report the job/occupation focus of the experience, average hours per week spent in the experience, and number of weeks per year spent in the experience. Teachers could report up to three different experiences within each WBLE. Questions about job/occupation, hours per week, and weeks per year were asked about each experience. The questionnaire concluded with two open-ended questions about (topic to be inserted; text redacted to assure blind review). These findings are reported elsewhere (see Authors, 2021).

The instrument was piloted with five teachers who provided WBLEs to students with ID who were not from the identified states. This resulted in minor changes to the wording of questions. The final survey included 165 items (i.e., 163 forced choice, 2 open ended) and took approximately 15 minutes to complete.

### **Data Collection**

All teachers with a publicly available email address ( $N = 2,025$ ) were sent an introductory email. The email described the purpose of the study and criteria for participation. Teachers who did not wish to participate or receive future communications about the study were instructed to click on a link to SurveyMonkey to remove their name. Those who clicked on the link were encouraged to answer one forced choice question about their reason for not wishing to participate. Teachers who opted out were removed from all future emails.

A second email was sent four days after the introductory email with a link to the questionnaire and an additional opportunity to opt out of the study. When teachers clicked on the

link to the study, they were taken to Survey Monkey, where a consent form appeared that confirmed Institutional Review Board (IRB) approval. Access to the questionnaire was provided once teachers clicked a button affirming their consent to participate. After completing the questionnaire, teachers could enter a random drawing for one of ten \$20 gift cards. Questionnaire responses were anonymous and not linked to information teachers provided to register for the drawing. Teachers who did not complete the survey were sent a weekly reminder encouraging participation. Data collection occurred across four weeks.

### **Data Analysis**

Data were exported from Survey Monkey into SPSS 25. Descriptive statistics (i.e., frequencies, percentages, mean, range) were calculated to summarize data regarding teacher demographics, student characteristics, type of WBLEs, and time spent in WBLEs. A few variables were adjusted or created prior to inferential analyses. First, support needs were combined into two categories (mild/moderate, severe/profound) because students with severe and profound disabilities have comparable support needs that differ from other students (Giangreco et al., 2020). Second, student race was collapsed to reflect race/ethnicity categories used in the National Longitudinal Transition Study 2 (i.e., White, African American or Black, Hispanic, and other). In this study, students who were American Indian or Alaska Natives, Asian, or Bi-racial were coded as “Other”. Next, jobs/occupations were collapsed into career clusters as defined by the National Association of State Directors of Career Technical Education Consortium (n.d.) so that jobs/occupations could be compared across WBLEs. The first author used the descriptions of each career cluster to code the item responses from the questionnaire. The second author then reviewed the codes and discussed them with the first author until consensus was reached.

Finally, four variables were created. Two variables were created to represent student participation in school or community WBLEs. The school participation variable represented whether students had participated in at least one school WBLE (0 = no participation, 1 = participation) whereas the community participation variable represented whether students had participated in at least one community WBLE. Two variables were also created to represent the total time students spent in school or community WBLEs. The time variable for school WBLEs represented the total time students spent across all school WBLEs and the time variable for community WBLEs represented the total time students spent across all community WBLEs.

Chi-square analyses were used to identify potential relations between gender (male, female), race/ethnicity (White, Black, Hispanic, other), grade level (9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup>, post-secondary), and support needs (mild/moderate, severe/profound) and two dependent variables (a) participation in school WBLEs and (b) participation in community WBLEs. Student characteristic variables (i.e., gender, race/ethnicity, grade level, and support needs) were selected for analysis because previous research suggests they are associated with participation in certain WBLEs (see Carter et al., 2011; Newman et al., 2011). These variables were evaluated for multicollinearity before being entered into a logistic regression. Variance inflation factor (VIF) values were close to one which indicated no violations of multicollinearity. All student characteristic variables were then entered into two logistic regression models with the same dependent variables (i.e., participation in school WBLEs and participation in community WBLEs).

Student data on time spent at WBLEs were positively skewed. To account for violations of normality, non-parametric tests (i.e., Mann-Whitney and Kruskal Wallis) were used to identify

the relation between the four student characteristic variables and (a) total time in school WBLEs and (b) total time in community WBLEs.

## **Results**

### **Characteristics of Students with ID who Participate in WBLEs**

Characteristics of the students with ID are summarized in Table 2. The majority of students were male (66.5%), White (73.3%), and at the post-secondary level (30.4%). Most teachers identified the student with the most significant ID on their caseload as having a moderate (39.8%) or severe (39.8%) disability. A little over a third (33.8%) of the students did not spend time in the general education classroom; a similar percentage (32.7%) spent less than 40% of their day in the general education classroom. Special education teachers (78.9%) were the primary person responsible for planning and organizing vocational experiences for their students with ID. Most teachers reported that vocational experiences were extremely important (53.8%) or very important (27.1%) for the student they identified. Despite the importance with which teachers viewed WBLEs, only 52.1% expected their students to work part-time or full-time in the community post-school.

### **Types of WBLEs in Which Students Participated**

The majority of students (91.7%) participated in one or more WBLEs during the 2017-2018 school year. More students participated in school WBLEs (87.6%) than community WBLEs (65.0%) with over half of all students participating in both a school and community WBLE (60.9%). On average, students participated in approximately two different types of school WBLEs ( $M = 1.88$ ,  $SD = 1.1$ , range = 0 - 5) and one type of community WBLE ( $M = 1.1$ ,  $SD = 1.1$ , range = 0 - 5) across the school year.

Student participation in each type of WBLE is displayed in Table 3. Of the school WBLEs investigated, the largest percentage of students participated in special education classroom vocational activities (77.8%). For 13 students (4.9%), classroom activities were their only work experience. Students who participated in special education classroom activities engaged in classroom jobs (81.2%), simulated work tasks (68.6%), lecture-based learning (55.1%), pencil and paper tasks (51.2%), and computer assisted activities (50.2%). A smaller percentage of students participated in school WBLEs outside the special education classroom. The community WBLE in which the largest percentage of students participated was career exploration (45.5%); whereas almost no students participated in paid employment (7.9%), internships (4.1%), or apprenticeships (0.0%).

### **Number of Experiences Students Had Within Each Type of WBLE**

Teachers could describe up to three different experiences for each type of WBLE in which students participated during the 2017-2018 school year. Overall, teachers described a total of 889 different experiences. Most students only had one experience within each type of WBLE (see Table 3). Of the school WBLEs, almost a third of students had more than one on-campus job (28.2%) or vocational/educational education course (27.5%). The community WBLE in which the most students had more than one experience was job shadowing (37.0%) followed by work sampling (25.0%) and career exploration (20.7%).

### **Career Clusters**

Teachers were asked to identify the type of job/occupation students focused on during each of their WBLEs during the 2017-2018 school year. The WBLEs in which students participated cut across 12 of the 16 career clusters (see Table 4). The majority of students' experiences were in the clusters of (a) hospitality and tourism (e.g., food service and janitorial),

(b) business, management, and administration (e.g., office, clerical work, and customer service), (c) general work skills, and (d) manufacturing (see Table 4). There were no students who were reported to participate in the career clusters of (a) education and training; (b) law, public safety, corrections, and security; (c) science, technology, engineering, and mathematics; or (d) government and public administration.

### **Time at WBLEs**

There was substantial variability in the amount of time students spent at WBLEs. Over the course of the 2017-2018 school year total time spent at WBLEs ranged from zero to 2,738 hrs ( $M = 606.4$ ,  $SD = 622.2$ ). Students spent considerably more time at school WBLEs (range = 0 - 2,738 hrs,  $M = 606.4$ ,  $SD = 622.2$ ) than at community WBLEs (range = 0 - 1,108 hrs,  $M = 95.5$ ,  $SD = 209.1$ ).

The amount of time students spent at WBLEs also varied by type of experience (see Table 5). On average, students participated in school WBLEs for 7.3 hrs per week ( $SD = 6.6$ , range 0 - 40). They spent the most hours per week in special education classroom vocational activities, followed closely by vocational or career and technical education courses. Students spent fewer hours per week at community WBLEs that have been described in the literature as occurring on a regular basis (i.e., work sampling, service learning, internships, and paid employment;  $M = 5.9$  hrs/wk,  $SD = 6.2$ , range = 0 - 40). Of these experiences, students spent the most hours per week at internships.

On average, students spent more weeks per year at school WBLEs ( $M = 28.3$ ,  $SD = 11.0$ , range 0 - 40) than at community WBLEs ( $M = 19.3$ ,  $SD = 14.2$ , range = 0 - 40; see Table 5). School WBLEs in which students spent the most weeks per year included special-education classroom-based activities, vocational or career technical education courses, and on-campus jobs.

Of the community WBLEs, students spent the most weeks per year in paid employment and work sampling.

### **Student Characteristics and Participation in WBLEs**

There were no significant differences between student characteristics (i.e., gender, race/ethnicity, grade level, and support needs) and participation in school WBLEs. With respect to community WBLEs, students' support needs and gender were related to participation in WBLEs. Students with severe/profound disabilities were significantly less likely to have community WBLEs than students with mild/moderate disabilities ( $\chi^2 (1, N = 266) = 6.881, p = .009, \Phi = -.161$ ). There were also significant differences between grade levels,  $\chi^2 (4, N = 266) = 13.131, p = .011, \text{Cramer's } V = .222$ . Follow up chi-square analyses using the Bonferroni correction found that students in 9<sup>th</sup> grade were significantly less likely to participate in community WBLEs than students in 12<sup>th</sup> grade ( $\chi^2 (1, N = 84) = 6.218, p = .013, \Phi = -.013$ ) and post-secondary students ( $\chi^2 (1, N = 119) = 9.049, p = .003, \Phi = -.276$ ).

All student characteristics were entered into two logistic regression models with participation in school or community WBLEs as the outcome variable (see Table 6). The school WBLE model was not significant, ( $\chi^2 (df = 9) = 9.428, p = .399$ ); however, the model for community WBLEs was significant, ( $\chi^2 (df = 9) = 31.568, p < .001$ ). The community WBLE model explained 15.40% (Nagelkerke  $R^2$ ) of the variance in participation and correctly classified 69.50% of cases. Of the four predictor variables, two were significant: students' support needs and grade level. Students with severe/profound disabilities were almost half as likely to participate in community WBLEs than students with mild/moderate disabilities. In regard to grade level, students in 12<sup>th</sup> grade were three times more likely to participate in community

WBLEs than 9<sup>th</sup> graders and students in post-secondary grades were almost four times as likely to participate in community WBLEs than 9<sup>th</sup> graders.

### **Student Characteristics and Time Spent in WBLEs**

Total time spent in school WBLEs was not significantly different for gender ( $U = 7670.50$ ,  $z = -.348$ ,  $p = .728$ ), support needs ( $U = 8172.50$ ,  $z = -1.069$ ,  $p = .285$ ), or race/ethnicity ( $\chi^2(3) = 1.992$ ,  $p = .574$ ); however, significant differences were present for grade level,  $\chi^2(4) = 19.029$ ,  $p < .001$ . Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Students in 9<sup>th</sup> grade spent significantly more hours ( $Mdn = 220$ ) at school WBLEs than students in post-secondary grades ( $Mdn = 570$ ) ( $p = .011$ ). Similarly, students in 10<sup>th</sup> grade spent significantly more hours ( $Mdn = 250$ ) at school WBLEs than students in post-secondary grades ( $Mdn = 570$ ) ( $p = .002$ ).

Similar to school WBLEs, median total time spent in community WBLEs was not significantly different in regard to gender ( $U = 7377.50$ ,  $z = -.862$ ,  $p = .389$ ), support needs ( $U = 7828.00$ ,  $z = -1.65$ ,  $p = .098$ ), or race/ethnicity ( $\chi^2(3) = 6.971$ ,  $p = .073$ ) but differences were present for grade level  $\chi^2(4) = 37.78$ ,  $p < .001$ . Post-hoc analysis found the following pairwise comparisons to be significant: (a) 9<sup>th</sup> grade ( $Mdn = 0$ ) and 12<sup>th</sup> grade ( $Mdn = 25$ ) ( $p < .001$ ), (b) 9<sup>th</sup> grade ( $Mdn = 0$ ) and post-secondary ( $Mdn = 37$ ) ( $p < .001$ ), (c) 10<sup>th</sup> grade ( $Mdn = 2$ ) and 12<sup>th</sup> grade ( $Mdn = 25$ ) ( $p = .020$ ), and (d) 10<sup>th</sup> grade ( $Mdn = 2$ ) and post-secondary ( $Mdn = 37$ ) ( $p = .001$ ). To summarize, students in 9<sup>th</sup> and 10<sup>th</sup> grade spent significantly less time at community WBLEs than students in 12<sup>th</sup> and post-secondary grades.

### **Discussion**

The purpose of this study was to investigate the participation of students with ID in school and community WBLEs. A larger number of students participated in school WBLEs than

community WBLEs. The amount of time students spent at WBLEs varied greatly, with students spending anywhere from 3 to 16 hours per week at WBLEs. Student characteristics did not relate to participation in school WBLEs; however, they did relate to community WBLEs. Students with mild/moderate disabilities and students in 12<sup>th</sup> and post-secondary grades were significantly more likely to participate in community WBLEs than students with severe/profound disabilities and students in grades 9 to 11. The only student characteristic that related to the amount of time students spent at WBLEs was grade level; students in 9th and 10th grade spent significantly more time in school WBLEs and significantly less time in community WBLEs than students in 12th grade and post-secondary.

The similarities between our findings and previous research suggest that there are consistent trends in the types of WBLEs in which students with ID participate. For example, more students participated in school WBLEs than community WBLEs. This finding aligns with Shandra and Hogan (2008) who found that 51.8% of students with disabilities participated in school WBLEs whereas only 34.8% participated in community WBLEs. Of the school WBLEs investigated, our findings align with those of Repetto et al. (2011) and Dougherty et al. (2018) who found that approximately a third of students with ID participated in on-campus jobs or career and technical education. Similar to Dymond et al. (2020), few students from the current study participated in school-based job clubs. In relation to community WBLEs, our findings align with previous research suggesting that more students participate in job shadowing than internships or apprenticeships (Bouck & Joshi, 2016; Carter et al., 2011; Joshi et al., 2012).

It is interesting to note that few students participated in WBLEs that correlate with positive post-school employment outcomes (i.e., school-based enterprises, internships, and paid employment; Mazzotti et al., 2020; Shandra & Hogan, 2008; Test et al., 2009). The extent to

which students participated in internships and paid employment is alarming given that 70% of the students in our sample were in 11<sup>th</sup> or 12<sup>th</sup> grade, or post-secondary age. These experiences help students learn work skills in community businesses over an extended period of time and prepare students for high wage occupations (Lindstrom et al., 2012). According to Benz et al. (2000), students who participate in intensive work experiences, such as internships and paid employment, during their last two years of high school are more likely to be employed after graduation. As a result, our findings raise questions about whether students with ID are accessing the intensive work experiences they need to obtain post-school employment.

An important consideration when preparing students for specific careers is the availability of jobs within that career (Inge et al., 2017). Similar to Carter et al. (2011), we found the greatest number of work experiences reported fell within the career cluster of hospitality and tourism. The Bureau of Labor Statistics (2020) projects that the number of hospitality and tourism occupations (i.e., personal care and service occupations, food preparation and serving related occupations) will grow by approximately 7% between 2019 and 2029. It is promising that 33.3% of the work experiences reported in our study focused on a career cluster that is projected to experience growth in the future. The occupation expected to experience the greatest growth between 2019 and 2029 is healthcare support (i.e., 22.6%; Bureau of Labor Statistics, 2020); however, only 1.01% of the work experiences reported for students with ID in our study focused on healthcare sciences. This suggests that students with ID may be missing opportunities to learn about and prepare for high-demand occupations.

Of the variables investigated, grade level and support needs were the only ones that were related to student participation in WBLEs, and both were related to participation in community WBLEs. It is not surprising that students in 12<sup>th</sup> grade and post-secondary grades were more

likely to participate in the community because these students are closer to graduation and may be more focused on preparing for post-school life. However, it is concerning that students with severe/profound ID were half as likely to participate in community WBLEs as students with mild/moderate ID. Carter et al. (2010) similarly found that few students with severe disabilities participated in community WBLEs. The low community participation rates of students with severe/profound ID is troubling because students with severe disabilities often struggle to generalize what they learn in the classroom, and thus they benefit from instruction in natural, community settings (McDonnell, 2017). It may be that teachers face unique barriers to providing community WBLEs to students with severe/profound ID. Kim and Dymond (2010) found that although teachers of students with severe disabilities rated the benefits of community-based vocational instruction higher than teachers of students with mild disabilities, they rated barriers (e.g., not enough staff, lack of funding) to implementing community-based vocational instruction significantly higher than teachers of students with mild disabilities. It is possible that students with severe/profound ID from the current study were less likely to participate in community WBLEs due to barriers teachers experienced when trying to provide these experiences.

Although students with severe/profound ID were less likely to participate in community WBLEs than students with mild/moderate ID, students with severe/profound ID who did participate in community WBLEs spent approximately the same amount of time in the community as students with mild/moderate ID. These findings suggest that level of support needs did not adversely impact the amount of time students spent in community WBLEs. What we do not know is whether the amount of time students spent in WBLEs was sufficient to enable them to acquire new skills and knowledge. Students with severe/profound ID typically require intensive, systematic instruction to learn and may therefore require more time to acquire new

skills (Dymond, 2020; McDonnell, 2018). Our finding that amount of time spent in community WBLEs was the same for students regardless of support needs raises questions about whether students with severe/profound ID were engaged for an appropriate amount of time.

### **Limitations**

Interpretation of the results should take into account the following limitations. First, the study may have limited generalizability due to sampling procedures. The sample only included teachers from states that offer licensure in ID and consequently the results may not represent all students with ID. Additionally, characteristics of the states sampled may impact generalizability. For example, Michigan is unique because special education services are provided to students until they turn 26 years old whereas most states provide services only through age 21. Second, the results are based on teacher report and may not reflect actual student participation. Third, this study only collected data about student participation in WBLEs over one school year. The results may have been different if longitudinal data were collected for the student's entire secondary experience. Lastly, this study did not investigate the quality of students' experiences during WBLEs.

### **Implications for Research and Practice**

This study described the extent to which students with ID participated in school and community WBLEs; however, it did not evaluate the quality of student's WBLEs. Additional research evaluating the quality of student's WBLEs (e.g., instructional context, interactions with non-disabled individuals, job supports) is needed to understand the extent to which students with ID participate in WBLEs that adequately prepare them for post-school employment. Furthermore, student characteristics only accounted for a small amount of variance. Future research should investigate other factors that may relate to student participation in WBLEs such

as (a) barriers related to student participation, (b) teacher's prior training and perceived preparedness to provide WBLEs, (c) school and state demographics, and (d) level of collaboration between teachers and vocational rehabilitation providers. A more in depth understanding of how these factors affect student participation may provide insight about why students participate in certain WBLEs and how to increase student participation in WBLEs.

Results from this study suggest that few students with ID participated in paid employment experiences, a predictor of post-school employment (Carter et al., 2012; Joshi et al., 2012). To improve the post-school employment outcomes of students with ID, teachers should consider developing more opportunities for students to participate in paid employment during high school. Furthermore, few students with ID participated in WBLEs focused on healthcare sciences, one of the fastest growing occupations according to the Bureau of Labor Statistics (2020). As teachers develop WBLEs, they should consider providing WBLEs that help students to explore and prepare for careers in healthcare. Lastly, students with severe/profound ID were significantly less likely to participate in community WBLEs than their peers with mild/moderate ID. Teachers should evaluate the extent to which students with severe/profound ID are included in WBLEs at their school and possible ways to increase the number of students with severe/profound ID who participate in WBLEs.

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Table 1

*Descriptions of Work Based Learning Experiences (WBLEs)*

Type of WBLE	Description
<b>School</b>	
Special education classroom vocational activities	Students participate in activities (e.g., lectures, simulated work tasks, computer assisted activities, classroom jobs) within the special education classroom to increase their career awareness and develop general work skills. For example, students may work on developing folding, sorting, and filing skills.
Vocational/career and technical education	Students participate in a sequence of courses taught by CTE certified staff to learn work skills for a specific occupation. For example, students may take a course sequence in agriculture.
School-based enterprises	Students participate in a simulated work environment outside of the classroom to learn business skills (e.g., manufacturing, accounting, budgeting, marketing, inventory, and other business-related skills). Students provide goods or services to the school or community. For example, students may take inventory of the materials used to operate a student run café.
On-campus jobs	School employees supervise students as they complete tasks that support the school's day-to-day operations. For example, students may deliver mail to teachers' mailboxes.
School-based job clubs or vocational organizations	Students participate in school-based job clubs or vocational organizations during or after school. These experiences are considered extracurricular activities and are generally not taken for academic credit.
<b>Community</b>	
Career exploration	Students take tours of worksites or interview employees in order to learn about available jobs in their community. For example, students may tour an office building to learn about the different jobs in an office.
Job shadowing	Students observe one employee while they complete their daily tasks. Students ask them about the different components and demands of their job. For example, students may spend a day with a receptionist to learn about their specific job responsibilities.
Work sampling	Students receive instruction from a teacher on how to complete various work tasks, social skills, and soft skills (e.g., time management, following directions, patience). For example, students may learn to file documents in alphabetical order.
Service learning	Students receive instruction on work related skills while also contributing to their community. For example, students may learn to greet customers while serving food at a local food pantry.
Internship	Students have an agreement with a business to be a paid or unpaid intern for a specified duration of time. Students learn specific skills and knowledge for a particular job. For example, students may work as a receptionist for one semester.
Apprenticeship	Students receive on-the-job training from an experienced trade professional. Students learn specific trade related skills and knowledge and receive a certificate or license within a specific occupation. For example, students may train to be a carpenter, electrical contractor, or plumber.
Paid employment	Students work (part/full time) at a typical or customized position within a sheltered workshop or integrated employment. Students receive on-going support from the school. For example, students may work in the mailroom of an office and receive support from their teacher.

Table 2

*Student Characteristics, Educational Context, and Teacher Beliefs (N = 266)*

Characteristics, context, and beliefs	<i>n</i>	%
Student characteristics		
Gender		
Male	177	66.5
Female	89	33.5
Race <sup>a</sup>		
American Indian or Alaska Native	4	1.5
Asian	6	2.3
Bi-racial	10	3.7
Black	38	14.3
Hispanic	13	4.9
White	195	73.3
Grade Level		
9 <sup>th</sup>	38	14.3
10 <sup>th</sup>	43	16.2
11 <sup>th</sup>	58	21.8
12 <sup>th</sup>	46	17.3
Post-Secondary (19 years old through school exit)	81	30.4
Disability (i.e. support needs)		
Mild (intermittent supports)	29	10.9
Moderate (limited supports)	106	39.8
Severe (extensive supports)	106	39.8
Profound (pervasive supports)	25	9.4
Educational context		
Time in general education		
Does not spend any time in the general education classroom	90	33.8
Less than 40% of the day	87	32.7
80% or more of the day	45	16.9
40-79% of the day	44	16.5
Primary person responsible for planning/organizing vocational experiences		
Special education teacher	210	78.9
School vocational/transition coordinator	40	15.0
Vocational rehabilitation specialist	10	3.8
Other	6	2.2
Teacher beliefs		
Importance of vocational experiences for student with most significant ID		
Not at all important	6	2.3
Slightly important	17	3.4
Moderately important	28	10.5
Very important	72	27.1
Extremely important	143	53.8
Expected post-school employment outcome (n = 259)		
Work part time in community	91	35.1
I do not expect this student to work after they exit high school	54	20.8
Work part time in a sheltered workshop	46	17.8
Work full time in community	44	17.0
Volunteer work	9	3.5
Work full time in a sheltered workshop	8	3.1
Not sure	6	2.3
Other	1	0.4

Note. ID = Intellectual disability

<sup>a</sup>Teacher could report more than one response option

Table 3

*Number of Experiences Students Had Within Each Type of WBLE (N = 266)*

Type of WBLE	Students with 1		Students with 2		Students with 3		Total Students	
	Experience		Experiences		Experiences			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>School</b>								
Special education classroom activities	-	-	-	-	-	-	207	77.8
On-campus job	74	71.8	20	19.4	9	8.7	103	38.7
Vocational/career and technical education course	66	72.5	16	17.6	9	9.9	91	34.2
School-based enterprise	56	80.0	10	14.3	4	5.7	70	26.3
School-based job club/vocational organization	25	86.2	2	6.9	2	6.9	29	10.9
<b>Community</b>								
Career exploration	96	79.3	15	12.4	10	8.3	121	45.5
Service learning	49	84.5	6	10.3	3	5.2	58	21.8
Work sampling	39	75.0	8	15.4	5	9.6	52	19.5
Job shadowing	17	63.0	6	22.2	4	14.8	27	10.1
Paid employment	18	85.7	2	9.5	1	4.8	21	7.9
Internship	11	100.0	0	0.0	0	0.0	11	4.1

*Note.* Teachers could describe up to three different experiences for each type of WBLE in which their student participated during the 2017-2018 school year. Number of special education classroom activity experiences was not measured because these activities typically do not have a clear start and end date. No students with ID participated in apprenticeships. WBLE = work-based learning experience.

Table 4

*Number of WBLEs Students had Within Each Career Cluster (N = 889)*

Career Cluster	Number of WBLEs	%
Hospitality and tourism	296	33.3
Business management and administration	172	19.3
General work skills	115	12.9
Manufacturing	91	10.2
Architecture and construction	61	6.9
Marketing/retail	42	4.7
Human services	33	3.7
Agriculture	26	2.9
Finance	14	1.6
Health sciences	9	1.0
Information technology	7	0.8
Transportation, distribution and logistics	3	0.3
Arts, audio/video technology, and communications	3	0.3
Other	17	1.9

*Note.* Teachers could describe up to three different experiences for each type of WBLE (e.g., career exploration) in which their student participated during the 2017-2018 school year. Across all teachers, a total of 889 different WBLE experiences were described.

Table 5

*Average Time Students Spent at WBLEs (N = 266)*

WBLE	Hours/Week			Weeks		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
<b>School</b>						
Special education classroom activities ( <i>n</i> = 207)	10.2	7.7	0-38	30.9	9.4	0-40
Vocational/career and technical education course ( <i>n</i> = 91)	8.2	6.5	1-40	28.2	10.8	3-40
School-based enterprise ( <i>n</i> = 70)	5.3	5.4	0-30	25.5	11.4	1-40
School-based job club/vocational organization ( <i>n</i> = 29)	4.9	4.8	1-20	19.4	12.3	2-39
On-campus job ( <i>n</i> = 103)	4.1	3.4	0-20	28.4	11.1	2-40
<b>Community</b>						
Internship ( <i>n</i> = 11)	15.6	11.6	4-40	21.5	11.4	6-36
Career exploration ( <i>n</i> = 121)	14.0	13.7	1-40	-	-	-
Job shadowing ( <i>n</i> = 27)	9.6	10.5	1-40	-	-	-
Paid employment ( <i>n</i> = 21)	7.8	4.6	1-20	26.2	12.6	4-40
Work sampling ( <i>n</i> = 52)	6.0	5.6	0-28	24.1	12.4	2-40
Service learning ( <i>n</i> = 58)	3.5	4.0	1-30	11.8	13.5	0-40

*Note.* WBLEs = work-based learning experiences. Means are calculated based on the number of students that participated in each experience.

Table 6

*Parameter Estimates for Predictors of Participation in School and Community WBLEs (N = 266)*

	<i>B</i>	SE	Wald	<i>df</i>	<i>p</i>	Odds Ratio	95% CI for Odds Ratio	
							Lower	Upper
School								
Gender	0.26	.43	0.37	1	.540	1.30	0.56	3.03
Black	0.09	.59	0.03	1	.875	1.09	0.35	3.47
Hispanic	-0.80	.72	1.25	1	.264	0.45	0.11	1.83
Other	0.38	.80	0.23	1	.633	1.47	0.30	7.05
Level of ID	-0.16	.39	0.17	1	.679	0.85	0.40	1.83
10 <sup>th</sup> grade	-0.37	.56	0.44	1	.508	0.69	0.23	2.08
11 <sup>th</sup> grade	0.85	.63	1.80	1	.179	2.34	0.68	8.06
12 <sup>th</sup> grade	0.79	.68	1.34	1	.241	2.21	0.59	8.35
Post-Secondary	0.80	.58	1.90	1	.168	2.24	0.74	7.04
Community								
Gender	0.34	.30	1.28	1	.258	1.40	0.78	2.54
Black	0.36	.43	0.68	1	.409	1.43	0.61	3.35
Hispanic	-0.96	.60	2.53	1	.112	0.38	0.12	1.25
Other	-0.95	.50	3.63	1	.057	0.39	0.15	1.03
Level of ID	-0.90	.29	9.92	1	.002*	0.41	0.23	0.71
10 <sup>th</sup> grade	0.26	.47	0.32	1	.572	1.30	0.52	3.25
11 <sup>th</sup> grade	0.78	.44	3.14	1	.076	2.20	0.92	5.21
12 <sup>th</sup> grade	1.42	.49	5.45	1	.020*	3.11	1.20	8.08
Post-Secondary	1.42	.44	10.41	1	.001*	4.14	1.75	9.80

*Note.* WBLEs = work-based learning experiences.

\**p* < .05