

## Case Study

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# Using a telehealth service delivery approach to working with an undergraduate student with a traumatic brain injury: A case study

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### Abstract.

**BACKGROUND:** Project Career is a five year NIDILRR-funded interprofessional demonstration project aimed to improve the academic and career success of undergraduate students who have a traumatic brain injury (TBI). The information for this case study was collected and synthesized by an occupational therapy graduate student intern for one of the Project Career sites in collaboration with the Technology and Employment Coordinator for the site, the co-PI for Project Career, and the student participant.

**OBJECTIVE:** A case study is presented to provide an understanding of one of the Project Career participant's experience using a telehealth service delivery approach to working with Project Career for academic and career support.

**METHODS:** The participant's case notes, direct communication with the intern, and outcome assessments were used to perform a qualitative analysis.

**RESULTS:** The participant reported that he believed Project Career was an effective support service for him. However, the participant's initial and 6-month outcome assessment scores are inconclusive regarding improvements in his academic abilities and satisfaction with academic and career attainment.

**CONCLUSION:** Further research on the effectiveness of using a telehealth service delivery approach to working with undergraduate students with a TBI is needed.

Keywords: Academic support, employment, virtual, cognitive support technology, secondary education

Ben<sup>1</sup> is a white male in his late 20 s who acquired a traumatic brain injury (TBI) as a result of being struck on his left side by a motor vehicle as a pedestrian in 2013. Ben had recently received his Bachelor of Arts degree in psychology, was Emergency Medical Technician (EMT) certified, and was planning on going to school to become a nurse practitioner. The accident took place on the side of the highway. He sustained a

severe TBI, a broken leg, a fractured arm, and two broken ribs. He was in a coma when Emergency Medical Services arrived on scene, and remained in a coma for several weeks after the injury. After intense inpatient rehabilitation, Ben was discharged home and received outpatient rehabilitation several days a week.

A professor from Ben's college met the Technology and Employment Coordinator (TEC) for one of the Project Career sites at a conference. Project Career is a five year NIDILRR-funded interprofes-

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<sup>1</sup>Name has been changed to maintain anonymity.

sional demonstration project designed to improve the academic and career success of undergraduate students with TBIs [1]. The program provides a combination of cognitive support technology (CST) in the form of an iPad and recommended Apps and individualized case management services provided by the TEC [2]. This professor worked with Ben at a college over 6 hours away from the closest Project Career site, but felt that Ben could benefit from the supports and wanted to refer him. Project Career decided to enroll Ben despite the distance, and Ben became the first student to work virtually with Project Career. When Ben began working with Project Career, he had almost finished the first year of a two-year occupational therapy assistant (OTA) program at a community college. OTAs work under the direction of occupational therapists and are directly involved in providing occupational therapy to clients. Occupational therapy is a health profession that helps individuals participate in the everyday activities that they need or want to do, with a focus on either maintenance or rehabilitation of abilities. Ben's OTA program combines both didactic coursework and fieldwork experiences to prepare him for practice.

Facetime, the communication platform, was used for Ben's first virtual meeting with the TEC. During this meeting, he completed an intake interview. He reported difficulty with memory recall, memory retention, and attending to different stimuli. He also reported using accommodations including extended time on exams, tape recordings of lectures, and someone to take notes for him during classes. Ben named his family, significant other, friends, and student association as support systems that he utilizes. He reported using services offered by his state's vocational rehabilitation program. The TEC administered a baseline assessment to collect Ben's employment history and measure his career maturity, career decidedness, career self-efficacy, and disability acceptance.

The TEC also administered Matching Person and Technology (MPT) assessments during the initial meeting. The MPT measures attitudes towards technology, current supports, and self-ratings of abilities in various areas [3]. Using a scale of 1 (poor) to 5 (excellent), Ben rated his abilities as: a 4 for speech, a 3 for paying attention/not getting distracted, a 2 for remembering information about people or events, a 4 for managing appointments, a 5 for solving problems that come up in everyday life, a 5 for understanding, and a 4 for reading. Using a scale of 1 (not satisfied) to

5 (very satisfied), Ben rated his satisfaction as: a 3 for freedom to go wherever desired, a 3 for educational attainment, a 2 for employment status/potential, a 5 for fitting in/belonging, and a 4 for emotional well-being. Ben also reported that he has many things he wants to accomplish; however, he is often frustrated or overwhelmed. He shared that he is determined to meet his goals, he is not often depressed, he likes having a challenge, he accomplishes what he sets out to do, and he has a good self-image.

When discussing his results, Ben stated that he was feeling "very good about himself" when he took the initial MPT assessments. He wrote:

"During my initial assessment things were looking up; The year prior, I lived through one of the biggest life changing events of my life and was still recovering, I was 1 of 24 accepted into my program of choice that had over 200 applicants, and I had overcome some struggles with my newly acquired deficits."

Ben believes that his sense of accomplishment at this point in time may have led him to report high scores.

Project Career provided Ben with an iPad, a keyboard, and applications (Apps) to support his cognitive functioning and performance in school. Ben reported that he downloaded and uses the following Apps: Notability, Quizlet, Scannable, iStudiez, and iOS Calendar. Ben reported hesitancy to use the Apps given to him, as he shared that he preferred to use pen and paper and that he becomes overwhelmed by "too much technology." Ben was also assigned an e-mentor, who was matched through the TEC. Every Project Career participant has the option of obtaining a mentor who works in the field they are interested in. The mentor is available to answer any questions specific to that field and support the participant in reaching their career goals. Ben's e-mentor is a registered and licensed occupational therapist and clinical professor in the occupational therapy department at a major university. She is available to assist him through email or virtual meetings. Ben had the opportunity to meet his e-mentor in person when she was invited to a nearby university to give a lecture. She helped Ben network, and introduced him to occupational therapy students at a local university who welcomed including Ben in their activities.

Ben met virtually with the TEC multiple times during his first four months of working with Project Career. In the fall of the second year of his OTA

program, the TEC transitioned Ben to working with an occupational therapy student (intern). During their virtual sessions, the intern used the Project Career office and Ben was at home (either at his parents' house or the house he lives at while in school). Ben and the intern use the communication platform Adobe Connect for their virtual meetings. The meetings were typically 90–120 minutes. The meetings were recorded so that the TEC and the co-principal investigator of one of the Project Career sites can observe and provide feedback to the intern as needed. Ben and the intern met twice during the fall semester of his second year. He was very busy during this time as he was taking seven classes, and he was often unable to schedule regular sessions with the intern.

When Ben first started working with Project Career, he had a girlfriend and was living with her and her family whenever he was in school. Ben disclosed to the intern that he and his girlfriend broke up during his second year in the OTA program. Ben describes his ex-girlfriend as a very good friend. He still lives with his ex-girlfriend and her family when he is in school. He reported that he is "comfortable to an extent" with his living situation. Ben's family lives approximately 75 minutes away from school. Since his TBI, he is no longer able to drive and he relies on his ex-girlfriend or her mother to drive him to school.

Ben had difficulty successfully completing the coursework for the fall semester of his second year in the OTA program. He withdrew from one of his seven classes in November because he reported that he was "not on track to pass the class" by the end of the semester. As a result, Ben was not able to go forward with coursework or fieldwork for the spring semester. He will retake the dropped class next fall, and complete continuing education packets during the spring semester and summer to maintain competency in all of his classes. Since he started working with Project Career, Ben has been very frustrated by his difficulties in school and has reported that he "used to do so well in school and everything came easily." While in his program, Ben completes Level I fieldwork placements, in which he participates in practice settings that enrich what he is learning in his classes and integrate his coursework with real client cases. At Ben's previous three Level I fieldwork placements, he received "a standing ovation for his performance." He is eager to finish the didactic portion of his program and go out on Level II fieldwork, where he will work full-time under supervision of an occupational

therapy practitioner to gain valuable practice skills and experience.

Ben reported feeling "very depressed" by the end of the fall semester of his second year. He reported difficulty getting out of bed in the morning and feeling unsuccessful, despite appearing strong on the outside. He never used a counselor in the past, and did not want to seek one out. This is mostly because he says that he "believes in the support of family more than anything." Project Career also suggested attending a brain injury support group, and Ben was interested in this idea if there were groups with individuals he felt he could relate to (i.e. younger in age, high-functioning, also in higher education). Project Career contacted local support group leaders to determine if they would be a good fit, and shared the information with Ben. While he was still interested, transportation was a barrier. After the completion of the fall semester, Ben went home to his family for approximately two and a half months.

At the end of the fall semester of the second year of his program, Ben had been working with Project Career for six months and completed the MPT assessments again. On his six-month assessments, using a scale of 1 (poor) to 5 (excellent), Ben rated his abilities as: a 3 for speech, a 3 for paying attention/not getting distracted, a 5 for managing appointments, a 5 for solving problems that come up in everyday life, and a 5 for reading. Ben did not report on his ability to remember information about people or events or understand. Using a scale of 1 (not satisfied) to 5 (very satisfied), Ben rated his satisfaction as: a 1 for freedom to go wherever desired, a 2 for educational attainment, a 2 for employment status/potential, a 2 for fitting in/belonging, and a 4 for emotional well-being. Ben also reported that he has many things he wants to accomplish, he is often frustrated or overwhelmed, he is determined to meet his goals, he is not often depressed, he likes having a challenge, he does not accomplish what he sets out to do, and he has a good self-image.

When comparing Ben's initial and 6-month MPT results, he increased his self-rating (on a scale of 1 to 5) by 1 point for ability to manage appointments and 1 point for reading abilities. He decreased his self-rating by 1 point for speech abilities, 2 points for satisfaction in freedom to wherever desired, 1 point for satisfaction in educational attainment, and 3 points for fitting in/belonging. His scores remained the same from initial to 6-months for ability to pay attention/not get distracted, ability to solve problems

that come up in everyday life, satisfaction in employment status/potential, and satisfaction in emotional well-being. Ben still reported that he has many things he wants to accomplish; however, he is still often frustrated or overwhelmed. He still reported that he is determined to meet his goals, is not often depressed, likes having a challenge, and has a good self-image. While he reported that he accomplishes what he sets out to do in his initial MPT results, Ben reported that he does not accomplish what he sets out to do in his 6-month MPT results.

When discussing his 6-month results, Ben once again stated that he believes several external factors affected how he responded on the MPT assessments. He explained that he was feeling “very negative” when he took the 6-month assessments. He wrote:

“Unfortunately, I was not successful in the end [of my fall semester]. I was able to pass 6 of the 7 classes and was held back from continuing on to fieldwork. . . My cognitive deficits went beyond anything I could ever imagine and when I was taking my 6-month assessment my negative feelings were reflected. I felt as though I was spinning out of control and was not receiving the level of support I needed on certain subjects in my program.”

Ben believes that his negative feelings at the time that he took his 6-month MPT assessments had a large effect on how he responded to the assessment questions.

During the spring semester, Ben’s sessions with the intern focused almost entirely around the successful completion of the continuing education packets. These packets include various assignments related to the courses Ben is required to complete in his OTA program. Examples of assignments include activity analyses, treatment plans, anatomy exercises, research assignments, and note writing. Ben would complete various pages of a packet and send them to the intern via email. The intern would provide general feedback. Ben requested more frequent meetings and support while completing the continuing education packets, so he met with the intern eight times during the spring semester. During these meetings, it was apparent that Ben was very nervous about successfully completing the continuing education packets. He repeatedly referenced previous assignments that he did not do well on and asked for additional practice assignments to increase his knowledge and improve his skills. He is highly motivated to do well, and he sent his completed

packet pages to the intern for feedback multiple times.

Ben has several goals. One goal is to drive again. He took two reaction-timing tests since his TBI, and did not pass either one. He has not been behind the wheel of a car since his injury, and says that he is very nervous about his reaction time and the possibility of injuring someone the same way he was injured. Ben is very close with his dad, and wants his dad to help him get back to driving. Ben also enjoys restoring muscle cars, and wants to find time to do this more. Ben’s long-term goal is to obtain a Master of Science in Occupational Therapy degree after working as an occupational therapy assistant for “a few years.” In an email to the intern, Ben wrote: “I believe occupational therapy is my calling and I hope to one day be an OTR. Who knows, perhaps I will one day have the opportunity to work along with, or for, Project Career in some future capacity for my clients and the TBI community.”

Going forward, Project Career will continue to work with Ben throughout the remainder of his OTA program. The intern that Ben is currently working with will no longer be able to meet with him after the end of the spring semester, so Ben is transitioning to working with another intern for the summer and next academic year. Project Career will also assist Ben with his goal of transitioning to full-time employment after graduation by offering him interview preparation, resume and cover letter assistance, assistance with finding and applying to jobs, disclosure education, accommodation planning, and follow-up services after a job is secured.

After one year of working with Project Career, Ben reported:

“I feel like I have received more help from Project Career than I have ever received from my local VR [vocational rehabilitation] services... Project Career brings services to my house, is on my schedule, and doesn’t cost me more than my time. I will forever be an advocate for Project Career. . . It has truly been life changing for me and I look forward to my continued interactions in your services.”

When discussing Project Career with the intern, Ben disclosed that he believes Project Career has been an effective service for him. He credited this primarily to the fact that it is convenient, works around his schedule, and is individualized. Upon completion of his sessions with the intern, Ben expressed gratitude for the services he had received from Project

Career. He wrote in an email to the intern: “Project Career has been nothing short of astounding. I want to see you and Project Career bring great things to the foundation of occupational therapy in the future.”

## References

- [1] Nardone A, Sampson E, Stauffer C, Leopold A, Jacobs K, Hendricks D, Elias E, Chun H, Rumrill P. Project Career: A qualitative examination of five college students with traumatic brain injuries. *Neurorehabilitation* 2015;37:459-69
- [2] Hendricks DJ, Sampson E, Rumrill P, Leopold A, Elias E, Jacobs K, Nardone A, Scherer M, Stauffer C. Activities and interim outcomes of a multi-site development project to promote cognitive support technology use and employment success among postsecondary students with traumatic brain injuries. *Neurorehabilitation* 2015;37:449-58.
- [3] Scherer M. *Matching person and technology*. Webster, NY: Institute for Matching Person and Technology, 1998.