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Computer Assistive Technology Satisfaction and Work Skills Confidence Among Individuals with Spinal Cord Injury

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The present research examined the relationship between satisfaction with the use of computer assistive technology (AT), type of spinal cord injury (SCI), hours worked per week, and work skills confidence (WSC) of persons with SCI as measured by participant scores on the Work Skills Inventory (WSI). Investigated specifically was how satisfaction with computer AT was associated with WSC, after controlling for type of SCI and hours worked per week in a sample of 78 participants. Individuals associated with vocational rehabilitation organizations located in California were recruited who were (a) identified as having SCI; (b) currently using at least one form of computer AT; and (c) between the ages of 18 and 65. Multiple regression analysis indicated that together, AT satisfaction, type of SCI, and hours worked per week predicted 13% of the variance in WSC, as measured by participant scores on the WSI. When evaluated individually, satisfaction with AT and type of SCI did not make significant contributions to the prediction model, while hours worked per week emerged as a statistically significant predictor of WSC as measured by participant scores on the WSI.

Keywords: assistive technology, spinal cord injury, work skills confidence

The employment rate of individuals with spinal cord injuries (SCI) has been much lower than the employment rate of the general population (Anderson et al., 2007; Lidal et al., 2007). Krause and Anson (1996) conducted a study investigating why individuals with SCI believed they were unemployed. Two-hundred thirty-one participants completed a multidimensional adjustment profile and provided descriptive data. The primary reason for unemployment was the inability to physically perform the work that they were able to perform before their SCI. Of the 60% of respondents who indicated that change in physical performance was a primary factor, 28% of these respondents indicated that their health, stamina, or endurance were too poor to work, and 27% felt they were not physically capable of working. Other reasons for unemployment included fear of losing disability benefits (28%), inaccessible workplaces (23%), perceptions of work as dull (10%), and perceptions of work as stressful (9%) (Krause & Anson, 1996).

Little has been known about how assistive technologies (AT) reduce barriers and enhance outcomes for individuals with SCI in the workplace (Hedrick et al., 2006). AT are adaptive and compensatory tools frequently used by individuals with SCI (i.e., speech to text software, large button keyboards, mouth sticks, trackball mice, head gaze mouse, pointed typing aid). An individual's work skills confidence (WSC) is a measure of how confident the individual is about performing work-related items in various work skill domains. The association between an individual's satisfaction with AT and an individual's WSC, in conjunction with type of SCI and hours worked per week has not been studied extensively.

Schonherr et al. (2005) identified several factors relevant to return to work after SCI. These factors included age at time of injury, years of education, type of SCI, pre-injury type of job, and motivation and expectation regarding return to work. AT has been a service that leads to positive employment outcomes (Marini et al., 2008). The present study examined the association between computer AT satisfaction, type of SCI, hours worked per week, and WSC for individuals with SCI. Investigated specifically was how satisfaction with computer AT such as speech to text software, alternative mouse options, one-handed keyboards, large button keyboards, and head typing sticks were associated with WSC, as measured by the Work Skills Inventory (WSI) (*CareerLocker, 2021*). Data were obtained from participants through a quantitative survey design. The researchers hypothesized that higher levels of satisfaction with use of computer AT would be associated with higher levels of WSC.

AT may be utilized to mitigate the barriers that individuals with disabilities encounter when working or performing other activities of daily living (Butler et al., 2006; Hedrick et al., 2006; Scherer & Glueckauf, 2005). The impact of AT has been dependent upon the characteristics of the user, the context of application, and the type of AT. The use of AT has been associated with perceived functional independence, increased social participation, and sustained employment (Gelderblom & deWitte, 2002; Watson, 2007). Despite the potential benefits, AT evaluations were not routinely conducted by vocational rehabilitation professionals during the assessment process when working with individuals with disabilities (Barzegarian & Sax, 2011; Bausch & Ault, 2008). There remained a need to further examine the relationship between AT and the workplace to understand whether and how AT contributes to employment success (Hedrick et al., 2006).

One important construct to examine within the context of AT is self-efficacy. Self-efficacy refers to the beliefs an individual has about their ability to produce outcomes and the confidence to carry out tasks (Caprara & Steca, 2005; Judge et al., 2007; Parker, 1998). Beliefs regarding self-efficacy have contributed to an individual's motivation and performance (Bandura & Locke, 2003; Caprara & Steca, 2005). Individuals with SCI undergo tremendous physical changes that may alter their beliefs about their ability to meet personal goals (Miller, 2009). Career barriers for individuals with disabilities have included limitations in job choice due to perceptions others have of disability, and one's own perception of their ability to participate in careers (Fabian et al., 2009). Miller's (2009) study of the Moorong Self-Efficacy Scale found that for individuals with SCI, hours of paid employment was positively associated with self-efficacy. This finding suggested that individuals who were employed felt more confident about their ability to complete tasks. When individuals felt they had more skills and competence in performing a task, they also felt a greater sense of self-efficacy (Bandura, 1989; Wood & Bandura, 1989).

Researchers have noted an association between employment and employment-related self-efficacy (Tsaousides et al., 2009). There are a few studies that have addressed self-efficacy in individuals with SCI (Miller, 2009), but none have explored the relationship between AT and self-efficacy. Therefore, how the use of AT relates to WSC or an individual's perception of their ability to work has not been established. Janikowski et al. (1992) completed research on self-perceptions of aptitudes and interests in persons with disabilities. Hedrick et al. (2006) focused on AT and its relationship to the workplace. Fabian et al. (2009) examined the effect of vocational interventions and self-efficacy on career barrier perceptions. Hampton (2008) examined task-specific self-efficacy ratings for individuals with SCI. It was apparent that there was a need to further investigate how the use of AT and AT satisfaction is associated with WSC for individuals with SCI.

Purpose of the Study

The purpose of this study was to examine the association between WSC and computer AT satisfaction, hours worked per week, and type of SCI. AT may reduce environmental barriers and enable people with disabilities to complete more tasks in a variety of environments, including employment (Hedrick et al., 2006; McKinley et al., 2004; Scherer & Glueckauf, 2005; Watson, 2007). The researchers' hypothesis was that there would be a significant association between WSC and computer AT satisfaction for individuals with SCI.

More specifically, this study examined the extent to which an individual's computer AT satisfaction, type of SCI, and number of hours worked per week predicted scores on a measure of WSC. Determining whether the above predictor variables are associated with higher levels of WSC may inform individuals, employers, and vocational rehabilitation service agencies about the relative importance of user satisfaction with AT products. Individuals who are not satisfied with their AT may abandon it, resulting in fiscal consequences associated with the cost of the technology, as well as lost vocational opportunities.

Research related to self-efficacy and AT has been conducted (Butler et al., 2006; Hedrick et al., 2006; Scherer & Glueckauf, 2005). There has been, however, a gap in the research addressing the interaction between work-related self-efficacy and computer AT satisfaction. The current study focused specifically on individuals with SCI and examined the association between an individual's satisfaction with use of AT and their level of WSC.

This study examined the relationship between computer AT satisfaction, type of SCI, number of hours worked per week, and WSC to determine the extent to which AT satisfaction moderates the relationship. Accordingly, the researchers hypothesized that a regression model containing three predictor variables (satisfaction with AT, type of SCI, and hours worked per week) would predict a statistically significant proportion of the variance in WSC. The researchers also hypothesized that the predictor variables in the model would each predict a statistically significant proportion of the variance in WSC scores when examined individually.

Research Questions

The following research questions examined the relationship between computer AT satisfaction, type of SCI, number of hours worked per week, and WSC:

1. Does a regression model containing three predictor variables (AT satisfaction, type of SCI, and hours worked per week) predict a statistically significant proportion of the variance in WSC?
2. Does AT satisfaction predict a significant proportion of the variance in WSC?
3. Does type of SCI predict a significant proportion of the variance in WSC?
4. Does number of hours worked per week predict a significant proportion of the variance in WSC?

Standard multiple regression analysis was employed to address the hypotheses tested in this study. In addition, descriptive statistics were computed for demographic variables of the study population. Three variables (i.e., satisfaction with use of computer AT, hours worked per week and type of SCI) were assessed to determine the extent to which they predicted scores on the outcome variable (i.e., WSC). The predictor variables were entered into the regression model simultaneously which permitted examination of the proportion of variance in WSC explained by the three predictor variables in combination, as well as assessment of the unique contribution of each predictor to the regression model after controlling for the contributions of the other two predictors (Field, 2017; Mertler & Reinhart, 2016). The multiple regression analysis was conducted using a significance level of .05.

Assumptions

There were several assumptions made in the study. The study assumed that respondents had a SCI and were using or had used computer AT. The study assumed that respondents would answer the surveys honestly. The study also assumed that participants rated their WSC and satisfaction with AT accurately.

Methods

Target Population

The target population for this study was individuals with SCI (i.e., paraplegia or quadriplegia). Participants were recruited through a variety of academic, community, and organizations in southwestern California that were serving individuals with SCI. These organizations were working with individuals representing a broad range of ages, education levels, and employment statuses. Participants were (a) identified as having a SCI; (b) used at least one form of computer AT including any of the following: speech to text software, large button keyboards expanded keyboards, mini keyboards, mouth sticks, switch adapted mice, trackball mice, joystick mouse, head gaze mouse, pointed typing aid; and (c) were between the ages of 18 and 65. Selection criteria specified that English was the participant's first language, and they must be able to use a computer and the Internet-based assessment.

Sampling Procedure and Sample Size

A purposive sampling approach was employed to identify and recruit participants with SCI. The sample fit established criteria (e.g., type of SCI, ability to complete the web-based assessment, age, use of at least one form of computer AT), which prompted recruitment through organizations that customarily serve members of the target population. The sample size was based in part upon the expected analyses. The suggested sample size for multiple regression utilizing three predictor variables was computed with the assistance of G*Power 3.1.3 (Faul et al., 2007). Given a moderate effect size of $f^2 = .15$, alpha of $\alpha = .05$, power $(1-\beta)$ of .80, the recommended sample size was 77.

Variables and Instruments

The variables measured were computer AT satisfaction, type of SCI, hours worked per week, and WSC. The measurement instruments included the WSI and the Quebec User Evaluation of Satisfaction with Assistive Technology (QUEST) 2.0 (CareerLocker, 2021; Demers et al., 2000)

Work Skills Confidence

WSC was measured using The WSI (CareerLocker, 2021). The WSI consists of 44 items used to indicate how confident individuals are about performing work-related items associated with seven work skill domains. The full-scale score consists of seven sub-scales measuring the following constructs: interpersonal, leadership/communication, information/data management, mechanical, mathematical/finance, product development, and self-management (CareerLocker, 2021). Each item in the inventory is rated using a three-point Likert scale with the following scale points: "*not confident*", "*confident*", and "*extremely confident*". Each of the seven sub-scales has a minimum value of one and a maximum value of 100, with higher scores indicating greater WSC. The full-scale score is obtained by adding the seven sub-scale scores and has a minimum value of seven and a maximum value of 700. A technical report and a revalidation study provided information regarding confirmatory factor analysis, content validity, and reliability for the WSI (Wisconsin Center for Education Research, 2021).

Satisfaction with Assistive Technology

AT satisfaction was assessed with QUEST 2.0. The QUEST 2.0 is a measure used to evaluate satisfaction with AT. The developers indicated that it can be used with adults of different ages and with individuals with different types of disabilities. Satisfaction as defined in the QUEST 2.0 refers to positive or negative evaluation of distinct dimensions of an assistive device. The focus is on how satisfied the person is with specific features of the AT device. The QUEST 2.0 is an easier and shorter version than the original QUEST. The QUEST manual lists 12 publications that have been written using the QUEST and QUEST 2.0 assessment (Demers et al., 2002).

The QUEST 2.0 contains eight items related to device satisfaction. Satisfaction items related to the device subtest measure satisfaction with: dimension, weight, adjustments, safety, durability, simplicity of use, comfort, and effectiveness. Each item is rated using a five-point satisfaction scale. A score of one denotes *"not satisfied at all"*, and a score of five indicates *"very satisfied"*. The overall score is obtained by adding the responses (values of one to five) for the items one through eight and dividing the sum by the number of items answered. Scores on the QUEST 2.0 can range from a minimum of 1.0 to a maximum of 5.0, with higher scores indicating greater device satisfaction. Demers et al. (2002) have established reliability and validity for the QUEST 2.0.

Demographic Variables

A number of survey items were used to gather demographic information about the study participants. Type of SCI, number of years of education, and number of hours worked per week were identified in the literature as factors associated with employment, which itself has been associated with higher levels of life satisfaction, self-efficacy, and quality of life ratings.

Employment

Employment was measured utilizing a survey question that prompted participants to identify the number of hours worked per week, with a range of zero through 40.

Type of Spinal Cord Injury

Type of SCI was measured utilizing a survey question that prompted respondents to identify the location of their injury, (C1 though S5).

Procedure

A two-part survey was developed that participants completed online. A consent document and all survey items, with the exception of the WSI, were set up using SurveyMonkey (2021). Once the SurveyMonkey items were completed respondents were directed to the online version of the WSI administered through the University of Wisconsin CareerLocker website.

The research was reviewed and approved by the Institutional Review Board associated with the university where the first author completed their doctoral studies. The first author developed a one-page document providing information on the study and contacted several organizations that serve the target population. They spoke with the director regarding the purpose of the study, the types of measures that were utilized, and how the outcome of the research study could be utilized for each participant and by their organizations. The researcher offered to share findings of the study with the organization in a written format as well as oral presentation. The researcher asked the contact at the organization to provide the researcher with an email list of their consumers or to ask someone in their administration to distribute recruitment messages to their clients on behalf of the researcher.

After an initial email to participants, a follow-up email was sent two weeks later. The surveys had a response date cut off of 30 days following their initial dissemination. When describing how to maximize survey return rate, Dillman et al. (2014) stated that it is best to send a total of three reminders for every 14 days an individual has not responded to the survey. The researcher continued to contact additional organizations that served the study's target population, until the desired sample size was reached.

To protect the identity of respondents and reduce the possibility of fraudulent responses, interested participants were provided with a four-digit code which they used to log into the survey. A five-dollar gift card was offered to participants to increase the likelihood that those contacted would complete the survey (Dillman et al., 2014). Respondents were asked to provide contact information only if they were interested in receiving the incentive. Once data collection was completed, data were stripped of personally identifying information and exported from SurveyMonkey and CareerLocker into a statis-

tical analysis application where it was visually inspected for missing values and other anomalies prior to conducting analyses.

Results

Participants

Three vocational rehabilitation organizations in the state of California agreed to disseminate the study information to their contact lists. Each organization chose to distribute the recruiting letter via email. Based on conversations with organization directors, it is estimated that recruitment emails were sent to approximately 1,000 potential participants. The organizations agreed to resend the recruiting message four weeks after sending the initial recruiting messages. Over a period of 18 weeks, 104 participants attempted to complete the survey and 78 successfully completed the survey. The 26 respondents who did not complete the survey failed to complete the WSI and, as a result, were excluded from all analyses. There were no missing data associated with the 78 individuals who completed the survey in its entirety. Table 1 provides demographic information regarding the sample of participants based on age, gender, type of SCI, number of hours worked per week, and level of education.

The majority of the 78 participants were between 30 and 59 years of age. The study population was predominantly male, with males outnumbering females by a ratio of more than four to one. The majority of respondents (69%) indicated that their SCI resulted in quadriplegia. Respondents reported a variety of education levels, the most commonly of which was completion of a bachelor's degree (37%). Just over half of respondents reported not working or working less than five hours per week, while a smaller proportion (32%) indicated that they worked 30 or more hours per week (Mean = 15.90, SD = 17.65). The distribution was platykurtic, but did not to violate the assumption of normality (Mertler & Reinhart, 2016).

Table 2 presents the WSI scores, which includes scores for each of the seven subscales and the total scale score. The subscales with the highest average scores were Information/Data Management Skills (75.99) and Self-Management Skills (75.01), while the subscales with the lowest average scores were Mechanical Skills (38.06) and Product Development Skills (52.31). Each participant's score on the QUEST could range from a minimum of 1.00 to a maximum of 5.00. Scores close to 1.00 indicate low levels of satisfaction and scores close to 5.00 indicate high levels of satisfaction with the AT. The average QUEST score for the 78 participants was 3.68 (SD = 0.92).

The primary research question that the study addressed (research question one) was, to what extent does the type of SCI, number of hours worked per week and computer AT satisfaction predict higher levels of WSC in populations of persons with SCI? Accordingly, the primary hypotheses stated that a regression model containing three predictor variables (satisfaction with AT, type of SCI, and hours worked per week) would predict a statistically significant proportion of the variance in WSC. To test the primary research hypothesis, standard multiple regression was conducted, which in addition to assessing the predictive ability of the overall model, also assessed the unique contribution that each predictor made to the model in the presence of the other predictors in the regression equation (research questions two through four).

Prior to conducting the multiple regression analysis, multivariate outliers were identified by computing the Mahalanobis distance. Interpreting X^2 statistics for the Mahalanobis distance at $p < .001$ indicated that there were no multivariate outliers. A visual inspection of scatterplot matrices was completed for all variables to assess normality. Visual inspection suggested moderate deviations, which may underestimate the association between the variables, but does not invalidate the study (Mertler & Reinhart, 2016). Table 3 identifies the correlations between the variables in the regression model.

Table 1
Demographic Information

Age	Number	Percent
18-29 years old	12	16%
30-39 years old	20	26%
40-49 years old	20	26%
50-59 years old	20	26%
60-65 years old	06	08%
Gender		
Male	61	78%
Female	17	22%
Type of spinal cord injury		
Paraplegia, incomplete	11	14%
Paraplegia, complete	13	17%
Quadriplegia, incomplete	28	36%
Quadriplegia, complete	26	33%
Education		
High school, no diploma	01	01%
High school diploma/GED	08	10%
Some college	19	25%
Associate degree	03	04%
Bachelor degree	29	37%
Master's degree	13	17%
Doctoral/Professional degree	05	06%
Number of hours worked		
Work = 5 hours	40	51%
Work 6-29 hours	13	17%
Work 30 or more hours	25	32%

*Significant at p = .05

The multiple regression analysis indicated that the primary research hypothesis was supported. AT satisfaction, type of SCI, and hours worked per week predicted a statistically significant proportion of the variance in WSC. The three predictors in combination explained approximately 13% of the variance in WSI score ($R^2 = .134$, F (3, 74) = 3.809, $p < .013$).

Examination of the individual predictors in the model indicated that after controlling for the contribution of the other predictors in the model, only hours worked per week had a statistically significant association with WSC (p = .004 Computer AT satisfaction (p = .318) and type of SCI (p = .551) did not make significant contributions to the model predicting work skills which contained the hours worked per week variable.

Hours worked per week was significantly correlated with WSC. The correlation between hours worked per week and WSC (as measured by the WSI) was .345 ($p < .002$). This correlation suggests that individuals who report more hours worked per week also report higher levels of WSC. Other vari-

ables, including type of SCI and AT satisfaction score were not significantly correlated with WSC. Since there were no significant intercorrelations among the predictor variables multicollinearity did not appear to be a concern in this analysis (Table 3). The contribution of each of the predictors to the regression equation can be observed in Table 4.

Table 2
Work Skills Inventory Scores

Scale	*N*	Minimum	Maximum	Mean	*SD*
Interpersonal Skills	78	1.0	100	72.91	*18.80*
Leadership/ Communication Skills	78	1.0	100	70.41	19.02
Information/Data Management Skills	78	1.0	100	75.99	19.45
Mechanical Skills	78	1.0	100	38.06	22.74
Business/Financial Skills	78	1.0	100	67.68	24.76
Product Development Skills	78	1.0	100	52.31	28.60
Self-Management Skills	78	1.0	100	75.01	16.82
Full scale score	78	7.0	700	452.37	115.06

Table 3
Correlation Matrix

	Work skills confidence	Type of SCI	AT satisfaction Score	Hours Worked
Work skills confidence	—	.033	.133	.345*
Type of SCI	.137	—	.142	.169
AT satisfaction score	.133	.147	—	.042
Hours worked	.345*	.137	.042	---

* Significant at p≤.05

Table 4
Regression Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
		β	*SE* β	βâ	t	Sig.
1	(Constant)	343.051	61.441		5.583	.000
	Type of spinal cord injury	1.136	1.897	.066	0.599	.551
	AT satisfaction score	13.650	13.582	.110	1.005	.318
	Hours worked per week	2.143	0.714	.329	3.000	.004

[a] Dependent Variable: Total sum of seven work skills for WSI

Discussion

The aim of this research was to investigate whether a model consisting computer AT satisfaction, type of SCI, and number of hours worked per week predicted confidence in work skills. Furthermore, the analysis sought to determine if satisfaction with AT was a significant predictor of WSC, after controlling for type of SCI and hours worked per week. The findings supported the hypothesis that overall the three predictor variables (AT satisfaction, type of SCI, and hours worked per week), did predict a statistically significant proportion of the variance in WSC.

Each predictor variable was also analyzed to assess its contribution to the model. Satisfaction with AT and type of SCI were not found to be statistically significant predictors of variance in WSC. Hours worked per week predicted a significant proportion of the variance in WSC. This finding is consistent with prior research. Studies regarding employment and individuals with SCI have found that individuals who were unemployed reported lower overall satisfaction and lower satisfaction with job opportunities (Lidal et al., 2007), while those who were employed reported a higher quality of life (McKinley et al., 2004). A study by Tsaousides et al. (2009) conducted to measure the relationship between employment and quality of life following traumatic brain injury revealed a positive and direct association between employment status and employed related self-efficacy. Additionally, in a study of individuals with SCI, hours of paid employment were positively associated with self-efficacy (Miller, 2009). Work is a contributor to life satisfaction, income, and positive adjustment, which are all factors in enhancing self-esteem (Anderson et al., 2007).

Several factors could explain why the regression model accounted for only 13% of the variance in WSC, why hours worked per week was the only statistically significant individual predictor of WSC, and why satisfaction with AT and type of SCI did not emerge as significant predictors of WSC. There may have been some overlap between the variables in their ability to predict the dependent variable, WSC. In the absence of one or more of the other predictor variables, the other predictors may have explained a greater proportion of the variance in WSC than they did in the model containing all three predictors. In addition, other external personal and environmental variables may have influenced individual responses. Hershenson (1996) discussed factors that can affect an individual's adjustment to work including prior development in youth, socialization, socioeconomic living status, and experiences in work competencies. These factors were beyond the scope of the present study, but may represent opportunities for additional research that investigates the importance of these constructs.

There were some differences and similarities when comparing the results of this study to previously published literature. The finding that number of hours worked per week alone predicted a significant amount work variance in WSC was similar to Miller's (2009) findings that for individuals with SCI, the number of hours of paid employment was positively associated with self-efficacy. However, while type of SCI has been related to employment status (Conroy & McKenna, 1999; Marini et al., 2008), this study failed to find a significant relationship between type of SCI and WSC. Thus, the association between type of SCI and WSC remains inconclusive despite the anticipated, but unobserved, relationship between the two. This finding may suggest that other variables have a stronger association with WSC than type of SCI.

AT services have been determined to lead to positive employment outcomes (Marini et al., 2008), increased functional capacities, and a sense of autonomy (Scherer & Glueckauf, 2005). In this investigation, AT satisfaction did not significantly predict variance in WSC. Although the relationship between these two constructs had not been explored extensively in previously published literature, the findings did not support the expected association between the variables.

Limitations

There are limitations to be considered when interpreting these findings. The measurement of the construct of AT satisfaction may have contributed to the finding that AT did not emerge as a significant predictor of WSC. However, satisfaction with use of AT was not determined to be a significant predictor in WSC. This suggests that the use of technology, may contribute to functional independence, but

not necessarily result in an individual feeling more confident about their work skills. The study did not explore whether the individual was responding to their current or past use of AT or the duration of their AT use. Previous researchers have demonstrated that important variables related to use of AT include the perceptions of the AT benefits, the intent to use the AT, abandonment of use of AT and user satisfaction (Gelderblom & deWitte, 2002; Riemer-Reiss & Wacker, 2000; Scherer & Glueckauf, 2005).

An additional limitation of this study is that many of the citations referenced at the time of the study are now dated and changes are likely to have happened in the time since these cited articles have been referenced. A re-evaluation of this study or other studies investigating AT at work for persons with disabilities and the effect this would have on individuals' ability and confidence in completing job tasks is recommended.

Another consideration was the limited types of AT this study explored, specifically alternative computer input devices. There is a wide range of AT that relate to other areas of function, such as mobility and transportation, feeding, hygiene, and control systems for the home and car (Scherer & Cushman, 2001). Perhaps it is these types of technologies, and the ability to function more independently when engaging in activities of daily living, that might lead to an individual feeling more confident about their abilities to perform work skills.

The literature regarding the relationship between AT and self-efficacy is limited; most investigations have assessed how AT and self-efficacy are associated with quality of life, life satisfaction, or perceived ability to perform activities of daily living. Of the limited studies addressing these constructs, many have used small samples and self-report measures. The small sample sizes have made generalizing results challenging. Self-reporting measures may be questioned because there is no way to objectively evaluate whether a person's self-reported responses are accurate. The present study shares these limitations pertaining to sample size and utilization of self-report measures.

The study population was limited to people with disabilities in southern California. Caution should be utilized when attempting to generalize the findings to other geographical regions because regions may vary considerably with respect to socioeconomic conditions, employment rates, resources, and access to community activities. An additional limitation to the population of this study was that if a person with a SCI did not have access to the internet then they were unable to participate in this study. Other formats of survey methods could be explored including relaying survey questions via telephone, video, or in paper formats.

Recommendations for Future Research

There are a few studies that have addressed self-efficacy for individuals with SCI (Miller, 2009), but none have explored the relationship between AT and self-efficacy. Therefore, it is not known how the use of AT relates to WSC or an individual's perception of their ability to work. This study sought to explore constructs that had not been explored extensively in the previously published research literature: satisfaction with use of computer AT and WSC, and included additional variables that were known to influences employment status. Hedrick et al. (2006) suggested that research examine AT and its relationship to the workplace. Fabian et al. (2009) suggested that research investigate the effect of vocational interventions and self-efficacy on career barrier perceptions. Hampton (2008) recommended that future research focus on task specific self-efficacy ratings for persons with SCI. It was apparent that there was a need for further investigation of how the use of AT and satisfaction with use of AT was associated with WSC for individuals with SCI.

This study explored the construct of satisfaction with use of computer AT; it is possible that additional measures, such as examining use of technology and type of AT, might have resulted in different findings. AT is technology or equipment used to reduce environmental barriers and maximize independence (Hedrick et al., 2006; Scherer & Glueckauf, 2005).

The purpose of AT is to provide an alternate approach to utilizing an object or completing a task, thereby minimizing impairments and barriers in personal, educational, and employment settings

(McKinley et al., 2004). While this research study focused on persons with SCI, AT can be useful with all types of disabilities including, for example, speech impairments, upper extremity impairments, and cognitive impairments (McKinley et al., 2004; Meyer, 2010; Watson, 2007).

In order to build upon this research, future investigations should focus on how disability groups benefit from AT in personal and employment settings, and how self efficacy and confidence should be measured not only for personal task and quality of life purposes, but also specifically as related to work skills.

Additionally, those conducting research in this area should consider expanding their samples both in number and in the type of individuals they select to participate, so generalizations can be made to larger populations. This effort may involve studying different disability groups with a variety of physical, cognitive, or mental impairments.

Another recommendation is to extend the investigation beyond the three predictor variables identified in the present study (i.e., type of SCI, number of hours worked per week, and computer AT satisfaction) when examining factors that contribute to WSC. Additional psychosocial factors that may contribute to WSC may include social support, socio-economic status, independent living status, length of time in employment, and elapsed time since onset of injury.

Prior research identified education as an important predictor of the employability of persons with SCI. As such, it was included in the original primary hypothesis for this study as well as one of the sub-hypotheses. However, due to difficulties in obtaining participants for this study, it was dropped as a variable to allow the analyses to be conducted with sufficient statistical power. Education should be explored in future research examining employability of persons with SCI. Following SCI, individuals are most likely to be employed in professional, administrative, or managerial jobs. Advancing one's education increases the range of occupational choices afforded to individuals who may not be able to perform some intensive forms of physical labor (Anderson et al., 2007; Ottomanelli & Lind, 2009).

The use of AT should be more thoroughly explored . One way to explore the impact of AT would be to compare AT users with non-users. Additionally, the timeframe when the technology was used (past or present) and the duration of use should be explored. Future studies should also consider examining the different types of AT in addition to computer-based technology, such as devices that assist with mobility and transportation, feeding, hygiene, or control systems for the home and car.

Employment, or number of hours worked, is a construct that should be more thoroughly explored to further understand why it was a significant predictor of WSC in the present study. Though hours worked per week was a significant predictor, it may have been useful to also examine differences between participants according to employment status (e.g., comparing those who were unemployed, employed part-time, and employed full-time).

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