Campus Adaptations of Physical Disabled Students

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Abstract

Objective:- The study aims to empirically test the relationship between types of campus adaptations across physically disabled engineering undergraduate B.Tech students alone pursuing a four year study at Indian Institute of Technology (IIT’s) and National Institute of Technology (NIT’s) in India.

Method: - The independent t – test was run with SPSS vs 21 to determine the nature of campus adaptations of IIT’s and NIT’s among disabled students (n =31) with the earlier adopted multistage random sample of (n = 1420).

Results and Conclusion : - There is a insignificant relationship on campus adaptations among physically disabled students indicating that campus adaptations did not vary among physically able and physically disabled which could be attributed to the lower strength of the sample size. However if an qualitative approach is adopted with interviews held to seek out information on nature of adaptability to campus environments, it could introspect more indepth on the nature and levels of disability students witness at campuses of higher learning.

Key Words :- Campus, Adaptation, Academic, Social, Physical – Psychological, Institutional and Physically Disabled

I. INTRODUCTION

Higher education of disabled students from human capital theory(Liu, Zhang, Tan, & Guo, 2011) seeks to have an introspection on disabled students who witness lack of adaptability in academic, social, psychological – personal and institutional level(Mckay et al., 2016) at campuses. A person centred approach to profiling adjustment among post secondary students with disabilities (Murray et al., 2014) needs to look towards inclusion practises to commit itself to adopting proactive measures that eliminate the barriers that do not permit the learning and full participation of student in question (López Gavira & Moríña, 2014) thereby undoing the educational barriers like social isolation with fewer attitudinal, programmatic, financial, or health barriers and the much talked about career barriers like social/communication and architectural/environmental barriers (Stumbo, 2010). Thus higher education needs to work towards inclusion of students with special needs - the disabled students(Westwood & Graham, 2003) as it remains an observed phenomena that campuses in India are ill equipped physically and academically to deal with issues related to disabled students (Jain, 2011).

Post secondary institution forms a crucial path from high school to work for students with disabilities(Fleming & Fairweather, 2012). The insights into students’ experiences of the aids and obstacles to an inclusive learning environment to actively promote equality of opportunity for disabled students(Gooden, 2007) are vital to widen participation of disabled students in higher education(Margaret Taylor, 2004). University experience of student with disabilities is different than students without physical disabilities as students with disabilities had higher levels of concern than did the physically abled other students(Keale, 2002). Moreover among disabled students educational satisfaction is positively correlated with campus comfort level (Parasnis & Fischer, 2005b) highlighting the fact that for long disabled students had poor adjustment at post secondary institutions (Murray, Lombardi, & Kosty, 2014) where students adaptation to college differed among students with and without disabilities(Adams & Proctor, 2010) especially among disabled minority race students (Parasnis & Fischer, 2005b). This is vindictive to the fact that for long disabled students choose distance education over regualr education(Jelfs & Richardson, 2010) revealing their underrepresentation owing to educational career and environmental barriers (Stumbo, 2010) like lack of support mechanisms; structural barriers; policy related issues; support mechanisms; skills and knowledge(Moswela & Mukhopadhyay, 2011) and low expectations for students
with disabilities, limited exposure to prerequisite courses, lack of role models, and lack of access to individualized supports (Dunn, Rabren, Taylor, & Dotson, 2012) although noticeably; individual skills impact performance on college admission test with students without disability performing better than student with disabilities(Padilla-Munoz, Rodriguez, Castro, Reveiz, & Gomez-Restrepo, 2013). In brief, campus adjustment among disabled students impacts academic achievement (Dawn, 2007).

The student strength of the disabled students in undergraduate engineering and technology at institutes of national importance over the years has been shown in the table below

<table>
<thead>
<tr>
<th>Year</th>
<th>Male Students</th>
<th>Female Students</th>
</tr>
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<tbody>
<tr>
<td>2011 - 12</td>
<td>499</td>
<td>57</td>
</tr>
<tr>
<td>2012 - 13</td>
<td>814</td>
<td>94</td>
</tr>
<tr>
<td>2013 - 14</td>
<td>1159</td>
<td>137</td>
</tr>
<tr>
<td>2014 - 15</td>
<td>1130</td>
<td>108</td>
</tr>
<tr>
<td>2015 - 16</td>
<td>1293</td>
<td>123</td>
</tr>
</tbody>
</table>

Source: All Indian Survey on Higher Education (AISHE) reports

From the table and figure it is evident that there is an enrolment rise in engineering and technology among disabled students with relatively poor enrolment among females students in engineering.

The study seeks to analyse the relationship among physical disabled students and non physical disabled students on campus adaptations with the following research question and research objective:-

Research Question: - What makes campus adaptations of academic, social, physical - psychological and institutional among physical disabled and non physical disabled students.

1. Campus Adaptations :-

1.1 Academic Adaptation :- Learning difficulties are associated with health status of students – especially the one’s with disability(Soubhi, Lima, Talbi, Knouzi, & Touri, 2015) and specific learning disability impacts ability and achievement among such students (Heubeck & Latimer, 2002). Of recent it is noted that tensions persist between academic standards and inclusion of disabled students by recasting student achievement as different rather than inferior setting academic framework assessment(Ashworth, Bloxham, & Pearce, 2010). Further there is a complex relationship between disabled students, their technologies and higher educational institutions impacting thier learning adversely (Seale, Georgeson, Mamas, & Swain, 2015). Virtual learning environments as learning experience enhances academic engagement for students with disabilities (Gerrard, 2007) and students’ disabilities also influence the specialised ICTs they use and how well their ICT-related needs are being met (Catherine S Fichten et al., 2012). Hence improving the campus climate for students with disabilities through the use of online training (Junco & Salter, 2004a) with an extended hand on social learning about persons with a (physical) disability with interpersonal sources of learning materials need to be effective(L. Chen, Feng, & Leung, 2014).

At academic forefront: Individual differences and situational factors moderate relationships between physical disabilities and early career opportunities(Feldman, 2004). This increases the urge the need to speed up recruitment strategies for disabled students in engineering(Martin et al., 2011) while ensuring employability skills valued by employers as important for entry-level employees with disabilities (Ju, Zhang, & Pacha, 2012). On the other hand, faculty must show a positive attitude toward disability to promote inclusive practices using alternative methodologies, make curriculum adaptations, use new technologies and be trained in attending the needs derived from disabilities.(Morina, Dolores Cortes-Vega, & Molina, 2015) who often when observed on the contrary distance thier behaviours towards students with disabilities impacting the laters academic performance(van Jaarsveldt & Ndeya-Nderyea, 2015). Faculties on the contrary face difficulties of adapting univeristy teaching to students with disabilities(Alvarez-Perez, Alegre-de-la-Rosa, & Lopez-Aguilar, 2012). The major block often noticed in this regard is attitudes of faculties that impacts inclusiveness of students with disabilities (Novo-Corti, Munoz-Cantero, Miguel, & Calvo-Nuria, 2015) and psychological...
that it differed across institutions (Lombardi & Murray, 2011). Therefore faculty adaptation standard to teaching especially in favour of students with disabilities (Browder et al., 2012) need to sharpen faculty attitudes towards students with disabilities in regular classroom (Dukmak, 2013) impacting adaptation of academic course by disabled students (Di Nardo, Kudlacek, Tafuri, & Sklenarikova, 2014). In short, learning experiences of disabled students indicate need for more of inclusion practises (Kioko & Makoelle, 2014) as academic achievement does vary by disability (Dawn, 2007).

1.2 Social :- Social adjustment influences motivation of disabled students to their level of social alienation and perceived competence (Wiseman, Emry, & Morgan, 1988). Negative stereotypes still mark the social representation of disability in society (Cambra, 1996) with disability being socially constructed to see students with different eyes on new pathways to personalise assessment, learning on curriculum, assessment and pedagogy (Moore, Molloy, & Morton, 2008). Disabled student experiences of college varied by race where among disabled students educational satisfaction was negatively associated with perception of discrimination and racial conflict (Parasnis & Fischer, 2005a). Further on social ties, families of disabled students impacted their college adjustment (Smith, Ray, Wetchler, & Mihail, 1998) with parental care positively impacting disabled students to view disability not more as a differential factor (Raya, Ruiz-Olivares, Pino, & Herruzo, 2013) followed by peer acceptance vehemently impacting inclusion of students with disabilities (Adlbersheski & Salehpour, 2014) without which risk of isolation would soar high especially among first generation disabled college students (Murray, Lombardi, Bender, & Gerdes, 2013). As an extended note on social ties, students who stutter avoid communication and social interactions on campus form a undisclosed invisible disability (Meredith & Packman, 2015). It is also vital to change the attitudes of faculty and student academic staff towards disabled students (Junco & Salter, 2004b) where university staff must have adequate awareness on disabilities of students studying in post secondary educational institutions (Padden & Ellis, 2015) afterall an institute needs to showcase its cultural policy that impacts inclusion, exclusion and diversity (Gislon & DePoy, 2011a). Thus two types of social support (total support and satisfaction with support) had positive effects on the post-secondary adjustment of college students with disabilities (Murray et al., 2013).

1.3 Physical Adaptation :- Physically disabled students faced physical abuse at university (McQuiller Williams & Porter, 2014) and on campuses (Findley, Plummer, & McMahon, 2015). It is noted that disability magnifies by sexual orientation of the students (Harley, Nowak, Gassaway, & Savage, 2002). This is followed by poor health & hyperactivity increased the odds of having a disability about two to three times, while poor close perceived friendship &academic competences predicted disability of same magnitude (Vaz et al., 2015) with oral health conditions and behaviours of disabled and non disabled students differing vastly (Vichayananrat & Kositpumivate, 2014). In this regard a prominent step could be the university staff who must have adequate awareness on disabilities of students in postsecondary educational institutions (Wehman, 2001) as they are the most revered people, disabled students can rely on campuses.

1.4 Psychological Adaptation :- Personal characteristics play an important role in higher education among students with disabilities (Swart & Greyling, 2011) especially to that of ones attitude that makes immense difference to students with disabilities (Rodriguez Martín & Álvarez Arregui, 2013). It was found that non disabled peer had negative thoughts about disabled students in campus (Fichten, C. S., & Amsel, 1988) highlighted by theory of planned behaviour of intentions on non disabled students to play with disabled students (Obrusnikova, Dilllon, & Block, 2011) with of only recent positive attitude developing towards disabled students (Sachez, Jimenez, & Batanero, 2011). So more importantly, its attitudes toward the sexuality of persons with physical disability shows better adaptability (Hasson-Ohayon, Hertz, Vilchinsky, & Kravetz, 2014). This could be attributed to the self determination of physically disabled students contributing to positive educational outcomes among students with disabilities (Wehmeyer, 1997). Further psychologically, disabled students are mostly depressed (Elliott, Frank, & Brownlee-Duffeck, 1988) with non disclosure of disability possessed by negative attitude amongst wider non disabled student body (Miller, Ross, & Cleland, 2009) coupled in low self efficacy(Jenson, Petri, Day, Truman, & Duffy, 2010) enhancing stress making them more vulnerable to adverse psychological well being (Koca-Atabey, Karanci, Dirik, & Aydemir, 2011). This nuggets the interpersonal theory that physically disabled students are more inclined towards suicide (Khazem, Jahn, Cukrowicw, & Anestis, 2015). However social support systems which come to rescue of disabled students in this regard provide better ways of coping with disability and college adjustment (Okoye, 2010) (Murray et al., 2013). After all, it is the coping strategy, that eases of their psycho social adaptation to disability (Livneh & Wilson, 2003) and strategies for building a belief in ability and self esteem (Hearn, Short, & Healy, 2014) can be of immense help.

1.5 Institutional Adaptation :-
Higher education provision for students with disabilities- current state of provision (e.g., concessions for exams and assignments, infrastructure, teaching etc) needs to be investigated(Hadjikakou & Hartas, 2009). The accessibility, reach-ability, usability and safety of the built environment to students with disability or special needs is poor at institutions (YE, AK, J, & E, 2013). Disabled students witness barriers at individual level and at institutional level (Cawthon, Schoffstall, & Garberoglio, 2014). The pertinence arises to know how university is prepared in terms of cultural, scientific and organizational levels to receive students with disabilities(Mara, 2014) sustaining its motto to create barrier free facilities which are often left not well distributed and insufficient in campus area of existing facilities coupled with lower maintenance. (Osman, Radzi, Bakri, & Ibrahim, 2015). Thus the campus accessibility services and campus administrative support for disabled students (Johnson & Fann, 2015) (Kouroupetrogloou, Pino, & Kacorri, 2011) calls for students’ motivation and decision to utilize support services framed by the level of acceptance of their disability that is, their integration of disability (Shea & Meyer, 2001) towards services at campus.

Good practises at institutions empowers students with disabilities(Lane & Hadodo, 2014) as supporting students with disabilities it is educators’ preparedness, responsiveness to make accommodations with positive attitudes toward including students with disabilities(Rule, Stefanich, & Boody, 2011). Institutions should anticipate adjustments in terms of facilities required by disabled students at university campuses(Mark Taylor, Baskett, & When, 2010) as it is noted that student support services, instructional faculty and institutional support (Getzel, 2008) and studentsmore favorable attitude toward graduation (C. S. Fichten et al., 2016) are vital factors for persistence and retention among disabled at college especially among students from low socio economic status (Madaus, Grigal, & Hughes, 2014). Academically, institutional provisions of learning disability services should play in a college environment(Rath & Royer, 2002). There is a need to enhance access to educational and instructional computer technologies for post secondary students with disabilities(S. Fichten, Jennison V. Asuncion, M, 2000) as it is noted that objective-oriented and subjective-oriented method for evaluating accessibility and usability of web pages for students wt disability faced more subjective oriented difficulties (Federici et al., 2005). Thus accessibility of web resources for students of disability at university campuses(Rodríguez-esparra, 2007) with use of computer technologies in post secondary institutes for disabled students impacts and enhances visibly student success(C S Fichten, Barile, Asuncion, & Fossey, 2000)

Proximal processes play an important role in higher education among students with disabilities(Swart & GREyling, 2011) i.e, students choose institutes that are close to their home or ease of access. From accommodation perspective students with disabilities have a special concern(Lester, Dostal, & Gabriel, 2013) as students with disabilities have difficulty with accomodations in college setting (Timmerman & Mulvihill, 2015) Inadequate disability accommodations influences lack of interest demotivating students towards attrition (Catherine S. Fichten et al., 2014) who less enjoy being called premature leavers(Catherine S Fichten, DawsonJorgensen, & Budd, 2015). Safety and mobility of student with disabilities to institutional facilities like washroom and other basic needs must be regulated (Ochieng”, Onyango, & Wagah, 2013). Further less noticeably students with disability before accessing higher education are influenced by their personal attitude, but after enrollments its institutional architecture barrier that impedes them (Solera, Gutiérrez, & García, 2015). Therefore disabled groups space ownership and specialized designated architectures(Gilson & DePoy, 2011b) should play the due regard at campuses.

Disabled students took longer time to complete graduation course. This calls for the need to create awareness of disability related resources at post secondary institutions where counsellors as guide initiate career plans(Jorgensen et al., 2005). The theory of planned behavior predicts graduation among college and university students with disabilities(Catherine S. Fichten et al., 2014). Further students’ motivation and decision to utilize support services was framed by the level of acceptance of their disability that is, their integration of their disability to their authentic self. (O’Shea & Meyer, 2016) . Hence institutions need to provide barrier free campus environment for students with disabilities(Y. C. Chen, Wang, Shiau, & Wang, 2015) stressing that physical environment of campus like institution building more significantly impacts students experience on campus (Coulson, Roberts, & Taylor, 2015).

The study perpetuates the following research hypothesis :-

Hₐ₁:- Campus adaptations of academic, social, physical – psychological and institutional adaptations did not differ by disability among undergraduate students.

Hₐ₂:- Campus adaptation of academic, social, Physical – Psychological and institutional adaptations varied by disability among undergraduate students.
II. METHODS

2.1 Participant :-The reference population were undergraduate 4 year B.tech students enrolled on a regular study mode at IIT’s and NIT’s. A total of 1460 students participated with 1420 of valid responses for an overall 97.2 percent participation rate after deducting the questionnaire that contained empty answers. Data was collected for 20 weeks across institutions of IIT’s and NIT’s. Of the 1420 undergraduate respondents undergraduate respondents, only 31 respondents were physically disabled, with zero introspection on the nature and level of disability.

2.2 Sampling :- Probability sampling technique was used followed by cluster sampling towards identification of institutes of IIT’s and NIT’s. This was queued by stratified sampling in sample choice of undergraduate student population and simple random technique in collecting data from the chosen undergraduate student population as stated earlier.

2.3 Instrument and Procedure :- The Survey was conducted using a structured online questionnaire with reference to students email accounts. At all times, the students were informed of the anonymous nature of participation and any doubts that arose were clarified.

2.4 Measures :- All the 21 items in the questionnaire were measured with rating on a five point likert scale ranging from “1 = strongly disagree” to “5 = strong agree”. Reliability and validity of the questionnaire was tested.

3. Independent t – test analysis:- The nature of independent variable – physical disability was measured as a dichotomous variable with yes / no level across four each level of academic, social, physical – psychological and institutional adaptation of dependent variables. This was also influenced by the sample size of 31 students leading to the choice of independent t- test as apt for the current analysis.

On an average non disabled students (n = 1389) had higher academic adaptation (M =2.60, SE = 0.018) than disabled students (n = 31) with (M = 2.51, SE = 0.130). The mean difference (0.08) BCa of 95% CI [-0.17915, 0.35791] was not significant at t (1418) = 0.700 , p = 0.484 (p>0.05)

On an average non disabled students (n = 1389) had higher social adaptation (M =2.72, SE = 0.020) than disabled students (n = 31) with (M = 2.67, SE = 0.1444). The mean difference (0.054) BCa of 95% CI [-0.21494, 0.32325] was not significant at t (1418) = 0.395 , p = 0.693 (p>0.05)

On an average non disabled students (n = 1389) had higher Physical – psychological adaptation (M =2.29, SE = 0.1381) than disabled students (n = 31) with (M = 2.28, SE = 0.020). The mean difference (-0.002) BCa of 95% CI [-0.27753, 0.27755] was not significant at t (1418) = -0.0018 , p = 0.986 (p>0.05)

On an average non disabled students (n = 1389) had higher institutional adaptation (M =2.14, SE = 0.021) than disabled students (n = 31) with (M = 2.09, SE = 0.135). The mean difference (0.05) BCa of 95% CI [ -0.22853, 0.33073] was not significant at t (1418) = 0.358 , p = 0.720 (p>0.05)

Hence the null hypothesis is accepted and alternate hypothesis is rejected. However if an qualitative approach is adopted with interviews held to seek out information on nature of adaptability to campus environments, it could introspect more in depth on the nature and levels of disability students witness at campuses of higher learning.

Conclusion:- Disabled students serve as benchmarks of student engagement and institutional performance (Hedrick, Dizen, Collins, Evans, & Grayson, 2010). The challenge of inclusion of student with disabilities in post secondary institution remains a mighty challenge (Powell, Hyde, & Punch, 2014) with defining the level of disability (Miskovic & Gabel, 2012) being crux of all in higher education. Further the undying need to enhance post secondary campus climate for students with disabilities (Wilson, Getzel, & Brown, 2000) makes higher education to be persistently working towards formation of inclusive university settings, that less acts as a barrier in adopting learning environments in universities (Moriña, 2015).

Implications :- The voices of disabled students have been hidden for long in higher education (López Gavira & Morriña, 2014) with the ever daunting need for sensitising the general population towards disability (Opoku, Badu, & Moitui, 2015) who lack the appropriate knowledge and the common thought to describe a person with disability(Louari, 2013) but do realise that it is vital to make higher education barrier free and welcoming to the special group of students with disabilities, especially with yearly evaluative programmatic interventions to improve post secondary STEM education for students with disabilities (Moon, Utschig, Todd, & Bozzorg, 2011) . Never the less, disabled students from institutes like NIT and IIT can never be left behind in the race where every student aims to pace up in his or her academics.

REFERENCES


