This chapter enumerates the relevant procedural aspects employed to facilitate the exploration of the designated aim and objectives of the study. The methodological overview will be discussed systematically across the various subsections.

3.1 Research Design and Rationale

This study employed a non-experimental design; adopted a concurrent cross-sectional and longitudinal methods. Although concurrent, the cross-sectional methods predominates, as this is the first study of its kind in Indian population.

3.1.1 Non-experimental method

A substantial proportion of the present quantitative research is non-experimental, because, the important independent variables were not manipulable but did lend themselves to controlled inquiry of the non-experimental kind, and also to interpretations about the degree to which the outcome variables and independent variables tend to co-occur or were related to each other. In the current study the various socio-demographic, condition specific and device specific acting as independent variable were studied upon to find any kind of influence on the psychosocial perspective of the device users.

3.1.2 Longitudinal method

The current study had a longitudinal component, and thus was co-relational in nature involving repeated observations. It allowed to observe the temporal order of events and outcomes as disability is a dynamic rather than a fixed phenomenon. In the current study, repeated observations were made for a sub section of the study population, once at the time of recruitment and second time after three months of device usage.

3.1.3 Cross sectional method

The current study was predominantly a cross sectional study involving observations of the study population at a defined time. It aimed to provide data on the entire population under study and may be used to describe some feature of the population. In issues where strong personal feelings may be involved, as in the present study, in such cases a cross-sectional study effectively eliminates bias when observations are made by third parties.
3.2 Data source

The study’s scope was broad, incorporating a diverse national sample, multiple disability groups, a range of devices, and various delivery settings.

3.2.1 Subject recruitment

The subjects were recruited from various centers across India, i.e. a multi-centric study was carried out. The chosen centers were either private or government; residential or non-residential; school set up, rehabilitation centers or directly from the community.

To recruit the subjects, list of organizations dealing with locomotor disability was prepared and contacted based on various available resources from different states across the country. And 17 centers were shortlisted across six states of India to conduct the field study (Appendix 3). The procedural description will be discussed in the section 3.4.

3.2.2 Sample size estimation

The sample size for the study was estimated based on the population statistics on locomotor disability and the access to assistive technology device in India.

As per the 2001, Census of India\(^1\) the estimated total number of people with locomotor disability was at 61,05,477 i.e. 27.87% of the total estimated disability population. As per release of The 58\(^{th}\) World Health Assembly Resolution on Disability by WHO\(^2\) in the low-income and middle-income countries, only 5-15% of people who require assistive devices and technologies have access to them. Considering 15% of people with locomotor disability have access to assistive technology device in India, then the estimated population size who would be using technological assistance will be approximately 9,15,281 (Nine lakh fifteen thousand two hundred and eighty one).

With 5% margin of error, 95% confidence level, population size of 9,15,281; the recommended sample size was estimated to be 384 subjects with locomotor problem using assistive devices. In the current study, a total of 405 subjects were recruited as a part of cross

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\(^1\) Source http://www.ccdisabilities.nic.in/page.php
sectional study and 65 subjects were recruited for the longitudinal study. The sampling method used was convenient sampling method.

3.2.3 Subject selection criteria:
Subjects fulfilling the following criteria’s were included / excluded from the study.

**Inclusion criteria:**
- Subjects belonging to different category of locomotor conditions
- Age range: 10 years to 70 years
- Subjects of both gender was recruited from rehabilitation centers, institutes, vocational centers, special schools and from the community
- Subjects had a minimum of 12 months of exposure to locomotor problem
- Subjects using varied type of ATD
- Should have used the device for a minimum period of three month or else may have been prescribed a device but haven’t started using it on a regular basis
- Subjects should be able to understand the questionnaires, and communicate their responses in the chosen language, able to recall and describe their social interaction in the context of respective devices

**Exclusion criteria:**
- Subjects with severe cognitive and phasic problems
- Subjects having no form of social engagement

3.3 Tools
The subject assessment survey included a battery of instruments to measure multiple dimensions relevant to ATD and rate its impact.

3.3.1 Descriptive Data Form
A descriptive data form was devised for the purpose of this study to gather information from subjects on various socio-demographic variables, identify those factors closely associated with assistive technology devices and its discontinuance among individuals with disabilities (Appendix 4). The data form was developed after consulting individuals who
were directly or indirectly involved with assistive technology device usage, suppliers, fabricators and prescribing authorities. Inputs were also drawn from suggestive literatures (Hansen et al., 1989; Joiner, Lovett & Goodwin, 1989; Jutai et al., 2005; Philips & Zhao, 1993; Scherer & Cushman, 2002; Ville & Winance, 2006). It was also been influenced by the experience of the researcher. The data form was then piloted for clarity on five individuals with locomotor disabilities and further necessary changes were made accordingly. It was developed to be appropriate to a wide range of individuals with disabilities and also facilitated a semi-structured interview.

3.3.2 PIADS

The Psychosocial Impact of Assistive Devices Scale (PIADS), developed by Day and Jutai (1996) was one of the questionnaires used in the current study. It makes the assumptions that Quality of Life is a complex and multidimensional construct and that assistive devices should promote good quality of life so that the user feels competent, confident, and inclined (or motivated) to exploit life’s possibilities. It has been empirically determined that these three key dimensions do indeed underlie how users perceive the psychosocial impact of assistive technology.

PIADS is a 26-item, self-rating questionnaire designed to measure perceptions of the users about the effects of an assistive device on functional independence, well-being, and quality of life. It may also be used to assess a respondent’s expectations of device impact (i.e., anticipated impact, prior to using the device). It is intended to be a generic measure, applicable to virtually all forms of assistive technology (Jutai & Day, 2002).

The three subscales of the PIADS are based on a factor analysis of the responses combined from several studies. First scale, competence, measures feelings of competence and efficacy. It is sensitive to the perceived impacts of assistive technology on performance and productivity. It has 12 items and includes questions on topics such as competence, productivity, usefulness, performance, and independence. The second subscale, Adaptability has 6 items. It indicates a willingness to try out new things and to take risks and is sensitive to the enabling and liberating aspects of assistive technology that might be expected if ATs enhanced “participation”. The third subscale, Self-Esteem has 8 items and it reflects self-confidence, self-esteem, and emotional well-being (Appendix 5).
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The PIADS is a sensitive measure of the impact of a wide range of assistive devices, in populations of adults who have various forms of disability and medical condition. The utility of the PIADS is that it can predict at a significant statistical level the retention or abandonment of ADs, resulting in a saving of time, money and stress. Studies have demonstrated that the PIADS is a reliable, valid, and responsive measure with good clinical utility. Internal consistency was assessed using Cronbach’s alpha and the values were .95 for the PIADS total score and .92, .88, and .87 for the Competence, Adaptability, and Self-esteem subscales, respectively (Day et al., 2002; Demers, Monette, Descent, Jutai, & Wolfson, 2002).

3.3.3 Ladder Scale

It is a simple uni-dimensional, generic scale that measures life satisfaction for the past, present, and future. It was developed by Andrews (1976). The scale is drawn as a ladder with nine rungs; the top rung is labeled “Best life I could expect to have” and the bottom rung “Worst life I could expect to have” and it assesses how satisfied or dissatisfied an individual is with their personal life at that time (Appendix 6).

The Public Health Agency of Canada (2004) reported that life satisfaction ladder has been shown to be a valid instrument in judging life satisfaction in adults and the Test –retest reliability is r =.70. Corley et al. (2000) stated that the scale had shown considerable stability (a measure of reliability) in life satisfaction in longitudinal studies and has significant correlations with objective life circumstances.

3.3.4 FAM Scale

The Functional Assessment Measure (FAM) (Wright, 2000) is an extension of the Functional Independence Measure (FIM) which has evolved from work at the State University of New York at Buffalo. The FAM provides a measure of disability to reflect basic self-care, mobility, communication, psychosocial adjustment and cognitive functions of the patient. It measures levels of disability, regardless of the nature or extent of the underlying pathology or impairment and can be used in multiple settings, including a hospital, a clinic, a nursing home, or an individual’s private home. It is a discipline free scale. The scale FAM also is referred to as FIM + FAM (Appendix 7).
Chapter 3

Methodology

The FAM is modeled after the FIM and assesses the individual’s level or degree of independence, amount of assistance required, use of adaptive or assistive devices, and the percentage of a given task completed successfully. The FAM is an addition of 12 items to the FIM which contains 18 items (Uniform Data System [UDS] for Medical Rehabilitation) and thereby the FAM extends to 30 items. The motor-FIM data can be extracted from FAM and used on its own, for example, when making comparisons with populations in which only the motor-FIM is rated. For this reason it is important to score the FIM items as for the stand-alone scale, and the FAM items as an add-on. It has a seven point rating scale (ordinal scale), with 1 corresponding to complete dependence and 7 to complete independence. The full-scale reliability (internal consistency) was high with Cronbach’s $\alpha$ 0.98 for the full scale and 0.97 for the Motor domain (Turner-Stokes & Siegert, 2013).

FAM was implemented, after extensive testing for reliability and validity. For the Inter-rater Reliability the Kappa score for the FIM was .87, and for the FAM, .85, both within the "very good" Kappa range (Hall, 1992). All items of the FIM+FAM showed excellent or good intra class correlation coefficients (ICC). The total average ICC values for the 18 FIM items (.85) and for the 30 FIM+FAM items (.83) were comparable, both falling in the excellent range. Following Rasch Analyses, FAM items rated at rehabilitation admission correlated significantly with indices of injury severity in a very similar pattern as FIM items$^3$.

3.3.5 Socio-Economic Scale

Socio-economic status influences the accessibility, affordability, acceptability and actual utilization of various available health facilities. This instrument measures the socio-economic status of the family and is neither based on the individual nor on the head of the family. It is applicable both for urban as well as rural families and for all sections of the society. It is a valid tool for categorizing the families in different socio-economic strata and was developed by Aggarwal et al. (2005). The maximum aggregate score is 100. Based on the final score, the socio-economic states of the family is divided into six socio-economic categories, namely Upper high (combined score of more than 76), High (61-75), Upper Middle (46-60), Lower Middle (31-45), Poor (16-30) and Very Poor (combined score less than 15) (Appendix 8).

$^3$Source: Functional Assessment Measure; http://www.tbims.org
3.4 - Procedure

The procedure followed in the present study is depicted as a flow chart in Figure 3.1.

*Figure 3.1: Flow chart depicting the procedure of the study*
3.4.1 Ethical considerations

Permission to carry out the research was obtained from the Head of the Institution of Manipal College of Allied Health Sciences, Manipal University (Appendix 9), and approval was obtained from the institutional review board of each participating centers. A permission letter was also obtained from Govt. of India through the Office of Chief Commissioner of Disability, New Delhi (Appendix 10).

Since this been a biomedical research involving human subjects, informed consent (Appendix 11) of the prospective subject was obtained, thereby protecting the individual’s freedom of choice and respect for the individual autonomy. Subjects were recruited on the basis of their willingness to participate and they were interviewed in the presence of an accompanying relative as and when required. The confidentiality of the data was maintained and adequate precautions taken for not disclosing the identity of the subjects directly or indirectly. The data would be used after understanding the concepts, definitions, design and coverage of the survey for a proper appreciation of the limitations and nature of the data and for obtaining meaningful estimates and results.

3.4.2 Selection of center

The list of organizations dealing with locomotor disability across states in India was identified to ensure that the study sample would be representative of the national sample.

From the search, 17 states were listed in the first phase. Then, based on the availability of local assistance that the researcher would be able to muster, 14 states were further short listed. In each of these states, six to eight organizations dealing with locomotor disability were then contacted to get an estimate of the number of subject who would fit the current study criteria and would be available for the interview within a given period of time.

All the 14 shortlisted states were assigned a random number and then entered in a computer based Random Number Generator\(^4\). From the list of randomly arranged states, the first six states were chosen, based on the total number of confirmed centers and their approximate number of subjects expected to meet the sample size of the study population. The

six states thus randomly selected were - Maharashtra, West Bengal, Tamil Nadu, Delhi, Kerala, and Uttar Pradesh.

Further communication was established with the designated centers including the formal request letter from the investigator, institutional approval letter, approval letter from Disability Commissioner, abstract of the study, consent form, mention of the kind of questions that the participants would be subjected to. For the permission from the review board of the centers, to facilitate the estimation, allotment of the subjects based on study criteria and the possibility of dates for the visit and follow up were negotiated upon. Finally, formal approval was received from 17 centers and also there was the possibility of recruiting subjects directly from the respective communities.

3.4.3 Field visit

The purpose of the field visit was to conduct the survey and gain understanding of the subjects’ use of ATD in their familiar surroundings. The subjects recruited for the study were mainly through the list and contacts as provided by the respective centers.

3.4.4 Translation of the outcome tools

As both PIADS & Ladder Scale are self reporting scale, the need was felt to translate into designated regional languages. Thus PIADS was translated to Hindi, Bengali, Marathi, Tamil and Malayalam language. Then a preliminary evaluation of the psychometrics of the translated version of the tools was conducted. This was done by comparing data gathered from a similar user population using the English language version of the PIADS. The Figure 3.2 depicts the procedure followed during translation.
**Team formation:** Two teams for each language with two-three members in each team (Tamil, Malayalam, Hindi, Marathi & Bengali)

Tool Translation for PIADS & Ladder Scale using the process of forward and backward translation.

Team 1: Forward translation in the selected regional language

Team 2: Backward translation to English from respective language

Piloted & Reliability Testing

**PIADS-Tamil Ladder Scale-Tamil**

**PIADS-Bengali Ladder Scale-Bengali**

**PIADS-Malayalam Ladder Scale-Malayalam**

**Piads-Marathi Ladder Scale-Marathi**

**PIADS-Hindi Ladder Scale-Hindi**

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*Fig 3.2: Methodological flow chart for tool translation*
Forward backward translation: Translation of PIADS & Ladder Scale was done in Hindi, Bengali, Marathi, Tamil, and Malayalam. The language translation procedure followed guidelines for cross-cultural adaptation of measurement tools and similar protocol used to develop a French and Chinese language version of the PIADS (Demers et al., 2002; Hsieh & Lenker, 2006). Two bilingual translators, in respective language section, working independently, developed separate English to Hindi, Bengali, Marathi, Tamil, Malayalam forward translations. The translated versions of the scales were then independently back-translated from the respective regional languages to English by two additional bilingual translators. Then, the individual committee reviewed the forward translations (English - other language), back translations (other language - English), and compared it to the original English version of the PIADS. Differing opinions regarding linguistic nuance were resolved through committee discussion and consensus agreement (Appendix 12). A similar procedure was followed for Ladder Scale translation.

Pilot testing: The preliminary version of the translated tools were then piloted with five persons using spectacles in each language for the appropriateness of the translated items and their interpretation. Spectacles are considered as assistive technology device and they too evoke strong psychosocial reactions; the prevalence of spectacle users made it convenient to recruit as subjects for the tool translation process. A similar recruitment criterion was used by Day and Jutai (1996) during the process of the original tool development. The language translation committee assimilated feedback obtained from pilot testing and reached consensus agreement on final wording of the experimental Hindi-PIADS, Bengali-PIADS, Marathi-PIADS, Tamil-PIADS, and Malayalam-PIADS (Appendix 13-a,b,c,d,e). The Ladder Scale being a single item and self-anchoring scale, the translated versions were not piloted nor were its psychometric properties assessed (Appendix 14-a,b,c,d,e).

Evaluating the psychometric properties of translated PIADS: For evaluating the psychometric properties of the translated PIADS, fifteen college students or faculty participants were recruited conveniently from each language groups, i.e. Hindi, Bengali, Marathi, Tamil, and Malayalam. There were three inclusion criteria: (a) all of them could read, understand and write their respective languages; (b) the mother tongue languages are in Hindi, Bengali,
Marathi, Tamil, Malayalam and (c) all were users of spectacles for minimum period of three months.

Participants then completed a personal information sheet comprising of basic demographic information and the 26- item translated PIADS scale as part of a 10-15 minute interview. Participants were instructed to respond to the items based on their experiences as users of eyeglasses. In addition, participants were asked to complete a feedback form regarding their opinions about translated versions of the tool and suggestions for improvements.

Data were collected a second time, after seven days, from all participants in order to evaluate test- retest reliability of the Hindi-PIADS, Bengali- PIADS, Marathi-PIADS, Tamil-PIADS, Malayalam-PIADS. Once again after seven days the original version of PIADS was administered on the same participant. For the purpose of the study, the PIADS Glossary, as provided by the author, describing the items in PIADS, where further described to enhance the clarity and maintain certain consistency during explaining to the subjects.

3.4.5 Interview of the subjects

The researcher is an experienced occupational therapist, well versed in interview techniques, and strategies for adapting daily living tasks, designing and fabrication of splints and assistive devices. The other interviewers, who were included demonstrated proficiency in their ability to comprehend, read and write in their respective language and English language as well. For all the interviewers including the researcher it was ensured that they had not previously met or worked with any of the recruited subjects. All the interviewers were occupational therapists, this helped to maintain a level of consistency on the part of perspective of understanding and also to enhance the credibility of the data collected.

The interview was conducted in a distraction free environment, on a one to one basis; facilitating uninhibited expression of responses. The subjects were briefed about the intent of the study, the confidentiality issues and obtaining the informed consent. For subjects below 14 years, parental consent was obtained.
The data was collected by the researcher himself for the subjects with Hindi, English & Bengali as the spoken language; and for subjects with Tamil, Malayalam and Marathi as the spoken language, separate interviewer respectively were recruited on voluntary basis. A briefing session was conducted on all aspects of test administration to those interviewers who were recruited to administer the test in regional language.

All the interviews were completed within a range of 40 to 120 minutes depending on the number of devices an individual had used. The researcher conducted all the interviews or else was physically present during the course of the interviews, took field notes, kept personal journal, non-verbal behavior of the interviewee, impressions and technical problems. The overall response rate was excellent. All interviews followed the same order, and most were completed in one session.

The interview comprised of collecting demographic information, condition specific information, device specific information, socioeconomic status using Socioeconomic Scale, difference in motor component of functional status using FIM part of FAM Scale, difference in life satisfaction using Ladder Scale and psychosocial impact using PIADS. The scores were collected for rejected devices as well. Past time and present perspective were also discussed. Probing questions were asked, in order to obtain a level of correctness. All questions which were asked, were guided by the participants own life world experiences with the devices. The subjects were also asked the reason for device rejection. To facilitate the administration of PIADS (Appendix 15) and Ladder Scale (Appendix 16) respective glossaries were used to ensure consistency in the interview process.

As mentioned, two kinds of survey were done, for Group 1 it was a one time survey and for subjects in Group 2 the survey was conducted at two point of time. The next subsection depicts the follow up procedure for Group 2 subjects.

3.4.6 Follow up

To analyze the changes in the psychosocial responses over a period of time, a total of 65 subjects were assigned and were interviewed on day one of the device prescription. This small sub-sample was recruited as part of a sub study alongside the main larger study.
After 10 to 15 days following recruitment for the study, a confirmation was sought from the subjects whether they have actually started using the device on a regular basis. And then after a period of 3 months of device usage, the PIADS and Ladder Scale were re-administered. The repeat tests were administered either by face to face interview, by post or over the telephone, as they have filled the form once and were oriented to the terminologies of the questionnaire.

3.5 Data Analysis

3.5.1 Scoring

Data from each of the questionnaires for all the groups was extracted and assigned with numerical values. The response “not applicable” or ambiguous and unanswered responses were treated as missing values. Scoring is done as per the instruction provided in the instruction manual of each questionnaire.

PIADS: The respondents rate each item on a seven point Likert scale ranging from ‘-3` maximum negative impact’ to +3 `maximum positive impact’ to indicate the extent to which they are affected by wearing or using their assistive device. The midpoint, 0, indicates no impact or no perceived change as a result of using the device. Among the list of items, three are negatively scored and need to be recoded before summing the ratings. Mean PIADS score and subscale scores are calculated (range: -3 to +3).The subscale score is based on the mean for all the items on that subscale. This ensures that each subscale will always have a score between -3 and +3, thereby, facilitating interpretation and comparisons (Appendix 17).

Ladder Scale: To facilitate the administration and scoring of the ladder scale, the subjects are shown the score sheet containing the picture of a ladder. At the top of the ladder is the best life you can imagine - the ideal life. At the bottom of the ladder is the worst life you can imagine - a life that is terrible. Using a number on this card, where on the ladder would you place your life at this time or which number on the ladder would best describe their personal life at that time, with and without the device? Higher scores with the device indicated improved life satisfaction. Each would be rated on a separate ladder.
**FIM (motor component):** It has 7 point rating scale that assesses the individual's level or degree of independence, amount of assistance required, use of adaptive or assistive devices, and the percentage of a given task completed successfully. The 7 point Rating Scale is as follows; 7-Complete Independence, 6-Modified Independence, 5-Supervision or Setup, 4-Minimal Contact Assistance, 3-Moderate Assistance, 2-Maximal Assistance, 1-Total Assistance (Appendix 18).

The difference in the motor FIM score and Ladder score was collected by administering the respective measures twice for a given device, first responded with the device and then responded imagining oneself without the device. When the respective scores were higher with the devices on then the difference score was considered as an improved score.

### 3.5.2 Variables

The outcome or dependent and independent variables for the current study is described below

**Outcome variable:** The psychosocial impact and life satisfaction are the two outcome variables studied.

**Independent Variable:** The three group of independent variables studied were the socio-demographic, condition specific and device related variables. The descriptions of individual variables are presented in (Appendix 19).

**Socio-demographic variables:** Age, gender, type of organization, local support, migration towards the facility, social support, working status, educational status, living status and socio-economic status.

**Condition Specific variables:** Diagnosis, age of onset, duration of the problem, with bladder and bowel involvement, with lower limb involved and functional status.

**Device Specific variables:** Device specific characteristics were described in terms of usage duration, AT training facility, participation in AT selection, frequency of AT use, changing of
AT, frequency of AT repair, funding source for AT, prescribing & fitting source of AT, availability of AT maintenance, waiting period and prior experience with AT.

### 3.5.3 Statistical Analysis

Quantitative data was entered and analyzed using Statistical Package for Social Sciences (SPSS) version 15 for Windows.

The appropriate descriptive statistics were used to describe and provide simple summaries of the study subjects, demographic characteristics and the predictor variables for preliminary analysis. The reliability coefficient was used to estimate the reliability of the translated versions of PIADS and coefficient alpha at 1 to check the internal consistency.

With specific to the study, both parametric and non-parametric tests were used based on the normality of data and type of variables involved in the analysis.

The group means of PIADS subscales and Ladder Scale difference score for various variables were compared using independent t-test or Mann-Whitney U test when two groups were involved. If more than two groups one way ANOVA F-test or Kruskal- Wallis H Test was used and for repeated measure design paired- T test or Wilcoxon Signed - Rank test was used to compare means. Tukey’s post hoc analysis was done with least significant difference as appropriate for ANOVA F-test.

The chi-square test was used to find the association between the retained and rejected devices across the various predictor variables. Pearson’s correlation test was used to estimate the magnitude, direction and degree of association between non-categorical variables where -1 or 1 has been considered as perfect relationship. Positive coefficients tell us there is a direct relationship. The further the coefficient is from ‘0’, regardless of whether it is positive or negative, the stronger the relationship between the two variables.

*For adjusting the confounders, the multiple linear regression analysis was used for continuous outcome variable and predictor variable. The Stepwise method with entry criteria set at p<.15 and exit criteria with p<.10 was used. Multiple logistic regression analysis was used.*
used for categorical variables, with the predictor variable at p<.10 in univariate analysis was included in the model using the Enter Method.

For all above analysis p<.05 was the level of significance.

3.6 Operational Descriptions

Some of the important concepts as used in the current study have been operationally described as follows in accordance with the existing description:

1. **Locomotor disability** implied as individuals with absent or dysfunctional complete or part limb, unable to use them, deformed body, cannot move without aid, unable to move/lift an article, unable to move because of problems of joints like arthritis. This was based on a similar description used by Census 2001 of Govt. of India.

2. **Assistive technology device** is any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain or improve functional capabilities of individuals with disabilities as defined by the Technology-Related Assistance for Individuals with Disabilities Act of America (1988).

3. **Assistive technology outcomes** may be expressed as changes produced by assistive devices in the lives of users and their environments in terms of physical and psychosocial, and producing less dependence on other people and a variety of social resources. Based on a similar description by Lenker et al. (2005).

4. **Life satisfaction of the assistive technology user** is the perception of the degree to which the assistive technology system achieves the desired goals and aspirations, and is a multidimensional construct. Based on a similar description by Cook and Hussey (2002).

5. **Psychosocial outcomes in the context of assistive technology** have been described as both factors within the person and factors attributable to the environment that affect the psychological adjustment to technology for the users. Based on a similar description by Jutai and Day (2002).

6. **Retained assistive technology device** implied that the subject was continuing to use the device at the time of interview as and when required. **Rejected assistive**
technology device implied non-use at the time of survey. Based on a similar description by Philip and Zhao (1993).

7. **Primary and individual device** subjects with locomotor disability often used different type of device together to facilitate a task completion, and often identified the main device as the *primary device*, and every single device had been considered as *individual devices*. 