تقرير
معسكر تدريبي لمهارات الكراسي المتحركة
لمشروع: عالم واحد في المغرب

Setting

The 1st Wheelchair Skills Training Camp (WSTC) in Morocco took place in September 8-14, 2019 at the Kenzi Club Agdal Medina, Marrakech. The initiative was led by the American Disability Rights consultant, Bruce Curtis, (who developed the concept of this project) in co-operation with the International Research & Exchanges Board (IREX, Washington, USA). The WSTC camp was led by one peer mentor with a tetraplegic spinal cord injury from Poland (Prof Tomasz Tasiemski, PhD) who has had previous experiences in implementing similar wheelchair skills camps in 16 countries, including African countries (Zimbabwe, Uganda, Botswana). All of the theory and practical sessions were delivered in English with professional translation into Arabic.

المشاركين:

Individuals with physical disabilities from Morocco were invited to participate in the WSTC if they met the following inclusion criteria: (1) had a physical disability that cause inability to walk; (2) were using a manual wheelchair as their main mode of mobility and were able to push it for a few meters on an even surface; (3) were at least 18 years of age; and (4) were residing in Morocco.

Altogether 19 persons with physical disabilities (13 male and 6 female) took part in the WSTC (Table 1), however 3 persons were excluded from the analysis due to late arrival at the training site (those persons didn't take part in the baseline evaluation). The mean age of participants included in the analysis (n=16) was 33 years, and mean years since injury or illness was 24 years. The majority of participants were single (n=10), and had graduated from high school. (n=5).

With regard to type of disability, 5 persons had Polio, 4 persons had a spinal cord injury, 3 persons had cerebral palsy with strong and normal upper body strength, and 7 persons had other type of disabilities. Seven participants didn't need assistance for day to day activities, and seven

had assistance from family members. One person had assistance from a paid caregiver, and one person received assistance from friends.

الجدول 1. الخصائص الديموغرافية والإعاقة للمشاركين في الدراسة

	Survey and QEWS (n=16)	*Excluded (n=3)* [a]
Gender		
Male	12	1
Female	4	2
Age (mean years ± SD)	33.1 ± 9.4	?
Marital status		
Single	10	1
Married	5	2
Separated or divorced	1	–
Education		
No formal education	2	2
Primary	2	–
Lower secondary	2	–
Higher secondary	2	–
Post-secondary	5	–
Bachelor or equivalent	2	–
Master	–	1
Other	1	–
Type of disability		
Spinal cord injury (paraplegia)	4	–
Amputation of lower limbs	1	–
Muscular dystrophy	2	–
Spina bifida	1	–
Polio	5	3
Cerebral palsy	3	–
Severe scoliosis	1	–
Birth deformity	2	–
Years since injury or illness (mean ± SD)	24.1 ± 11.0	?
Need for assistance for day to day activities	7	
No assistance needed	7	–
Assistance from a family member	1	3
Assistance from a paid caregiver	1	–

Assistance from friends –

All numbers in the table correspond to number of cases.
QEWS: Queensland Evaluation of Wheelchair Skills
[a] Participants excluded from the analysis due to late arrival at the training site

برنامج تدريب:

All 19 participants with physical disabilities participated in a 6-day program that include 9 training sessions (total for 29 hours) on wheelchair skills, cardiorespiratory fitness, strengthening and ball sports. One training session called "Treasure hunt game" was devoted to testing wheelchair skills in a city environment (Grand Plaza, Marrakesh City Center,). Participants were divided into groups (4-5 persons) and each group had to collect 10 different tasks within limited time (2 hours). The tasks included findings small things/items (e.g. yellow rose) or taking a picture of buildings inside (buildings were not accessible for wheelchairs and the whole group had to be included in that picture). In addition, there were 3 workshop-type sessions on the following topics: wheelchair adjustment, adapted physical activity, fertility, sexuality and relationships. One of the sessions (led by Bruce Curtis) was called "Disability Culture Talent Show" and allowed camp participants to perform on stage showing different talents such as: stand-up comedy improvisation, singing classical Arabic songs, and wheelchair Breakdancing. Training of activities of daily living (ADL) was incorporated in the daily schedule as needed, and took place at the natural time and environment.

الجدول 2. جدول معسكر التدريب الأول على مهارات الكرسي المتحرك في مراكش ، المغرب

	Day I	Day II	Day III	Day IV	Day V	Day VI
Breakfast 08.00-09.00						
1st Practical session[1] 09.00-12.30	Wheelchair skills test + Wheelchair Evaluation Survey (using participants own wheelchair)	Basic wheelchair skills continuation (moving forward, backward, turning); game "up to five passes"	Wheelchair plays & games (balls, cones etc.)	Wheelchair skills test (platform), Advanced wheelchair skills (wheelie, platforms)	Test comparing Chinese wheelchairs and new wheelchairs + Wheelchair Evaluation Survey	Wheelchair skills test + Survey Wheelchair Evaluation (using participants own wheelchair)
Lunch 12.30-15.00						
Lecture 15.00-16.30	Wheelchair adjustment	Adapted physical activity	Talent show for participants with	Sexuality & fertility	Outing in town center	Camp summary

			disabilities			
2nd Practical session[2] **16.30-18.30**	Basic ADL (changing positions, transfers etc.) Basic wheelchair skills (moving forward; games with bands)	Moving & handling techniques Swimming in the pool	Strength training with Thera-bands	Basketball with professional team	"Treasure hunt game" (test of the wheelchair skills in a natural environment while doing different daily tasks)	Closing ceremony + Certificates of attendance
Dinner 19.00-20.30						
Briefing 20.30-21.30	Project leaders meet for Summary of the day/Planning next day					

[1]basketball court
[2]ballroom

Study aims

This study evaluated the effects of the inaugural Wheelchair Skills and Empowerment Camp in Morocco on participants with physical disabilities who use wheelchairs for everyday living.

The aims of the study were:

1. To assess wheelchairs skills in persons with physical disabilities attending the first wheelchair training camp in Morocco.
2. To assess user satisfaction with manual wheelchairs available for persons with physical disabilities in Morocco.
3. To identify the most important features of manual wheelchairs for persons with physical disabilities in Morocco.

Procedure

- Participants of training camp arrived at the WSTC site with their own manual wheelchairs.
- Each participant took part in the wheelchair evaluation in the beginning and at the end of training camp using their own wheelchair:
- First day of the camp (September 8th, 2019; 22°C cloudy at 10 PM): Evaluation of wheelchair skills using own manual wheelchair (objective measure), Evaluation of satisfaction with own manual wheelchair (subjective measure), Assessment of the most important features

of manual wheelchairs (subjective measure), Collection of Demographic and Disability Characteristics.

- Last day of the camp (September 14th, 2019; 24^{0}C sunny at 10 PM): Evaluation of wheelchair skills using own manual wheelchair (objective measure).
- All participants received oral information about the evaluation procedures. A written informed consent was obtained from each participant. There was no need for an ethical approval for this this research, as this wheelchair evaluation study was included in the camp training schedule (good practice program evaluation), and did not involve any experiment.

Measures

1. To assess **objective** differences among different type of wheelchairs the "The Queensland Evaluation of Wheelchair Skills" (QEWS) was used (Gollan, Harvey, Simmons, Adams, McPhail, 2015). QEWS was initially designed for use with persons with spinal cord injury in the acute hospital setting, as well as in the community without extensive or specialized testing equipment. The QEWS evaluation study is short (5 items), simple (easy to administer), and relevant for the training camp context (can be easily integrated into the schedule of the programme).
2. To assess **subjective** differences among different type of wheelchairs the "Quebec User Evaluation of Satisfaction with assistive Technology" (QUEST, Version 2.0) was used (Demers, Weiss-Lambro& Ska, 2000). Due to the purpose of this QUEST study, this measure has been modified in the following way: a) only first 8 questions related to "satisfaction" was used while omitting 4 questions related to "service" as camp participants were not able to answer them, b) the words *assistive device* were exchanged with the word *wheelchair,* as only this assistive device was tested. Permissions have been obtained from the authors to translate their evaluation measures into Arabic.
3. To collect ***Demographic*** **and Disability Characteristics,** a part of the "International Spinal Cord Injury Survey" was used (Stucki, Bickenbach, 2017). Through this questionnaire we collected information about: gender, present age, marital status, education, type of disability, years since injury or illness, need for assistance for day to day activities.

Statistical analysis

Descriptive data were presented as *n*, *Mean* and standard deviation (*s.d.*). For variables with two measurements the paired t-test used. All statistical analyses were performed with the IBM Statistical Package for Social Sciences software (IBM SPSS Statistics version 21, Chicago, IL, USA).

Results

Wheelchair skills

Comparison the results on wheelchair skills measured at baseline and on completion of the camp activities (Table 2) show that the camp participants significantly improved their wheelchair skills in ascending and descending a ramp (p=0.002), and six-minute push test score (p=0.041) as well as the amount of distance covered within this time (p=0.006). Also the total QEWS score obtained at the end of the camp (mean=17.9) was higher than in the beginning (mean=18.6) and this difference was statistically signifficant (p<0.001). With regard to other evaluated items of wheelchair skills, (i.e. negotiating an indoor circuit, maintaining balance on back wheels, and ascending and descending a gutter), no signifficant improvements were obserwed.

Table 2. Effects of Wheelchair Skills and Empowerment Camp on the Queensland Evaluation of Wheelchair Skills test (measured at baseline and on completion of the camp)

Study participants (n = 16)	*Baseline*	*Completion of the camp*		
QEWS items	*Mean (s.d.)*	*Mean (s.d.)*	*T test*	*P-value*
1. Negotiating an indoor circuit	5.0 ± 0.0	5.0 ± 0.0	–	–
Time of completing an indoor Circuit in(seconds)	33.1 ± 18.6	33.1 ± 17.3	– 0.365	0.720

2. Ascending and descending a ramp	4.1 ± 0.7	4.6 ± 0.8	– 3.873	0.002
3. Maintaining balance on back wheels	1.9 ± 2.3	1.8 ± 2.3	1.000	0.333
4. Ascending and descending a gutter	3.0 ± 1.4	3.4 ± 1.5	– 2.098	0.053
5. Six-minute push test	2.8 ± 1.8	3.6 ± 1.5	– 2.236	0.041
Distance covered in six minutes (meters)	521 ± 298	564 ± 281	– 14.537	0.006
Total score	16.8 ± 5.5	17.9 ± 5.3	– 4.617	<0.001

Bold *– statistically significant differences*

The participants of the training camp assessed satisfaction (QUEST) with all 8 items of their own wheelchair (i.e. dimensions, weight, ease in adjusting, safe and secure, durability, easy to use, comfort, effectiveness) (Table 3) between "more or less satisfied" and "quite satisfied" (total mean=3.3). The 3 most important satisfaction items of their wheelchairs were: easy to use (n=10), comfort (n=8), and weight/safety (n=6 for both items).

Table 3. Participants' satisfaction with own wheelchair on the Quebec User Evaluation of Satisfaction with Assistive Technology (measured at baseline of the camp)

	Study participants (n = 16) QUEST (satisfaction with the following items)	*Mean (s.d.)*
1	Dimensions	3.3 ± 1.6
2	Weight	3.4 ± 1.8
3	Ease in adjusting	3.0 ± 1.7
4	Safe and secure	3.3 ± 1.6
5	Durability	3.6 ± 1.6
6	Easy to use	3.2 ± 1.6
7	Comfort	3.3 ± 1.5
8	Effectiveness	3.3 ± 1.7

	Total	3.3 ± 1.4

Study comparing the Chinese Hospital Transportation **wheelchair versus a new active wheelchair, which was provided to the participants through the USAID CLASP program. (See**https://www.clasphub.org/)

During the week of the training camp, we also introduced a small study comparing the Chinese Hospital Transportation (CHT) wheelchair versus the new active wheelchair (NAW), which was provided for the participants of the 1st Wheelchair Skills and Empowerment Camp in Marrakesh, Morocco. The aim of this study was to evaluate the participant's satisfaction with the NAW, which was provided to the participants, in comparison to the CHT wheelchairs provided by the Moroccan government to persons with limitations of physical mobility. This study also involved a short author-designed wheelchair performance test to assess the performance of tested wheelchairs.

Procedure

- During the training camp all of the participants had a chance to try and use 5 other type of wheelchairs provided by the camp organizers: (1) Whirlwind Roughrider - Folding, (2) INTCO Active - Rigid, (3) INTCO All Terrain - Rigid, (4) Motivation Active - Folding, (5) Motivation Rough Terrain - Rigid.

(1)

(2)

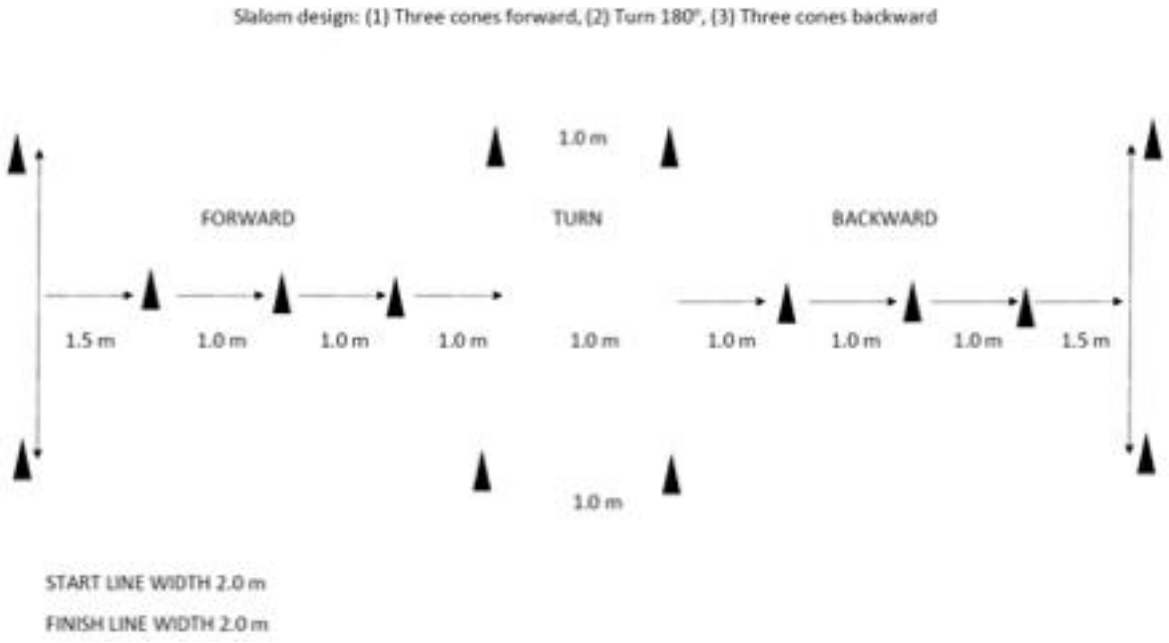
(3)

(4) (5)

- All 16 participants were using NAW wheelchairs as well as CHT wheelchairs (provided by camp organizers; picture below) for the wheelchair performance tests.

CHT wheelchair

- The author-designed short wheelchair performance test included slalom among the cones (moving forward – turn 180^{0} – moving backward), and the five following tasks: (1) overcoming small 6 cm gutter, (2) medium 9 cm gutter, (3) high 12 cm gutter, (4) going up and down on the 12^{0} ramp, (5) holding a wheelie 5 seconds. One attempt only to each task was allowed. The time of completing the slalom was recorded. With regard to five tasks: independence in each task was recorded as 1 point, and failure as 0 points. In total, a participant could get a maximum of 5 points for each tested wheelchair separately. The author-designed measure was short and easy to use in order not to interfere with the camp training program.



- In order to assess satisfaction with both wheelchairs, the participants (n=16) were asked to complete the QUEST measure twice: once with regard to CHT wheelchair, and once with regard to NAW wheelchair.
- All participants took part in the evaluation in the following order: (1) wheelchair performance test using NAW wheelchair, (2) wheelchair performance test using CHT wheelchair, (3) QUEST form regarding NEW wheelchair, (4) QUEST form regarding CHT wheelchair.
- All tests and surveys were implemented on the 5th day of the camp between 9PM and 12PM.

Results

A comparison of the wheelchair performance between the CHT wheelchair and a NAW provided wheelchair didn't show statistically significant differences with regard to both: time of completing the slalom, and number of completed tasks (Table 4).

Table 4. Comparison of wheelchair performance: CHT wheelchair versus NAW provided wheelchair on author-designed short wheelchair performance test

Study participants (n=16)	*CHT wheelchair*	*NAW wheelchair*		

Wheelchair performance test	*Mean (s.d.)*	*Mean (s.d.)*	*T test*	*P-value*
Slalom (time in seconds) [a]	34.5 ± 14.3	33.9 ± 12.1	0.465	0.650
Number of completed tasks [b]	2.8 ± 2.2	2.9 ± 2.1	–0.808	0.432

CHT: Chinese hospital transport; NAW: new provided

[a] Moving forward – turn 180^0 – moving backward (slalom among the cones)

[b] Five tasks: (1) overcoming small 6 cm gutter, (2) medium 9 cm gutter, (3) high 12 cm gutter, (4) going up and down on the 12^0 ramp, (5) wheelie 5 seconds; one attempt only to each task

However, comparison of the participants' satisfaction between CHT wheelchair and NAW provided wheelchair showed that the camp participants were significantly more satisfied with NAW wheelchair (Table 5) with regard to all 8 of the satisfaction items (n<0.001).

Table 5. Comparison of the participants' satisfaction: CHT wheelchair versus NAW provided wheelchair on the Quebec User Evaluation of Satisfaction with Assistive Technology

	Study participants (n = 16)	*CHT Wheelchair*	*NAW wheelchair*		
	QUEST (satisfaction with the following items)	*Mean (s.d.)*	*Mean (s.d.)*	*T test*	*P-value*
1	Dimensions	1.5 ± 0.8	3.9 ± 0.9	–8.733	**<0.001**
2	Weight	1.4 ± 1.1	4.3 ± 0.8	–10.147	**<0.001**
3	Ease in adjusting	1.4 ± 0.8	4.3 ± 0.9	–9.550	**<0.001**
4	Safe and secure	1.3 ± 0.6	4.5 ± 0.7	–17.000	**<0.001**
5	Durability	1.3 ± 0.5	4.6 ± 0.7	–15.181	**<0.001**

6	Easy to use	1.6 ± 1.1	4.3 ± 0.8	–8.600	**<0.001**
7	Comfort	1.2 ± 0.4	4.5 ± 0.7	–18.817	**<0.001**
8	Effectiveness	1.3 ± 0.6	3.9 ± 0.9	–8.992	**<0.001**
	Total	1.4 ± 0.6	4.3 ± 0.6	–16.457	**<0.001**

CHT: Chinese hospital transport; NAW: new provided
Bold *– statistically significant differences*

Training of Trainers Camp

Setting

Following the 1st WSTC in Morocco, the Training of Trainers Camp (ToT) was organized at the Kenzi Club Agdal Medina, Marrakech (September 15-19, 2019). Out of 19 participants of the WSTC, 6 persons were chosen to be trained as potential future leaders/trainers of similar camps in Morocco. All theory and practical sessions were delivered in English with professional translation into Arabic.

Participants

Six participants of the ToT included 4 male and 2 female wheelchair users with different disabilities (birth defect, cerebral palsy, Polio, spinal cord injury, amputation of lower limbs) and skills (from beginners in sport activities, through advanced sportsman to Paralympic athlete).

Training of Trainers program

All 6 participants with physical disabilities participated in a 5-day program that included 5 training sessions (overall for 12.5 hours) on wheelchair skills, cardiorespiratory fitness, body strengthening and ball sports. (Table 6) However, this time the six ToT participants focused more on training methodology i.e. training cycle, teaching methods (whole, part, whole-part-whole), learning styles (visual, auditory, kinesthetic), and management of a group of participants. Theory sessions included different subjects such as: introduction to different type of disabilities, secondary medical complications following spinal cord injury (affected thermoregulation, risk of pressure sores etc.). Within these workshops, the six participants had to plan an overall 5-day

training schedule as well as each individual training session. They also tried to develop new adapted wheelchair plays and games relevant to a Moroccan context.

Table 6. Schedule ofTraining of Trainers Camp, Marrakech, Morocco

	Day I Led by TT	**Day II Led by TT**	**Day III Led by P1-P6 supervised by TT & SA**	**Day IV Led by P1& P6 supervised by TT & SA**	**Day V Led by P1-& P6 supervised by TT & SA**
Breakfast 08.00-09.00					
Technical session 09.00-09.30	Introduction to ToT schedule and assumptions	Recap of previous day	Recap of previous day	Recap of previous day	Recap of previous day
Warm-up 09.30-10.00	Dynamic and static warm-up exercises **Led by P1-P6 supervised by TT**				
Practical session 10.00-12.30	Methodology of teaching wheelchair skills and ADL	Methodology of teaching other adapted sport activities	Training with balls (basket balls, volley balls)	New design plays and games	The most advanced wheelchair skills (high steps, stairs)
Lunch break 12.30-15.00					
Lecture 15.00-16.00	Methodology of physical training, Tips for trainers	Introduction for different disabilities	Secondary medical complications	Planning next camp Questions & Answers	Camp summary
Workshop 16.00-18.00	Methodology of teaching wheelchair skills and ADL	Methodology of teaching other adapted sport activities	Weight training (with Thera-bands)	Wheelchair plays & games (balls, cones etc.)	
Briefing 18.00-18.30	Project leaders meet for Summary of the day/Planning next day				
Dinner 19.00-22.00					

Note: TT – Tomasz Tasiemski; SA – Salaam, P1-P6 – Six Participants