



## **IMPACT EVALUATION REPORT - I CARE PROJECT**

**Hua Hong Primary School - Shanghai, 2013-2014**

**Sponsored by the Australian Chamber of Commerce, Shanghai**

Impact of Spectacles on  
the Quality of Life of Migrant Children

### **1. Background**

#### ***1.1 Children's Access to Education & Eye Care in China***

The importance of education to socio-economic development and quality of life is well understood. Ensuring equality of access to education is therefore of utmost importance in securing stable economic futures for children. Hannum & Zhang (2012) hypothesise that as it is mostly economically disadvantaged children who lack access to vision correction, it can be seen as one of the mechanisms - along with lack of access to study materials, malnourishment, the need to miss school to earn a wage, access to social networks that value education and so on - by which socioeconomic deprivation translates to educational disadvantage.

Removing the challenges posed by poor vision is just one way of mitigating against this effect. Congdon & *al.* (2008) observe that the prevalence of myopia in Chinese children is amongst the highest in the world, that it is generally worse in urban groups than rural groups and that the majority (60-70%) of refractive error is uncorrected in China. Of course, general figures such as these do not necessarily have a bearing on one school in Shanghai, however they indicate that correcting poor vision, where possible, is clearly of great importance to public health policy.

Glewwe & *al.* (2011) note that in China there is near universal primary education and has been for many years - in the 2000 census only 4% of adults had not received a formal education. However, whilst increasing and sustaining school enrolment rates is an essential element of improving



educational outcomes and socioeconomic quality of life, enrolment on its own is not sufficient. The mere presence of children at school will not have an impact if, once they are there, their learning is not effective. Clearly the challenge in China is not one of enrolment but of ensuring equality of access to education once children are in school. The Stepping Stones' I Care Project seeks to remove at least one of the barriers to effective learning that children are faced with, that of poor vision, and in doing so hopefully contribute to securing children's well-being and quality of life both in and out of the classroom.

### *1.2 Stepping Stones & the I Care Project*

The **objective** of Stepping Stones' I Care Project is to improve the vision of disadvantaged children in China in order to increase their chance of educational success, through the free provision of essential eye care equipment and services.

The I Care Project arose from Stepping Stones' English teaching volunteers observing that eye problems among their migrant students – some of them serious – were going untreated. Around 30% of primary school students need glasses, but for a variety of socio-economic reasons, only a very small minority of parents provide them with glasses. Eye problems such as squint or strabismus and “lazy eye” or amblyopia are as common in migrant populations as they are in the rest of the Chinese population. Migrant children that are beset by such eye problems mostly go untreated mainly due to lack of resources and medical insurance coverage, leading to the future deterioration of the children's vision. In the short run, eye problems severely affect the quality of the children's life and pose impediments to their learning prospects. To respond, the I Care project provides free eye testing to children attending schools for migrants in Shanghai. Free treatment is also provided as required (i.e. provision of glasses and/or the conduct of simple eye operations). Additionally, the project raises awareness of eye care issues among students, parents and teachers in order to increase the buy-in and support from students, parents and school staff, thus ensuring the intervention's effectiveness.

Since 2008, with the support of several sponsors - including the **Australian Chamber of Commerce, Shanghai (AustCham Shanghai)** -, Stepping Stones has partnered with Ai Er Hospital to conduct eye



screening in 10 migrant schools in Shanghai, has screened the eyesight of around 9,138 migrant students, provided free spectacles for 1462 students and free eye surgery to correct a squint for 17 students.

### ***1.3 Hua Hong Primary School's I Care Project (2013-2014)***

Through support from **AustCham Shanghai**, Hua Hong Primary School has benefited from the I Care project, where 932 students were given free eye testing and an interactive 40 minute class on eye care. The eye testing was conducted by Ai'er Eye Hospital's staff and the class on eye care was delivered by **AustCham** volunteers. Of the 932 students tested, 229 students were given glasses while 1 student underwent a simple surgical procedure to correct a squint.

## **2. Impact Evaluation of Hua Hong Primary School's I Care Project**

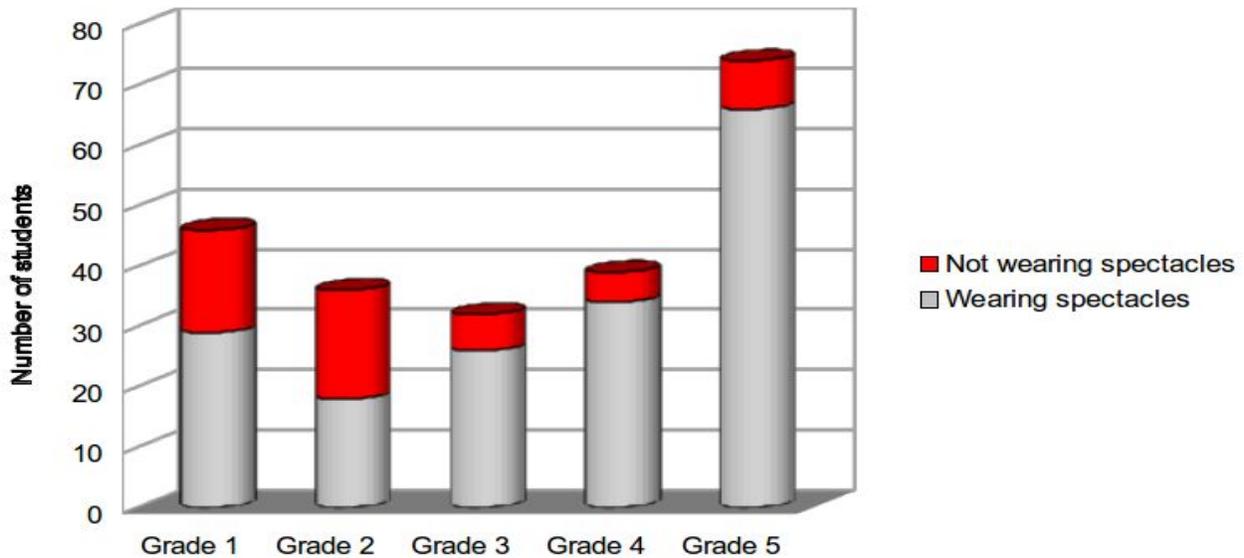
Stepping Stones, subscribing to a results-based approach in its work, has put a Monitoring and Evaluation system in place to objectively measure the impact of the I Care project. In order to fully capture the project's impact on beneficiaries' lives and education, two different evaluation frameworks have been developed: (1) interviews with beneficiaries to ascertain usage rates and reasons for non-usage of spectacles; and (2) baseline and follow-up survey to assess whether the provision of eye treatment to students has an effect on their quality of life.

### ***2.1 Usage rates***

Stepping Stones went back to the schools two months after the children had received spectacles. Direct observation and interviews with students were conducted to ascertain usage rates as well as reasons for non-usage. For the purposes of this study, the students were assessed to be either wearing the spectacles they had been given or not wearing them. The first category included those students who wore their glasses consistently, only sometimes wore them (*e.g.* in class), or only wore them to complete homework. The second category included students who didn't wear their spectacles at all for reasons

discussed below.

**Figure 1: Students’ usage of provided spectacles by grade**



As can be seen from Figure 1, children in the lower grades tend to use spectacles less frequently than children in higher grades. That is, the older the child, the higher the rate of spectacles usage. As many as half of the children in Grades 1 and 2 – 37% and 50% respectively - did not wear glasses at the time of our visit compared to only a much smaller percentage in Grades 3, 4 and 5 – 19%, 13%, and 11% respectively.

While we do not have the data at this point, it would be interesting in the future to do some research into why there is a difference in the usage rates between younger and slightly older children. A possible hypothesis may be that children in Grades 1 and 2 are too young to be expected to wear spectacles regularly. One way in which usage can be increased in such young children could be for parents and caregivers to play a more positive role. However, of the 54 children who did not wear the glasses provided by the project, 12 of them (22%) cited their parents not wanting them to as the reason. This figure increased to 38% when the 1<sup>st</sup> and 2<sup>nd</sup> Graders were taken alone. In fact, interviews with parents and teachers have revealed a misconception in this community that giving spectacles to a child can

hinder the eventual improvement of their eyesight as the child grows older, and some parents have expressed concerns about the child's appearance if the child wears glasses. The other reasons given ranged from inability to see clearly and dizziness when wearing spectacles to simply forgetting to wear them.

## ***2.2. Quality of life***

As previously noted, eye problems in school children are detrimental to their quality of life and can severely constrain their learning prospects. Baseline and follow up questionnaires were completed by the 109 children who were known to be regularly wearing the spectacles provided by the project. The questionnaires asked the children to self-report on a number of indicators in several categories – comfort of seeing objects at a distance such as bus numbers and street signs; daily activities such as watching TV and locating a dropped object; and academic orientated tasks such as reading from the blackboard – firstly before receiving the spectacles and again after a period of two months, enabling an assessment of how the spectacles, providing they are worn, may affect quality of life of individuals.

**Figure 2 – Comfort of seeing objects at a distance**

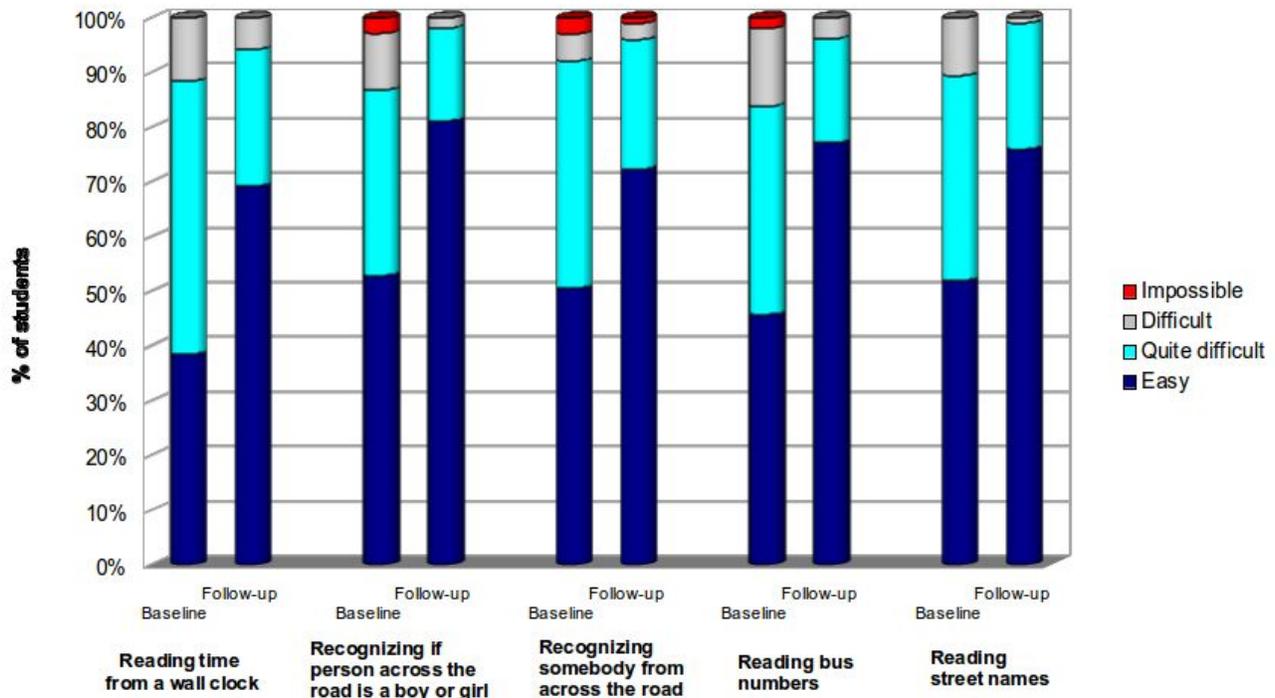


Figure 2 compares the baseline and follow-up results of the questions concerning seeing at a distance. Children were asked to rate their ability to successfully perform the five common tasks shown in the graph as ‘easy’, ‘quite difficult’, ‘difficult’ or ‘impossible’.

Prior to receiving spectacles no more than 53% of the children found any of the tasks ‘easy’ to do. The graph clearly shows that, after receiving spectacles, these figures rose significantly. The largest increases were in those finding it ‘easy’ to read the time from a wall clock - which just 39% of the children found easy to do before receiving spectacles - and to read bus numbers, both of which rose by over 30 percentage points. The smallest, although still significant, change in finding a task easy was in recognizing a person from across the road, which rose by 22 percentage points.

Although the change in the percentage of children finding each of the tasks difficult or impossible was less dramatic, there was still a marked change for the better (*i.e.* a decrease) of at least 5 percentage points for each task and in the case of being able to read bus numbers a drop of 12 percentage points.

After receiving glasses almost 100% of the children found it easy or merely ‘quite difficult’ (as compared to ‘difficult’ or ‘impossible’) to recognize if a person across the road is a boy or a girl and to read street names.

**Figure 3 – Ability to perform daily activities**

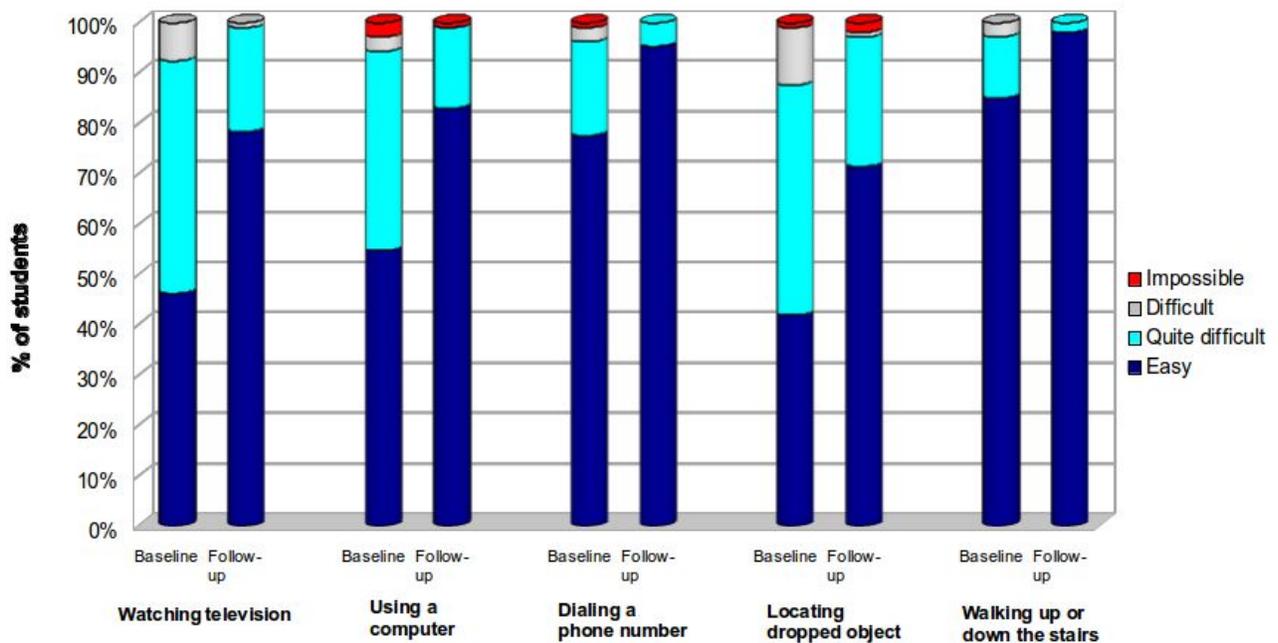


Figure 3 compares baseline and follow-up data for questions concerning the performance of everyday tasks such as watching TV and using the stairs.

Similarly to the previous section concerning seeing at a distance, the percentage of children finding tasks ‘easy’ rose considerably in the follow-up questionnaire. The largest increase was reported in watching TV where the number of children finding it easy rose by 32 percentage points to over three quarters of the total. A similar change occurred with using a computer which rose by 28 percentage points to 83% and locating a dropped object which rose by 30 percentage points respectively to 75%.

Although the baseline figure for the percentage of children finding it impossible or difficult to perform each of the tasks was already quite low (less than 10% in all cases except for locating a dropped object

which was 12.4%), it is worth noting that in the case of dialling a phone number and walking up or down stairs this was reduced to zero in the follow-up questionnaire.

As with the previous graph, the percentage of children finding each task ‘quite difficult’ decreased and for most of the categories was at least halved. The data suggests that wearing spectacles is likely to be making a significant impact on the children’s day to day lives and helping to remove barriers to both their involvement in school and their overall quality of life.

**Figure 4 – Ability to perform academic oriented tasks**

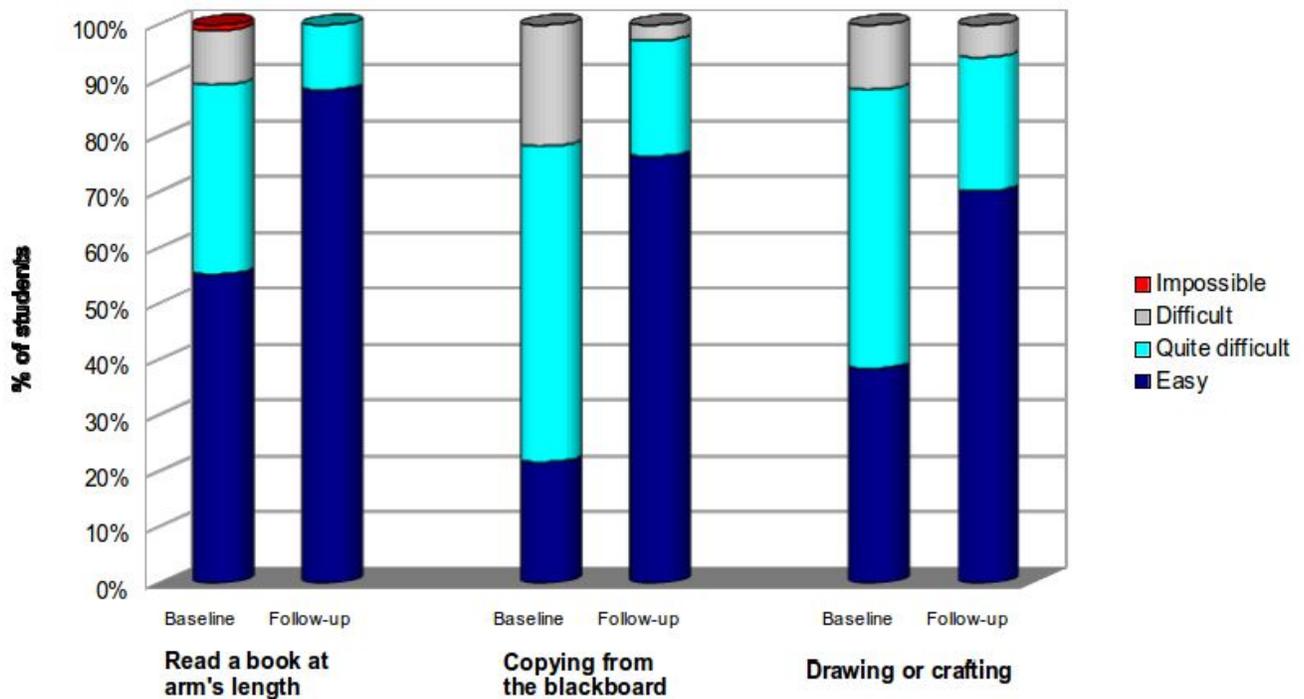


Figure 4 shows how the children who were regularly wearing spectacles rated their ability to perform three ‘academic-orientated’ tasks - read a book at arm’s length; copy from the blackboard; drawing or crafting - before and after receiving them. As before, they were asked whether they found these tasks ‘easy’, ‘quite difficult’, ‘difficult’ or ‘impossible’. As seen previously for seeing objects at a distance and performing daily activities, the percentage of children finding each of the tasks ‘easy’ rose significantly in the follow up survey. The most notable change was in the children’s ability to copy

from the blackboard – the percentage finding it easy rose from 22% to 76% in the follow-up survey, an increase of almost 55 percentage points. This suggests that wearing glasses may provide a significant positive impact on the children’s potential to be effective learners in the classroom. The percentage of children finding it ‘easy’ to read a book at arm’s length and drawing/ crafting also rose by 34 percentage points and 33 percentage points respectively.

The numbers of children finding each of the tasks ‘difficult’ or ‘impossible’ were significantly reduced. In the case of reading a book at arm’s length, 11% of the children found it difficult or impossible before receiving glasses – this figure dropped to 0 after receiving them. For copying from the blackboard this figure fell from 22% to just under 3% and for drawing and crafting from 12% to less than 6%.

Whilst there has been a sizeable increase in the numbers of children finding these academic tasks easy, what is of concern is that a significant minority of students are still finding activities that are of fundamental importance to their success and confidence in the classroom difficult or impossible. For example, despite the overall change for the better, 21% of the children known to be wearing their spectacles still found it quite difficult to copy from the blackboard. A number of factors could be to blame: for example, such difficulties may not be to do with eyesight alone but also the location of their seat in relation to the blackboard, writing ability, ability to decipher a teacher’s handwriting and, not least, the subjectivity with which individuals judge a task to be ‘easy’ or ‘difficult’.

**Figure 5 – Children’s perceptions of their vision and capacities (baseline survey)**

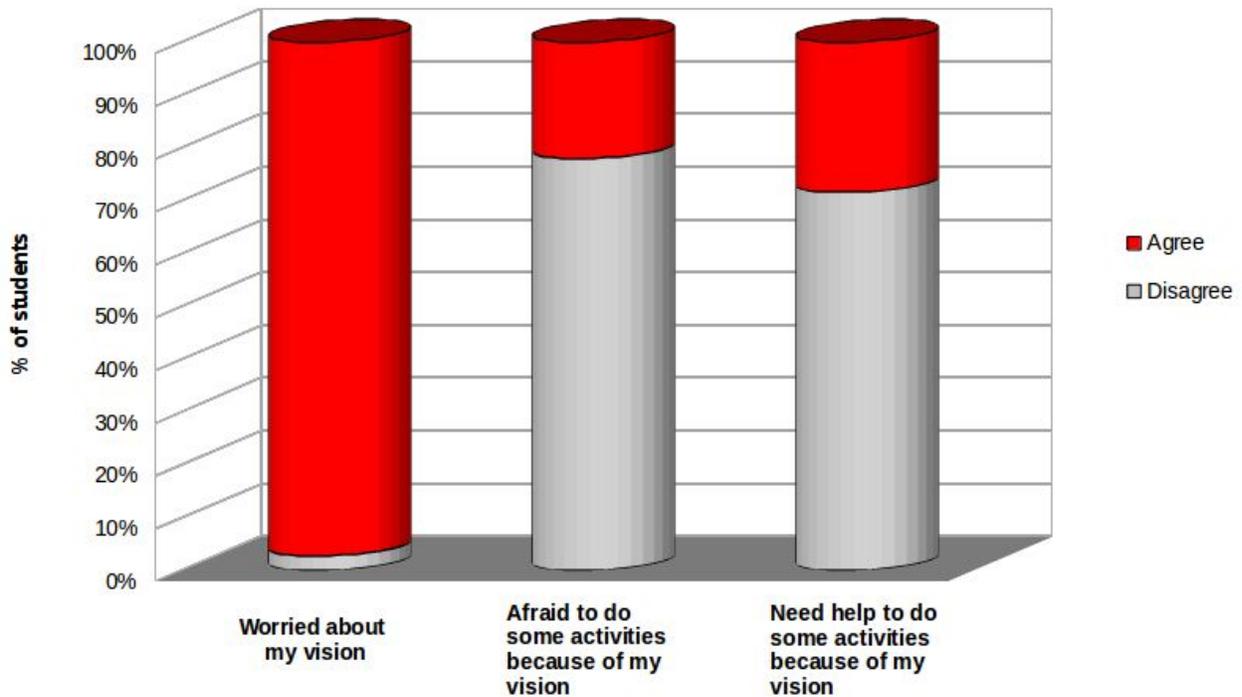


Figure 5 shows how the children responded to questions concerning their own perceptions of their vision and how it affects them. Before receiving spectacles, the overwhelming majority of the children – 97% - agreed that they were worried about their vision. Almost a quarter of the children (22%) reported that they were afraid to do some activities because of their vision and 28% agreed that they required help to perform some activities because of poor vision. Although the subjectivity of the respondents must be taken into account, this suggests that a large number of students felt anxious and incapacitated to a certain extent because of their vision. The fact that so many of them felt that they needed help *because of their vision* suggests that poor vision was substantially undermining their independence and confidence in their own abilities.

**Figure 6 – Children’s perceptions of their vision and capacities (follow-up survey)**

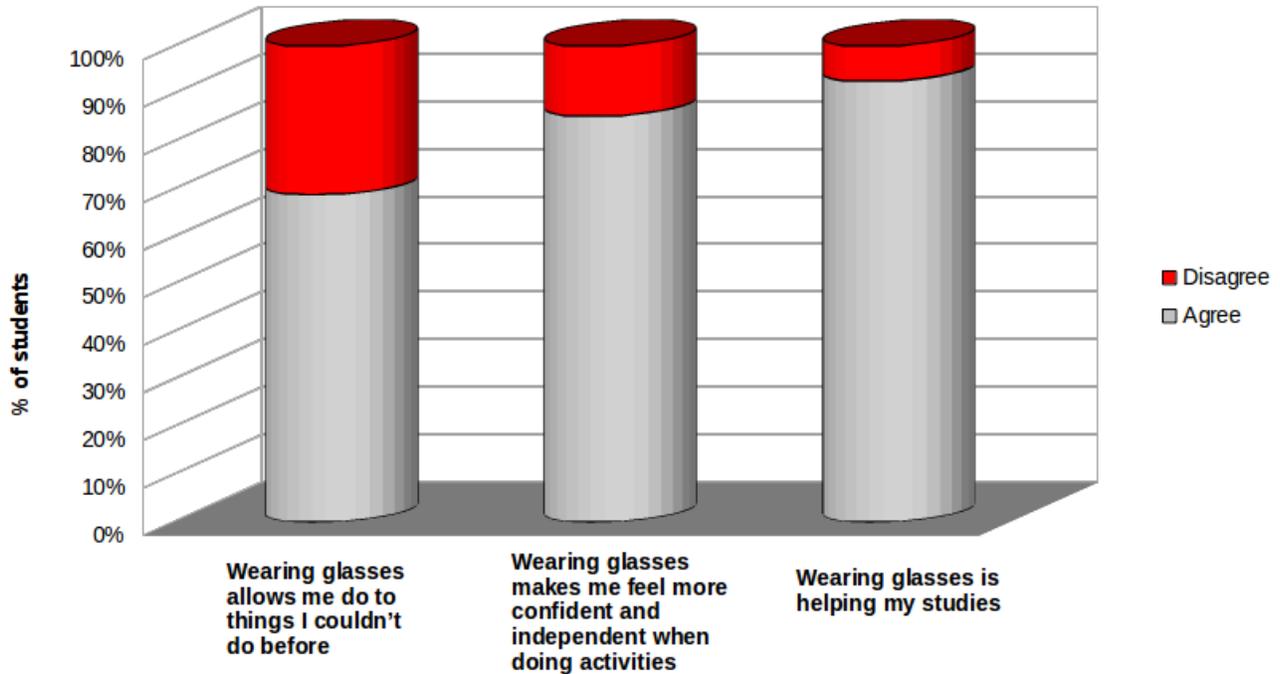
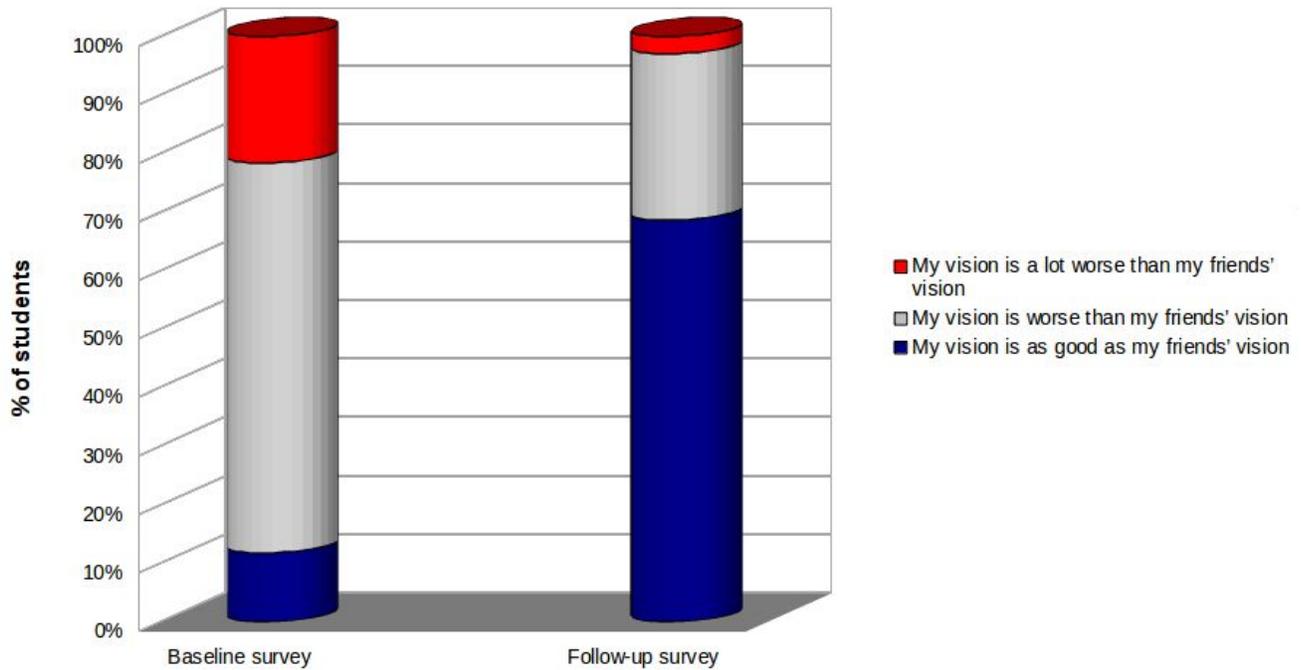


Figure 6 shows a dramatic improvement in the students’ perceptions of their vision. 69% agreed that wearing glasses allowed them to do things they could not do previously. The children’s feelings of independence, so important at this young age to building belief in their abilities and the confidence to try new things both in and out of the classroom, also showed a marked improvement. 85% of the students agreed that they ‘feel more confident and independent doing activities’ since receiving glasses. We can usefully compare this with the 22% of the children who admitted that they need help with some activities and the 28% who were afraid to do some activities due to their vision in the baseline survey to see an overall improvement in the children’s confidence in their abilities.

The most noteworthy result in this section is probably the 92% who reported that wearing glasses was helping with their studies. Regardless of what the test scores indicate these results suggest that, overall, the children are likely to feel much more secure and independent in their learning than before receiving the glasses.

**Figure 7 – Children’s perceptions of their vision in comparison with their normal-sighted friends**



Finally, Figure 7 shows how the students who received glasses perceived their vision in comparison with their friends who did not need to wear glasses. Whilst only 12% of students felt that their vision was as good as their friends’ vision before they received glasses, the follow-up survey indicates that, after receiving glasses, 69% of students felt that their vision was as good as their friends’ - an increase of 57 percentage points. Of the 31% of students who still felt that their vision was not as good as their friends’, the percentage who felt it was ‘a lot’ worse was just 4% (of the total). This compares with the 22% of the total who agreed their vision was a lot worse in the baseline survey. The implications for the children’s confidence and self esteem are obvious. The results imply that, at least in terms of their own perceptions, receiving glasses has ‘levelled the playing field’ somewhat for those children.

### 3. Conclusions

The results of the evaluation indicate a significant increase in the quality of life of the students wearing the glasses provided by the I Care programme. The students were asked how well they could perform a

variety of activities that their peers with good vision would take for granted. We found that there was an improvement in the students' abilities in all three categories – seeing objects at a distance, performing daily activities and academic orientated tasks – indicating that the students were gaining benefits not only at school but in their wider lives.

We also found a considerable improvement in the students' perceptions of their vision and the limitations it imposes on them. The results indicate a rise in the students' confidence in their abilities since wearing glasses. Moreover the students also felt much less of a need to rely on others for help due to their vision which we would hope would lead to increased feelings of confidence and independence as learners.

Establishing the relationship between the provision of glasses and an improvement in test scores is a more complex process requiring analysis of data over a longer period of time than currently available. Additionally, due to factors noted in the literature such as a positive association between poor vision and higher test scores, the impact of vision correction on educational inequality is difficult to isolate (Hannum & Zhang 2012). The quantitative educational benefits of corrected vision are not limited to improved test scores. There is evidence from previous studies outside China to suggest that compromised vision correlates with a higher probability of dropping out of education and/or repeating a grade (Glewwe & al. 2011). We will continue to monitor the students' progress future mid-term tests and report on this at a later date.

## References

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