

The Health Benefits of Environmental Improvements to a Circular Route at Easington Coastal Path

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Short summary of the key findings for the Environment Agency and Durham Heritage Coast

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1. Background and Research Aims

1.1 Background Information on Easington Coastal Path

Easington is ranked as the 28th most deprived local authority area within England. This problem of deprivation affects the health of the local community. Members of the local population are predominantly elderly or are suffering from ill-health, which is partly due to the collapse of the local coal mining industry. Durham County Council is now collaborating with local Primary Care Trusts to promote public health by introducing both healthy walking and cycling schemes.

A linear coastal path existed in Easington, but unfortunately it was not suitable for all users, and therefore excluded a proportion of the community. A new circular route has now been designed for all abilities, which links the village and the coastal path. This route was created through a working partnership between Durham Heritage Coast; Easington District Council; National Trust; Environment Agency and Groundwork East Durham. The route provides park benches, and designers have asked schools to work with a local artist to create pictures and artwork to encourage more people to use the area.

1.2 Research Aims

The research aims to evaluate the health benefits of the new circular coastal path for its users and in particular members of the local community. In addition, the evaluation also involves non-users (members of the community who do not currently use the path) so that potential barriers can be highlighted. An understanding of these issues will help to identify solutions, especially when policies are today aiming to encourage people who participate little in physical activity to become less sedentary.

Bird (2004) analysed the economic value of the health benefits of outdoor recreation in a recent report for the RSPB. This showed the extensive costs of physical inactivity to the economy and predicted that a single new 3 km footpath would add economic benefits ranging from £0.1 to £1 million (derived from

enhanced activity rates), based on a 16% local utilisation rate. Thus, this new circular coastal path is expected to provide economic benefits in addition to the valuable individual health benefits to its users.

2. Methodology

The Centre for Environment and Society is a leading authority on the use of Participatory Learning technologies to identify and assess issues and needs of communities (Pretty and Hine 1999, Hine 2005, Hine 2006). In addition the Centre for Environment and Society has also developed innovative techniques and questionnaire designs that can help to determine the health benefits derived from green exercise (Pretty et al 2003, Peacock et al 2005a, Peacock et al 2005b, Pretty et al 2005b).

2.1 Composite Questionnaire

Participants' data was collated in the field by means of a composite questionnaire. It was made up of questions relating to basic personal data, physical health and current mood states and also provided an opportunity to collect qualitative narratives. The questionnaire did not utilise standardised tools, but consisted of questions specifically designed for this research.

Basic data incorporated information on gender, age, and occupation. Participants' health was assessed by asking them to report their weekly levels of physical activity and their perceived current health state. A recent report by the Chief Medical Officer recommends that *“for general health benefit, adults should achieve a total of at least 30 minutes a day of at least moderate intensity physical activity on 5 or more days of the week”* (DoH, 2004). Therefore the number of hours spent participating in weekly physical activity were categorised to identify whether the population was meeting the current recommendations.

Participants perceived current health state was established by utilising a question adapted from the EuroQol EQ-5D questionnaire (the EQ VAS). This is a *“standardised instrument for use as a measure of health outcome”* and this particular question produces a self-reported overall health-related quality of life score. A similar scale was formulated to establish participant's current mood state at the request of the project partners.

Site-specific questions were asked, whereby participants compared their usage of the site “before” and “after” the environmental improvements. This establishes any change in usage, time spent at the site, number of visits and reasons for visits, which are directly attributable to the enhancements. The project partners were also interested in establishing whether participants visited other outdoor recreation sites prior to the improvements to the coastal path, and how frequently they visited them. Participants were asked whether they continued to visit these other sites once the improvements had been completed, and if so, how often they frequented these sites.

Further details were collected concerning the method of transport used to travel to the path and how long this journey took. Finally, an open question was incorporated, to provide them with the opportunity to explain what they considered to be special about the new coastal path. An additional question asked participants to generate ideas about what would encourage more people to use the path, which enhanced the qualitative narrative component.

3. Results

3.1 General Statistical Analysis

A total of 116 participants completed the composite questionnaires, of which 53 (44.5%) were classed as on-site participants and 66 (55.5%) were off-site participants. The on-site participants were accessed on the coastal path, whereas the off-site participants included members of local groups and schools.

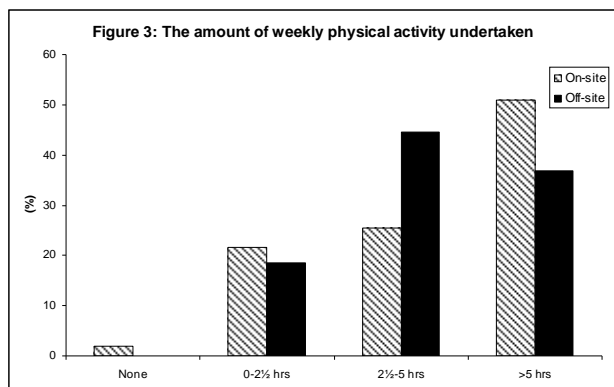
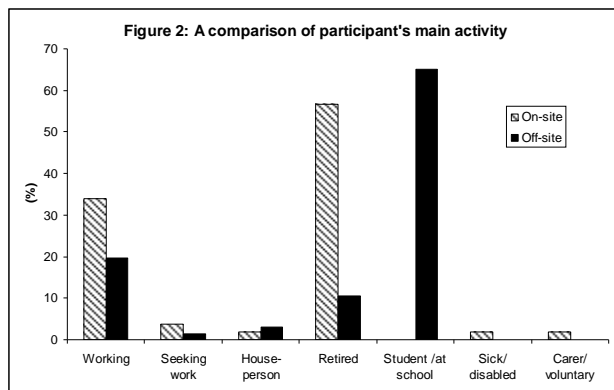
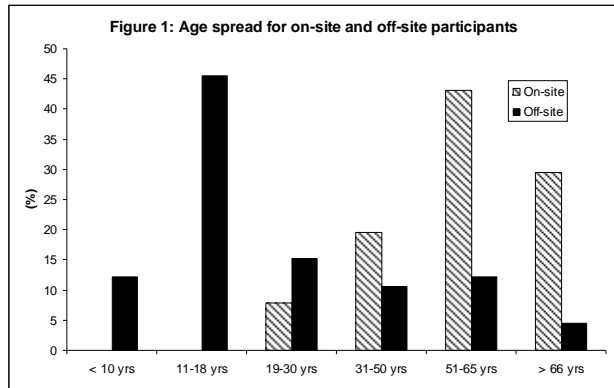
There was a fairly even mix of male and female participants amongst both the on and off-site respondents. A total of 60 (50.4%) of the participants were male and 50 (49.6%) were female. Out of the 53 on-site participants, 29 (54.7%) were male and 24 (45.3%) were female, and out of the off-site participants, 31 (47%) were male and 35 (53%) were female.

The age ranges of the respondents varied, but predominantly the on-site participants were aged 51–65 years and the off-site participants were most commonly aged between 11–15 years. 92.1% of the on-site users were over the age of 31 and 72.8% of the off-site users were less than 30 years old (Figure 1).

Figure 2 compares participants main activity and, as the age characteristics would suggest, reports that the majority of on-site users were retired (56.6%) with 34% working. In contrast, 65.2% of the predominantly younger, off-site participants were students or at school, with only 19.7% working and 10.6% retired. Therefore, the samples are not matched for age or occupation and this should be acknowledged when comparing the findings.

Physical activity patterns were similar for both samples. The majority of on-site participants (51%) reported that they did more than 5 hours of physical activity per week. 44.6% of the off-site participants engaged in more than 2 ½ hours of weekly physical activity, with 36.9% participating in an excess of 5 hours a week. Overall, 76.5% of on-site and 81.5% of off-site participants engaged in more than the recommended 2 ½ hours of weekly activity (Figure 3).

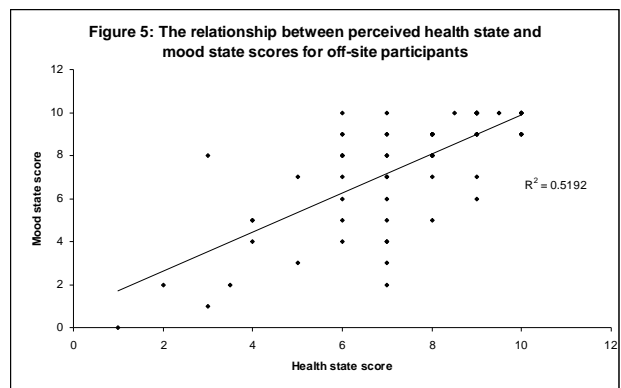
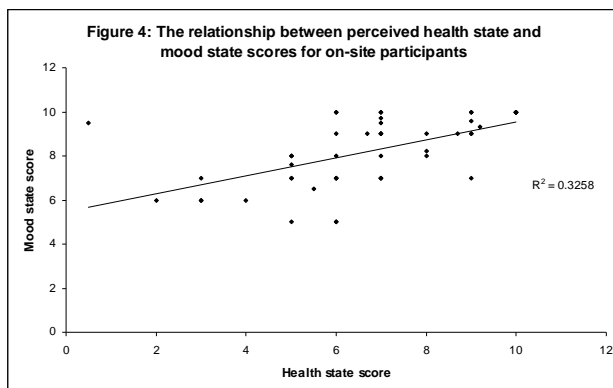
Participants were requested to indicate on a scale of 0 to 10 how good or bad they perceived their current health state to be. The worst possible health state was defined by a 0 and the best imaginable health state was 10. The average current health state for on-



site participants was 6.7 ± 2.2 . Ratings ranged from a minimum of 0.5 to a maximum of 10 and the most popular score was 7. The average current health state for off-site participants was 7.2 ± 2.1 . Ratings ranged from a minimum of 1 to a maximum of 10 and the most popular score was 7. These scores can be compared to previous work involving ecological restorations at two green sites in the UK. The average values in the case studies at Sutcliffe Park and Montgomery Canal were 7.6 and 7.7 respectively. (Peacock *et al.*, 2005a)

In addition, participants were asked to indicate on a similar scale from 0 to 10 their perceived current mood state. Again, the worst imaginable mood was defined by a 0 and the best imaginable mood state was 10. The average mood state score for on-site participants was 8.2 ± 1.6 . Ratings ranged from a minimum of 5 to a maximum of 10 and the most popular score was 10. The average mood state score for off-site participants was 7.4 ± 2.1 . Ratings ranged from a minimum of 0 to a maximum of 10 and the most popular score was 9.

This implies that the mood of the on-site participants was better than the off-site participants and this may be due to their surrounding environment. On-site participants were experiencing the outdoor natural environment and it would seem likely that this engagement was enhancing their mood. This finding supports previous work conducted by the University of Essex, both in the laboratory and the field on the impacts of green places on mental health measures (Pretty *et al.*, 2003; 2004; 2005b). Interestingly, they reported better mood states, even though their perceived health state scores were worse in comparison to the off-site participants.



Figures 4 and 5 show the positive significant correlations, for both on-site ($p < 0.000$; $r = 0.65$) and off-site ($p < 0.000$; $r = 0.7$) participants, between their health state scores and mood scores. Therefore, a higher health state score correlated with a higher mood state score.

Off-site participants were asked about their usage of the path and 69.7% reported that they used the path. Many of the off-site participants commented that they did not use the path because they were not residents of Easington.

The number of occasions participants visited the path “before” and “after” the environmental improvements, together with the average duration of each visit, and the main reasons for visiting were subsequently compared. For the purposes of the analysis, we have only included the questionnaires where participants have answered both sections of the question (i.e. “before” and “after” scores), so that we can fairly evaluate the magnitude of change.

Figure 6 illustrates how often on-site participants visited the coast path. Prior to the improvements the majority of users visited the path once a week (44.8%), with only 31.0% visiting it at least every day. Following the improvements, this pattern changed with the proportion of daily visits increasing to 37.9%

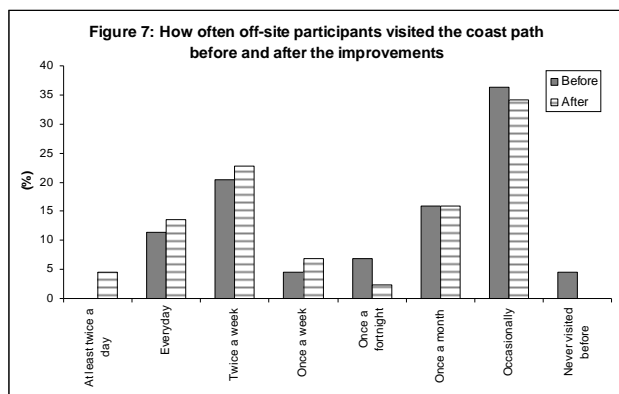
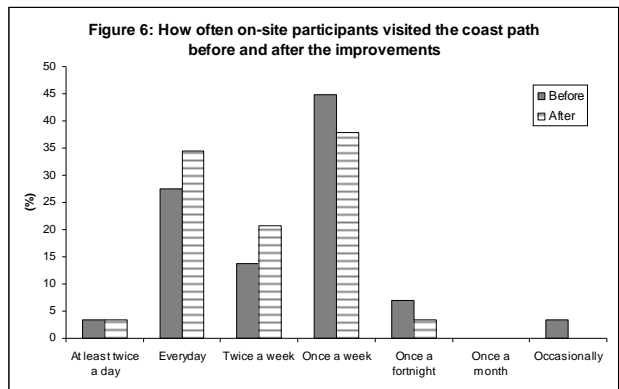
(with an equivalent percentage visiting it once a week). A significant increase in the frequency of visits ($p=0.016$) meant that the proportion of people visiting the path once a fortnight, monthly or occasionally reduced from 10.3% to 3.4%. (54% of respondents completed both parts of this question).

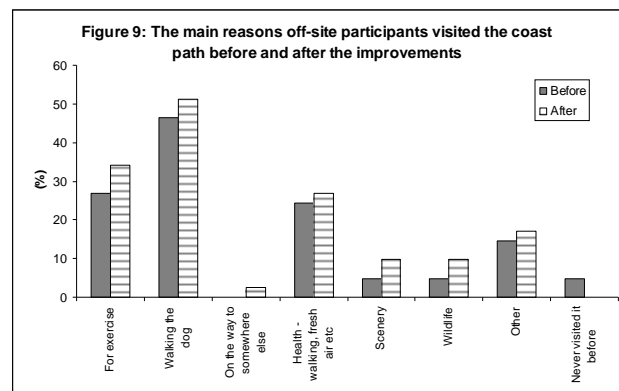
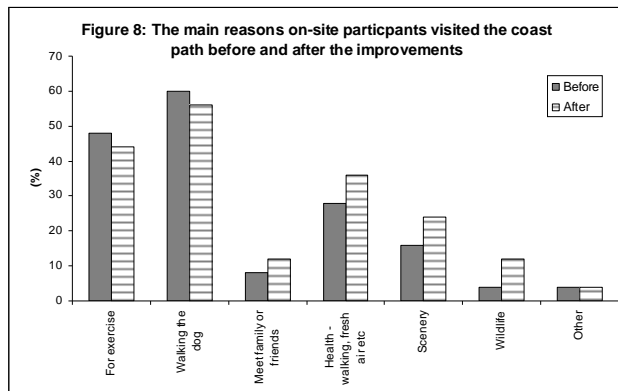
Figure 7 illustrates how often off-site participants visited the path and compares this data before and after the environmental improvements took place. It clearly shows that the percentage of people who visited the path at least twice a day (4.5%), everyday (2.2%), twice a week (2.2%) and once a week (2.3%) increased (by these respective amounts), following the enhancements. Those visiting it less frequently actually reduced in number (2.3%). A non-parametric Sign test again revealed that there was a significant difference between the number of visits prior to the improvements and the number reported after the enhancements ($p=0.046$).

The trend with these on-site respondents was markedly different to that of the off-site users, where the trend remained the same, with the majority of off-site users visiting the path occasionally, both before (36.4%) and after (34.1%) the improvements. The proportion of respondents visiting it at least everyday was only 11.4% before the improvements and 18.1% after.

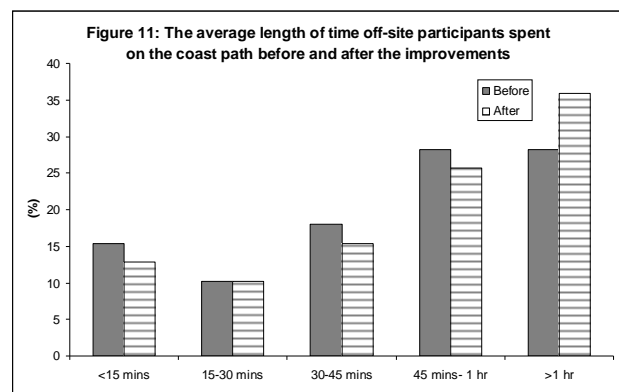
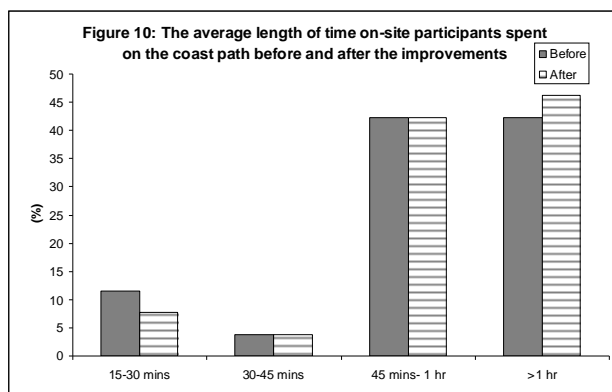
These findings are very similar to previous work at Sutcliffe Park and Montgomery canal, whereby, the number of frequent visits significantly increased and the number of irregular visits decreased. Following improvements to these two sites, 15.1% of users were visiting the park and 36.8% were visiting the canal everyday, with an average of 19.7% only visiting the sites occasionally (Peacock *et al.*, 2005a).

Figures 8 and 9 highlight the main reasons on-site and off-site participants visited Easington coastal path. Only 47.2% of on-site respondents answered both parts of this question compared to the higher 62.1% of off-site participants answering both parts. This therefore affected the statistical analysis. Figure 9 clearly shows that a higher percentage of off-site participants now visited the park for all of the reasons listed (exercise, health, meeting friends walking the dog etc) after the improvements had taken place compared to prior to improvements. 4.9% of the off-site participants had never visited the path prior to the enhancements.





A higher percentage of on-site participants started visiting the path for “health (36%)”, “scenery (24%)” and “wildlife (12%)” reasons after the improvements. However, a smaller proportion were now visiting it to get some “exercise (44%)” and “to walk the dog (56%)”, in comparison to initial figures (48% and 60% respectively).



Figures 10 and 11 display the average length of time spent on the path by on-site and off-site participants during a single visit. Once again, it compares this value before and after the environmental improvements occurred and includes only those respondents who completed both parts of the question (49.1% and 59.1% respectively). The majority of on-site users spent at least 45 minutes on the path (84.6%), and this further increased to 88.5% post improvements. 56.4% of off-site participants spent at least 45 minutes on the path, increasing to 61.5% after the environmental improvements. Therefore, a higher proportion of people spent longer on the path each visit following its restoration. This encouraging finding also supports the key results from previous case studies, whereby, the percentage of users visiting the sites for over 60 minutes increased from 9.9% to 31.9% following the improvements (Peacock *et al.*, 2005a).

Table 1: Calculations comparing number and duration of visits before and after the improvements for on-site participants

	No of visitors	No of visits per month	No of visits per person per month	No of visitors	Total time spent in park for all users during one visit (mins)	Average time spent in park per person (mins)	Total time spent in park per person per month (mins)
Before	28	368	13.14	26	1507.50	57.98	761.86
After	29	430	14.83	26	1650.00	63.46	941.11

Note: A month refers to a 4 week period; the numbers of visitors do not match as calculations do not include those who visited the park occasionally or who had never visited it before the improvements

Table 1 combines the data reported in Figures 6 and 10 for on-site participants. It uses calculations to illustrate the change in the average number of visits per person per month following the improvements. The number of visits per person per month has increased by 12.9% and the total time spent in the park per person per month has also increased by 179.25 minutes (equating to 2.99 hours). This represents an increase of approximately 23.5%.

Table 2: Calculations comparing number and duration of visits before and after the improvements for off-site participants

	No of visitors	No of visits per month	No of visits per person per month	No of visitors	Total time spent in park for all users during one visit (mins)	Average time spent in park per person (mins)	Total time spent in park per person per month (mins)
Before	26	233	8.96	39	1800.00	46.15	413.50
After	29	381	9.77	39	1927.50	49.42	482.83

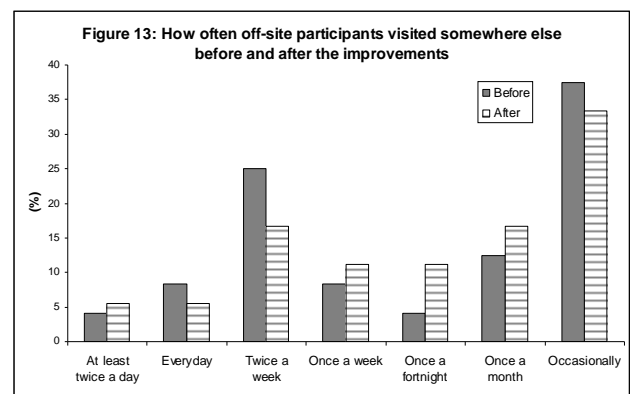
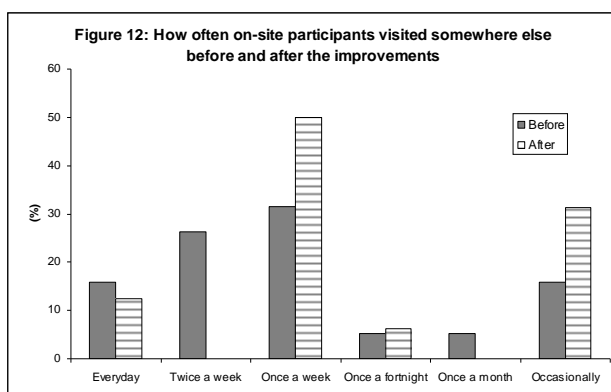
Note: A month refers to a 4 week period; the numbers of visitors do not match as calculations do not include those who visited the park occasionally or who had never visited it before the improvements

Table 2 combines the data reported in Figures 7 and 11 for off-site participants. It uses identical calculations to illustrate the change in the average number of visits per person per month following the improvements. The number of visits per person per month has increased by 9% but more importantly the number of visitors, and therefore visits, increased by approximately 11.5% and 63.5% respectively.

The improvement scheme at the Easington Coast Path has therefore attracted new visitors, resulting in more positive health benefits being experienced by a whole host of people. The total time spent in the park per person per month has also increased by 69.33 minutes (equating to 1.16 hours), which represents an increase of approximately 16.8%.

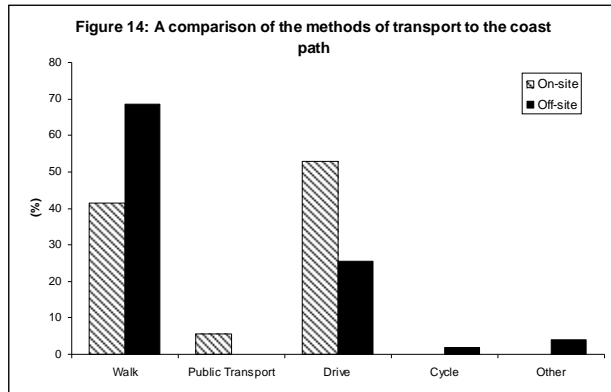
Participants were asked if they regularly visited other outdoor recreation areas, prior to the improvements. 38.8% of on-site participants stated that they often visited elsewhere, of which 88.9% still continued to visit there after the improvements at Easington. 48.2% of off-site participants visited alternative places, of which 72.7% are still visiting these sites now.

Figures 12 and 13 highlight how often on-site and off-site participants visited these other areas of interest and whether the improvements influenced this.



The majority of on-site participants visited other sites once a week (31.6%), twice a week (26.3%) or everyday (15.8%) before the improvements to the path. After the improvements the proportion visiting other places everyday decreased to 12.5%, nobody stated that they visited them twice a week, but 50% now visited them once a week. The proportion of occasional visits increased from 15.8% to 31.3%.

The majority of off-site participants visited other sites occasionally (37.5%) or twice a week (25%) before the improvements. After the improvements, the proportion of participants visiting elsewhere occasionally, reduced to 33.3% and twice a week to 16.7%.



Participants were also asked how they normally travelled to the coastal path (Figure 14). The two favoured modes of transport were driving and walking with the majority of on-site participants having driven to the path (52.8%) and the majority of off-site participants (68.8%) having walked to the path.

The journey times to the path ranged from a minimum of 2 minutes to a maximum of one hour for both on and off-site respondents. On-site, the average journey took 15.59 ± 13.35 minutes, with the most common journey time taking 10 minutes.

The average journey time to the path for off-site participants was 17.57 ± 15.60 minutes, with the most common journey time taking 5 minutes.

When analysing the driving and walking times separately, it was found that the average driving time for on-site participants was 18 ± 14.1 minutes, with the most common driving time of 10 minutes. For off-site participants the average driving time was 17.1 ± 16.3 minutes, with the most common driving time of 5 minutes. The average journey for on-site participants who were walking was 10.6 ± 7.1 minutes, with the most common time being 5 minutes. The average journey time for off-site participants who were walking was 18.7 ± 15.1 minutes, with the most common journey time being 10 minutes.

3.2 Qualitative Narrative from the Composite Questionnaire

Some of the key comments made by both the on-site and off-site participants concerning “what is special about the Easington coastal path?” are shown in Box 1.

Box 1 Easington Coastal Path: What is Special?

Comments from on-site participants:

“Beautiful scenery and a lovely walk”

“Good walking, good view, fresh air”

“Wild feeling of outdoors”

“Beautiful countryside, openness”

“The way it changes and to meet friends within a view like that”

“Fresh air, stunning views”

“The amazing views and landscape”

“Peaceful”

“Sea air, walk for miles”

“History, scenery, wildness”

“Beautiful coast line”

“The walks and the views”

“The improvements have made the walks more accessible to enjoy the scenery since the pits shut as its beautiful”

Comments from off-site participants:

“Seascape, remoteness”

“Lovely scenery, quiet, great for dogs”

“Quiet, somewhere to go”

“Local, part of our heritage”

“Scenery, atmosphere”

“The fact I can get out for fresh air”

“I like watching the birds and the peace and quiet”

“It gives opportunity to get exercise and fresh air”

“It is a reminder of the pit area and a nice place to go for a walk”

“Scenery, the walk itself”

“Relaxing”

“The good view from the top of the cliffs”

Participants were asked the following question: *“What do you think would encourage more people to use the coastal path?”* Box 2 shows some examples of their responses.

Box 2 Easington Coastal Path: What would encourage more people to use the path?

Comments from on-site participants

“Maybe multi-use, i.e. cyclists”

“Steps to beach really need seeing to, it’s dangerous. More pavement (tarmac), more seats on beach banks”

“Better disabled access, coffee tea bar”

“Putting in more hardcore paths would encourage young families and the elderly to use the walks”

“A gentler path up from the beach, going down is fine, coming up is hard. More seats and better paths for the pushchairs”

“More publicity and amenities”

“Better advertising, more seating”

“Clean beach, build wall and hide waste”

“Somewhere to have a cuppa”

“Improve footpath, dog bins/litter bins, better drainage in muddy bits”

“Nothing, leave it wild as it is now”

Comments from off-site participants

“More information about paths, more emphasis on exercise, more seats, bins, bins for dog waste”

“Lighting for walking at night, picnic area/benches, more bins to prevent littering”

“Better paths, securer car park”

“Car park safety, need to ensure car is secure before will leave it here regularly”

“If people picked up litter”

“If people cleaned up after your dogs”

“A warden to try and keep trouble makers/teenagers away”

“To be much, much cleaner”

The key messages which emerged from the on-site participants included suggestions for increasing advertising and publicity, improving access for wheelchairs, prams, disabled etc, improving the footpath surface, and introducing more paving and seating areas. In addition, off-site participants discussed the problems of dog mess and litter and stated that the area needed to be cleaner and issues of security and safety in the car park needed to be addressed.

4. Conclusions

- The introduction of this new circular path in Easington has encouraged more people to visit the site, to spend longer in contact with nature and to visit the path more frequently.
- Respondents in the survey felt that the Easington Coast Path was special for a number of reasons including the beautiful scenery, the fresh air and the fact that it is local and part of local heritage. Participants also felt that more seating areas could be included, that improvements to access, cleanliness and footpath surfaces could be made, together with addressing safety issues in the car parks.
- The findings from this case study are consistent with earlier work carried out by the University of Essex at two alternative green sites where environmental improvements had been carried out by the Environment Agency (Peacock et al 2005a) and show that ecological restorations and improvements to green environments contribute significantly to the health and well-being of users and members of the local community.
- The findings from this evaluation of the health benefits, both to the users of the new circular coastal path at Easington and to members of the local community, adds further value to the emerging green exercise evidence base nationally concerning the impact of ecological restorations. It is clear therefore that spending time exercising within a green environment enhances your health and well-being.

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