



## Knowledge Exchange Seminar Series (KESS)

### ***Using GPS tracking devices to explore the geographies of young people***

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The divided nature of Northern Irish society and in particular its impact on the movement of young people has been highlighted by a range of research. However, while research elsewhere has used modern technologies such as Global Positioning Systems (GPS) to better understand young people's geographies, there has been little use of such technology in the Northern Ireland (NI) context. Combining GPS tracking, in combination with more traditional methods, provides considerable insights of movements of young people in Northern Ireland by illuminating differences and similarities in movements. We argue that the use of GPS methodology significantly adds to the understanding of young people's geographies, particularly in a post-conflict context where notions of place and territory have particular significance.

OFMDFM (2005) explicitly promoted sharing between the communities in Northern Ireland stating 'separate but equal is not an option' (OFMDFM, 2005, Section 1.4). While subsequently 'sidelined' by the two governing parties (DUP and Sinn Féin), nonetheless, the rhetoric of sharing remains an NI government theme and there has been some continued recognition of the need to create a 'shared future'. 'Together: Building a United Community' (2013) is considered a 'much less ambitious document than the Shared Futures document it superseded' (Nolan, 2013, 11), but it does articulate a commitment to 'building a united and shared society' with 'all areas... open and accessible to everyone' (OFMDFM, 2013, 5). However, NI still has divisions, with many communities residing and being educated separately. The major social divide in NI has been characterised as ethno-sectarian, often reduced to 'Protestant' and 'Catholic', and this, alongside other social cleavages may impact on the mobility of people.

Considerable research suggests that the level of residential segregation after the signing of the Belfast/Good Friday Agreement has not decreased (Shirlow & Murtagh, 2006). However, much non-residential space in Northern Ireland's settlements may appear shared in that it is apparently open to both communities.

### **Young people in Northern Ireland – navigating difference**

With regard to young people, division also manifests itself with regard to education; 90% of school aged children are taught overwhelmingly with co-religionists and the wearing of a school uniform might be taken as a fairly reliable indicator of belonging to one community or the other (Hamilton *et al.*, 2008). Similarly, 20 years after the Good Friday/Belfast Agreement young people continue to experience sectarianism in their daily lives (Jarman, 2005), often on a daily basis. Some young people consider themselves imprisoned within their neighbourhoods (McAlister, Scraton, & Haydon 2009). Leonard (2010) referred to young people deploying their internalised sophisticated information networks to allow them to 'negotiate and renegotiate their movements within and across the immediate locality and in the process, manage, minimize and avoid risks' (2010, 35). Parts of Northern Ireland are effectively 'mutually exclusive social worlds' (Leonard, 2006, 227). McAlister, Scraton, and Haydon (2014) argued, 'in Northern Ireland, the physical and symbolic marking of community space is a defining, visual message of community and cultural identity. While communities can be places of support, belonging and safety, they can also signify hostility, fear and exclusion' (2014, 30)

## Researching division

Much of the research undertaken on the personal geographies of young people has tended to be qualitative, incorporating methods such as interviews, focus groups and observations, looking at how division has had an impact on their everyday lives and routines. Other research has adopted a more anthropological approach, with observation, interviews and focus groups: Hamilton *et al.* (2008) included participants drawing maps indicating territoriality and segregation in their respective communities. That research also involved week-long diaries of participants' daily activities. These approaches tend to rely upon second-hand reports of movement by the respondents, or as observed by the researchers. While providing rich and affective evidence, it has the disadvantage of being mediated by those reporting it, or by the researcher observers.

There is a pressing need to capture *actual* movement of young people conducting daily activities; this can be achieved by the use of GPS tracking devices. These produce quantitative data sets which can be integrated with existing qualitative techniques to give a rich overview of the personal geographies of young people. While a few other studies have used GPS tracking devices to examine the geographies of young people (see Christensen *et al.*, 2011), there seem to have been no attempts to apply this to Northern Ireland until this study, although others have used it since (see Davies *et al.*, 2017).

## Research movement in Coleraine

This small study examines the movements of pupils from Post-Primary Schools in Coleraine, a town within a district with 59,067 residents (NISRA 2013). The 2011 Census indicates that 28% of the population consider themselves to be 'Catholic' and 65.3% 'Protestant and Other Christian' (NISRA, 2013). However, there are no obvious divisions seen in larger settlements, for instance 'Peace Walls' separating different areas.

## This study

There are six Secondary schools in Coleraine, of which four agreed to take part in this research project. One class from each of the participating schools was selected for this research project, in conjunction with a Geography teacher in each school. In total, 74 pupils were involved.

There were three parts to the research:

1. Each pupil was asked to carry a small portable GPS tracking device for one week.
2. Participants completed a questionnaire which explored demographic background as well as their views and opinions about living in Coleraine, and factors influencing potential mobility.
3. Focus groups were conducted, made up of smaller groups of young people who had been involved in the research (n = 50).

Full ethical approval was obtained from the participating schools, the parents, the teachers, the pupils and the University.

## Results

The GPS devices recorded their position every 5 seconds, but the data were filtered to one point every 30 seconds to reduce file sizes. GPS tracks were overlaid on street maps and orthophotography using ArcGIS software, allowing exploration of differences in movement by gender, by time of day or by day of week, for instance. Questionnaire data showed that 60% saw themselves as 'Protestant', 23% 'Catholic' and 15% 'Neither', figures which are close to the relative proportions of the town and surrounding area. With this self-identification of their ethno-sectarian affiliation, it was possible to plot the microgeographies of those who viewed themselves as 'Catholic' and 'Protestant', which is the focus of this paper.

## Movements in residential suburbs of 'Protestants' and 'Catholics'.

The results suggest a slightly different pattern of movement by the two groups, with relatively little movement of respondents within areas dominated by the 'other'. Whatever movement there is in these cases appears to be using vehicles. While some routes and nodes are accessed by both communities, their use may not be coincident in time. This might suggest that the 'episodic use' of the urban fabric identified in Belfast by Leonard and McKnight (2010) is replicated elsewhere in Northern Ireland, even within small towns.

A clear response in focus groups was that most respondents knew the ethnic geography of their settlement very well, and that it impacts on their movement. This excerpt is from a Protestant school

**Interviewer:** Looking at a map, do you know what areas would be Catholic and what are Protestant, or is it one side of the river is one side and the other side is the other?

**Boy 5:** This side of the river is more Catholic [refers to Heights area on map on screen], the left-hand side of that

**Boy 4:** ...tricolours [flags signifying a Catholic area]

**Boy 4:** And if you are not one of them you feel out of place, you know.

**Boy 5:** You would go there if you had to, but you don't...just...you try to avoid it...

Figure 1 in the Appendix shows Ballysally, a northern suburb of Coleraine. Apart from some movement along the arterial routes peripheral to the housing area, respondent movement in this working-class housing area is dominated by Protestants. Only one individual who identified as Catholic entered this housing area in the period under study. This was a single journey and an analysis of the trace shows that the movement involved a vehicle, because of the speed of travel. The dominance of Protestants in this housing area would tend to confirm the segregation of residence and the concomitant segregation of movement and socialisation that has been identified widely in Belfast (e.g. Komarova, 2008) and in some other areas of Northern Ireland (e.g. Hamilton *et al.*, 2008).

## Movements in the town centre and near amenities

When asked about whether or not the town centre was 'shared and open' to both Protestants and Catholics, there was overwhelming agreement (84%) that this was the case. As well as the town centre, nearby places such as a local cinema and the town leisure centre were seen by just over half of the sample as 'shared and open' to everyone, regardless of community background. Only two types of places were more likely to be considered not 'shared and open', namely the bus and train stations and the local parks.

When asked about variations in feelings of safety in environments during the day, most stated they felt safe in their own area during the day (98%) and at night (84%). When it came to the town centre, 99% (72) stated they felt safe during the day, but that figure dropped to 38% (27) at night. This would accord with the findings of others that young people avoid places at certain times.

There was some suggestion that the size of Coleraine made mixing more likely to happen compared to larger settlements. Areas in cities like Belfast may be large enough to have a 'Protestant' leisure centre and a 'Catholic' leisure centre, for example, serving their own communities, but this is not an option in smaller settlements. Nonetheless, some research findings from large settlements were supported as participants made reference to symbols and aspects of safety, such as the wearing of a school uniform.

**Girl 7:** My brother goes to School [x] and he knows not to go down a certain road in his uniform, because he knows he is going to get hit and stuff

**Girl 8:** I wouldn't go there on my own, I would bring somebody if I was going, even during the daytime just because sometimes people hang around there, you don't get a nice feeling

The patterns of movement within the core of Coleraine are shown in Figure 2. The similarity in the movements of the two communities might suggest that the centre of Coleraine is non-contested and shared space, and an examination of the timestamps on each of the points would suggest the space is used by both communities at overlapping times – Friday afternoon trips to coffee shops seem common to both groups, for instance. However, it is more difficult to determine whether the movements indicate real sharing. It may be that the space is used by both communities, and at the same time, but with little contact between them. This could be termed 'co-use' (Roulston, S., Hansson, U., McKenzie, P. and Cook, S. 2017) of a space which is open to both communities. While not episodic (Leonard and McKnight, 2010), neither is it clear that it is shared.

## Movement and deprivation

Children living in areas of deprivation often have significantly different patterns of mobility compared to middle-class children. Reay and Lucey (2000) described the intimidation and violence that young children experienced in the areas of Inner City London which they studied. Additionally, the effects of growing up in areas of disadvantage has been shown to persist into adulthood, reducing 'wellbeing' (Miller, Connolly & Maguire, 2013). Ingram (2009) noted that many working-class children spend their time 'mostly within their neighbourhood' (2009, 422) which makes their immediate locality a particularly strong force in the formation of their identity. Harland and McCready (2010) found that young males particularly had few networks outside their own community. One of their respondents admitted 'I don't go out of my area.

I am afraid even in my own street. I stay in most nights' (2010, 53). The same study highlights continued sectarian divisions as one of the main reasons for the lack of mobility, particularly in young men, so excluding the 'other'.

Horgan (2011) also comments on the restricting effect of segregation on the movement of young people. She argues that, because of this, the worlds of young people in deprived areas of Northern Ireland are even smaller than those of young people growing up in poverty elsewhere. Connolly and Healy (2004) reinforce the emotional significance of the local area for working-class children, especially boys, in a Belfast-based study. Trapped, as a consequence of segregation and violence, or the fear of it, in a locality from which they find it difficult to move, these boys have a restricted existence and have limited aspirations for their futures as a result.

In the study of Coleraine, there was empirical evidence for reduced mobility by respondents residing in postcode areas with the lowest 20% of Multiple Deprivation Measures. This was particularly true when weekend mobility of residents of the urban area of Coleraine were considered (Table 1) when the least deprived quintile's respondents had a range greater than six times more than the most deprived.

### **Mobility and physical and mental health**

Physical activity and mobility around settlements are not the same. It is possible to remain in your community and yet to take physical exercise. Nonetheless, movement may be related in some ways to increased physical exercise by seeking exercise activities outside an individual's neighbourhood. This study did not examine this, but the authors feel that there is considerable merit in exploring this further in Northern Ireland as studies in Northern Ireland (Miller, Connolly & Maguire, 2013) and elsewhere (Penedo & Dahn, 2005; Warburton, Nicol & Bredin, 2006) have suggested strong linkages between deprivation and physical and mental health

### **Conclusion**

GPS tracking has the potential to show movements of people with precision and, particularly when complemented with qualitative data, can provide rich data for the analysis of the geographies of individuals and groups. There is much more research that could be done with this technology, and findings could impact on decisions around planning and the deployment of resources in an area.

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## Appendices

Figure 1:  
Ballysally, Coleraine  
– two maps of the  
same area –  
movements of  
Catholics on the left  
map and of  
Protestants on the  
right map.

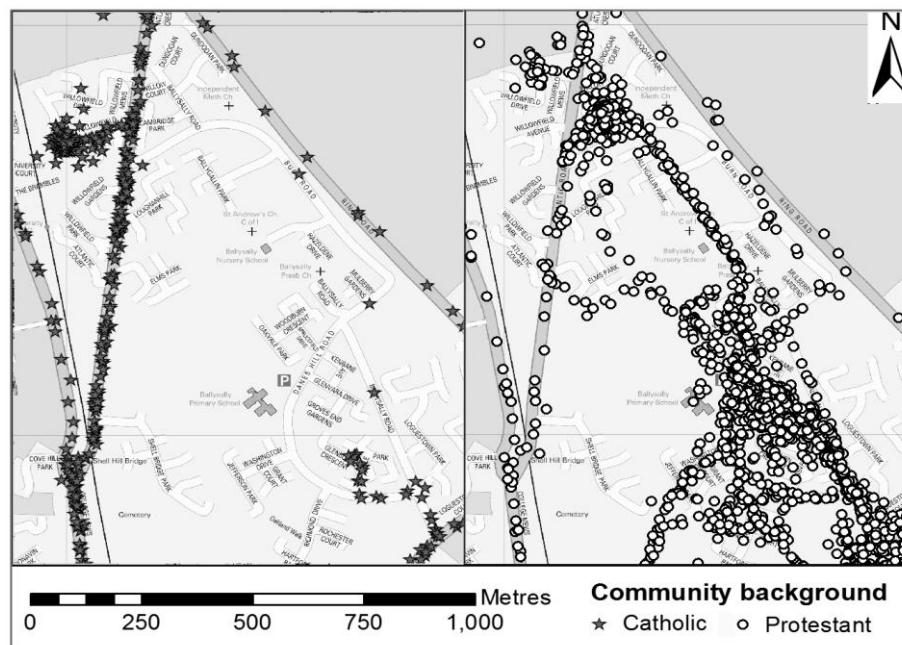




Figure 2: Coleraine Town Centre

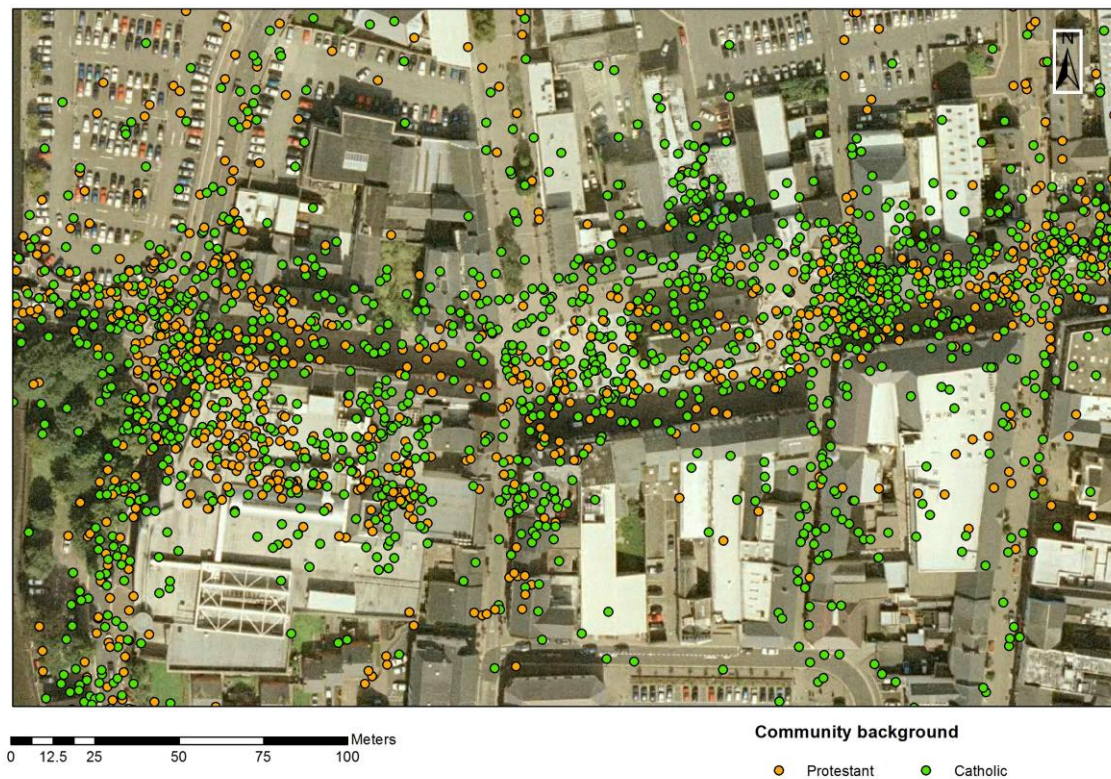


Table 1: Mobility and deprivation: Coleraine residents: weekend movement

MDM quintile (high score – less deprived)	Mean total distance travelled	Mean maximum distance travelled (range)	Mean speed travelled	Mean MDM decile of areas traversed (high score – less deprived)
1	17227	2705	2.1	2.6
2	12507	1293	3.9	4.3
3	20998	4523	9.1	5.0
4	40553	14438	12.5	6.2
5	59145	17881	15.4	7.5
Pearson correlation with MDM home	-0.314	-0.416*	-0.367*	0.821**
Significance (2-tailed)	0.080	0.018	0.039	0.000

\* Correlation is significant at the 0.05 level (2 tailed)

\*\* Correlation is significant at the 0.01 level (2 tailed)