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# **Adapting Bronfenbrenner's Bio-ecology Theory to Enhance Social Marketing.**

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## **Abstract.**

Social marketing has been criticised for mainly focusing on the individual and not wider environmental influences. This issue is being challenged by scholars of the domain who are now investigating the impact of incorporating ecological models within it. Bronfenbrenner's bio-ecological theory is one that is widely used in other disciplines. This study utilises a mixed methods approach with a single case study: examining why individuals living with diabetes chose to attend (or not) a structured education course (the social marketing programme) in England. It examines the attitudes of the patients, healthcare professionals and administrators of the NHS. The research identified that many of the propositions held within the bio-ecological theory are highly relevant to social marketing: they provide a means of explaining the antecedents of why individuals chose to engage in behaviour change programmes. Further studies will be required to test the macro and time elements of the bio-ecology theory.

## **Introduction**

Social marketing has become an important way of using marketing principles to encourage positive behaviours amongst individuals and the society of which they are apart (Andreasen, 2002; Hastings, 2007 and Lefebvre, 2012). It creates a framework that integrates social influencing theories with the concepts of marketing (Wallack, 1990). Arguably the most prominent criticism of social marketing is that it tends to focus on the individual and not wider environmental effects (Collins, Tapp & Pressley, 2010; Helmig & Thaler, 2010; Rothschild, 1999, Wallack 1984 and Wallack et al., 1993). Social marketers have begun to challenge the issue by investigating the impact of incorporating ecological models into their work. There are many ecological theories that are being used in a variety of disciplines. Fundamentally, it examines how different aspects of the wider environment can influence or deter behaviours in different ways (Bronfenbrenner, 2005). This paper demonstrates how Bronfenbrenner's bio-ecological theory can be adapted to address the social marketing criticisms identified earlier. It uses a single case study: the engagement of structured education to influence behaviour changes of those individuals living with diabetes in England.

## Bronfenbrenner's Bio-Ecological Theory

Bronfenbrenner began the development of the ecology theory back in the seventies (Bronfenbrenner, 1977, 1979): this gave rise to the nested levels of systems (see figure 1). In the late eighties and early nineties, we saw the transition of the nested systems into the General Ecological Model (Bronfenbrenner, 1993; Bronfenbrenner & Morris, 1998): it was then developed into the 'Process, Person, Context and Time' (PPCT) concept, which proposes that the development (and thus behaviour traits) of an individual are linked not only to the context (as identified in figure 1) but to the process used, the time taken and the individuals themselves. The final iteration, which was called the bio-ecological theory, provided us with the concept of 'heritability': where it was proposed that the genetic variations in an individual would play a part in their development (Bronfenbrenner & Ceci, 1994). There are many other similar theories like, Pawson & Tilley's (1997) Context-Mechanism-Outcome (CMO) relationships model. It is my belief however, that the bio-ecological theory provides a more superior proposition because of its ability to segment specific groups and analyse the impact of different time frames. Before continuing I must confirm that the 'Process' element of the PPCT model relates to the social marketing campaign, the 'Person' (including the genetic element) the market segments, the 'Context' the micro, meso, exo and macro systems (as depicted in figure 1) and the 'Time' relates to the length of engagement with the social marketing campaign.

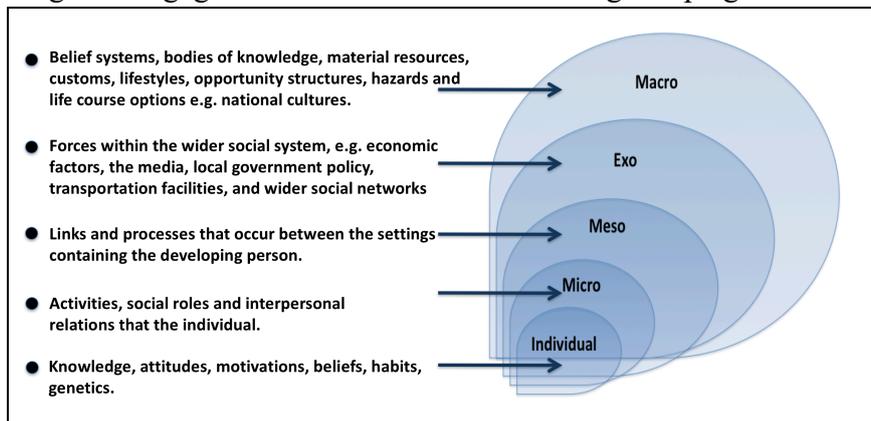


Figure 1: The nested levels of the Ecology Theory (adapted from Bronfenbrenner (1977))

### Diabetes structured education in National Health Service (NHS) England.

In the UK, people living with diabetes are encouraged to take part in structured health education programmes (DoH, 2001). These programmes are designed to provide individuals with the knowledge and skills needed to manage their condition (NHS England, 2014). Diabetes UK (2013), a leading national charity within the UK, identified that the number of patients engaging with structured education was small: in 2012 only 4.2% of newly diagnosed people living with the condition took part in structured education. Diabetes UK have called for improvements to the provision of these courses. It should be noted that diabetes accounts for approximately 10% (£11 billion) of NHS England's annual budget (NHS England, 2014).

When compared against Andreasen's (2002) benchmark criteria it can be demonstrated that structure education replicates the traits of a social marketing campaign, as such, it is a relevant case to be reviewed within the domain. In addition, diabetes structured education is an ideal example to test Bronfenbrenner's (2005) bio-ecology theory as there are two distinct segments that are genetically different: i.e., individuals living with Type 1 and Type 2 diabetes (note; Type 1 diabetics need daily insulin injections to survive whereas, Type 2 diabetics can manage

their conditions by adjusting their diet and life style, but generally need some form of medication (NIH, 2013)).

### **Methodology.**

The research utilised a mixed-methods approach, it was split into five distinct phases, phase one was a pilot study employing health educators from the Expert Patients Programme (a community interest company born from the NHS to deliver structured education). The objective of this phase was to establish a framework of questions that could be used for the interviewing of patients. Phase two was the surveying and interviewing of patients: they were recruited through Diabetes UK's member's database. Participants were invited to complete a simple questionnaire from which a purposive sample of 32 individuals was identified. This was made up of an equal proportion of Type 1 and 2 diabetics, individuals who had and had not attended a course, those who were employed and unemployed (defined as individuals who had been out of work for over 12 months), Caucasians and South Asians (the comparison of South Asians was chosen because of the high prevalence of the disease in this group and the clear cultural differences they provided). The participants were also selected to provide an equal representation across the different counties in England. The data was analysed using a content analysis approach. Phase three was a policy review of diabetes care in England and was driven by the National Service Framework: a set of national standards for the treatment and care of people living with diabetes (DoH, 2001). Phase four was a census, utilising a Freedom of Information request, of the 152 Primary Care Trusts (PCTs) in England, which identified the extent of their provision of structured education. Finally, phase five was the interviewing of healthcare providers (HCPs) and Commissioners (the funders of the provision), focusing on establishing why they provided their chosen service profile. Here a thematic analysis approach was utilised and the sample size was determined through a theoretical saturation approach. Ethics approval was established from the author's research establishment, Diabetes UK and the NHS' Integrated Research Approval System.

### **Results and Findings.**

The pilot study identified several reasons why an individual might choose to attend (or not) a structured education course. Using the bio-ecology theory as the theoretical lens, the following propositions were developed as the framework to quiz patients: individuals with Type 1 were more likely to engage with the programme because their condition was more life threatening, this would confirm the bio genetic element of the Bronfenbrenner's theory; an analysis of family life, work life and the course itself (which was the process) would give an insight to the pros and cons of the micro system; linking together family life with the structured education programme plus work life with structured education programme would give us two meso systems to considered; the structured education programme delivery formats would be the exo system to review; employment status and cultural backgrounds would be the differentiators to test the macro system; and finally, the length of the programmes provided by each PCT would relate to the time element.

The advert calling for participants to take part in the research yielded 281 valid responses: 161 Type 1 and 117 Type 2, of these, 93 individuals stated that they would be willing to partake in a face to face interview. 32 were selected, based on the purposive criteria discusses earlier. Unfortunately, the study was unable to engage with persons who were classed as long-term unemployed or South Asian (although with the help of the Expert Patients Programme, 5 South Asian were added to the cohort at the end of the study). A simple Chi squared test identified

that Type 1s were more likely to engage in the process ( $p>0.001$ ). Based on the semi-structured interviews, a summary of the participant's perceptions to the ecological forces can be seen in table 1. Some explanation of the table is required: the pilot study established that certain health establishments provided either 'flexible courses' (ones where participants could select between a weekday, evening or weekend course) or 'non flexible courses' (ones that only offered courses between 9am to 5pm during the week), the numbers under the '+' represent those individuals who would engage with that option, the numbers under the '-' represent those individuals who would not engage with that option. The 'NR' represents a non-relevant response. So, as an example, of the 14 employed individuals who were questioned, 4 felt that being given an option of attending a non-flexible course would not deter them from attending but 10 felt that the same non-flexible courses would restrict their engagement; all 14 said that being given a flexible option would encourage them to attend. Using the 'work' microsystem as another example, 4 of the 14 individuals questioned who were employed stated that the 'work' microsystem was not relevant (NR) to them attending a course, but 10 felt that work commitments had restricted their ability to attend. Each response was followed up with a detailed discussion on the reasoning, which was reviewed using a thematic analysis approach: for parsimonious reasons the results will not be presented in this paper.

| Person<br>Total Interviewed                 | Employed<br>14 |    |    | Unemployed<br>0 |   |    | Retired<br>18 |    |    | Caucasian<br>27 |    |    | South Asia<br>5 |   |    | Dependants*<br>9 |   |    | Non-dependants*<br>23 |    |    |
|---|----------------|----|----|-----------------|---|----|---------------|----|----|-----------------|----|----|-----------------|---|----|------------------|---|----|-----------------------|----|----|
|   | +              | -  | NR | +               | - | NR | +             | -  | NR | +               | -  | NR | +               | - | NR | +                | - | NR | +                     | -  | NR |
| <b>Process</b>                              |                |    |    |                 |   |    |               |    |    |                 |    |    |                 |   |    |                  |   |    |                       |    |    |
| Non Flexible Course                         | 4              | 10 |    |                 |   |    | 13            | 5  |    | 17              | 10 |    |                 | 5 |    | 2                | 7 |    | 15                    | 8  |    |
| Flexible Course                             | 14             |    |    |                 |   |    | 18            |    |    | 27              |    |    | 5               |   | 9  |                  |   | 23 |                       |    |    |
| <b>Microsystem</b>                          |                |    |    |                 |   |    |               |    |    |                 |    |    |                 |   |    |                  |   |    |                       |    |    |
| Family                                      | 3              | 5  | 6  |                 |   |    | 13            | 5  |    | 15              | 10 | 2  | 1               |   | 4  | 5                | 4 |    | 11                    | 6  | 6  |
| Work  |                |    |    |                 |   |    |               |    | 18 |                 |    | 9  | 18              |   |    |                  | 9 |    |                       | 10 | 13 |
| DHEC  | 14             |    |    |                 |   |    | 18            |    |    | 27              |    |    | 5               |   |    | 9                |   |    | 23                    |    |    |
| <b>Mesosystem</b>                           |                |    |    |                 |   |    |               |    |    |                 |    |    |                 |   |    |                  |   |    |                       |    |    |
| Family - DHEC                               | 9              | 3  | 2  |                 |   |    | 11            | 7  |    | 19              | 3  | 5  | 1               |   | 4  | 6                | 3 |    | 14                    |    | 9  |
| Work - DHEC                                 | 3              | 8  | 3  |                 |   |    |               | 18 |    | 3               | 8  | 16 |                 | 5 | 3  | 3                | 3 |    | 5                     |    | 18 |
| <b>Macrosystem</b>                          |                |    |    |                 |   |    |               |    |    |                 |    |    |                 |   |    |                  |   |    |                       |    |    |
| Language specific courses                   | 1              |    | 13 |                 |   |    | 3             | 15 |    |                 | 27 |    | 4               | 1 | 1  |                  | 8 |    | 3                     |    | 20 |
| Gender specific courses                     | 1              |    | 13 |                 |   |    | 2             | 16 |    |                 | 27 |    | 3               | 2 | 1  |                  | 8 |    | 2                     |    | 21 |
| <b>Time</b>                                 |                |    |    |                 |   |    |               |    |    |                 |    |    |                 |   |    |                  |   |    |                       |    |    |
| Long course (over 6-8 sessions)             | 14             |    |    |                 |   |    | 18            |    |    | 27              |    |    | 5               |   | 9  |                  |   |    | 23                    |    |    |
| Medium length course (over 2 to 5 sessions) | 14             |    |    |                 |   |    | 18            |    |    | 27              |    |    | 5               |   | 9  |                  |   |    | 23                    |    |    |
| Short course (1 session: half or full day)  | 14             |    |    |                 |   |    | 18            |    |    | 27              |    |    | 5               |   | 9  |                  |   |    | 23                    |    |    |

**Table 1: Content Analysis Summary of Findings.** Note:\* Dependents refer to preschool children.

The policy analysis appraisal identified that structured diabetes education should be offered to every person and their carer(s) at or around the time of diagnosis, with annual reinforcement and review. These guidelines also state that, people and their carers should be informed that structured education is an integral part of diabetes care. Structured education courses also required certain standards: these are designed to maintain the quality standards of the programme. 89% of the participants questions were not aware of this.

A summary of the census is illustrated in table 2. It should be noted that the study began during the period of transition of PCTs to CCGs (clinical commissioning groups) so the census focused on the last financial period that all PCTs existed as legal entities (i.e., the period from April 2011 to March 2012).

| Delivery Profile By PCT: April 11 to March 12   | Type 1 |       | Type 2 |       |
|---|--------|-------|--------|-------|
| Delivered Structured Education.                 | 41     | 27.0% | 71     | 46.7% |
| Delivered Structured Education via other Trust. | 25     | 16.4% | 16     | 10.5% |
| Did not know or did not deliver.                | 86     | 56.6% | 65     | 42.8% |

**Table 2: Summary of the Census Profile.**

The final element of this study examined the thoughts of HCPs in relation to the delivery of structured education within their given PCT. The objective was to identify why they did what they did and their consideration of patient's needs. A theoretical saturation approach was used, it targeted PCTs that provided good and bad services in alternate stages (these good and bad services related only to the provision of structured education and were based on the perceptions of the patients that were interviewed). Theoretical saturation was achieved after 12 interviews (note: of the 12 interviewed, a total of 27 PCTs were contacted but as seen, 15 stated that they did not want to participate). The core theme identified was 'financial constraints': this was the primary reason why each PCT operated the way they did. This completes the analysis of results; the paper will now discuss the implications for these findings.

### **Discussions and Conclusions.**

The results identified from the census provide some explanation to the concerns identified by Diabetes UK. The level of engagement with diabetics is not consistent across NHS England. Many PCTs had taken the decision to ignore the national programmes and delivery their own local variants, which had no clinical evidence to support it. A key reason for this disparity was the lack of financial support being offered to the departments. These disparities included an inconsistent range of services being offered across the country, which arguably causes inequalities in the quality of services being offered. This despite the National Service Framework giving clear guidance on how diabetes should be managed.

Looking at each element of the PPCT model we can also see that the 'person' aspect plays an important part of the behaviour change process. Arguably, the use of the bio-ecology theory could help social marketers identify the key segments they need to focus on. It can also be used to test scenarios through research. Interestingly the comparison of genetically different bodies (i.e., Type 1 and 2 diabetics) identified that Type 1 diabetics were more likely to engage in the change programmes ( $p > 0.001$ ). Detailed discussions with the participants identified that this condition required immediate behaviour changes otherwise major medical complications would ensue, this was the main reason why Type 1s were more engaging. Whereas those with Type 2 would not experience complications until many years later: these individuals were happier to take more risks. Knowing this could help social marketers decide on the appropriate behaviour change theories to incorporate within their programme.

A snapshot of those individuals living with diabetes also illustrated a range of reasons why individuals choose to engage or not with structured education. It demonstrates that the bio-ecological theory is an ideal way of identifying the good and bad practices that can enhance or detract social marketing campaigns. In this example, we can see that the process of providing courses only during a week day between 9am and 5pm was a major factor in explaining why certain groups chose not to engage with the courses. The primary reason why certain PCTs elected not to employ flexible programmes, i.e., ones that had the option of evening, weekend and day sessions, was down to the financial restrictions within their departments. This demonstrates that the exo system (an element within the 'context' category of the PPCT model) plays a big part in shaping the way individuals see the 'process' (or the social marketing campaign). There were however inconclusive elements to this report: the macro system, which the study had hoped to investigate cultural and social standing differences remains inconclusive. The research process was not able to recruit a representative number of individuals from the South Asian community or those who were classed as long term unemployed (i.e., greater than 12 months). Those issues identified in the pilot study regarding language specific courses and reaching individuals in the 'hard to reach' categories could not be investigated. It is concluded

that the wrong sample frame was used for this group. Finally, the aspect relating to the ‘time’ element was also deemed to be inconclusive: it had been proposed from the discussions in the pilot study that the longer more detail courses would encourage more behaviour changes because participants would gain a better reinforcement of the required changes. The study identified that all participants could not articulate any benefits of attending a longer course, but it must be said that all these individuals only had experience of ever attending one type of course, so it may be that further studies are required with participants who can rate the different courses after attending them.

In conclusion, unlike the ‘traditional social marketing’ process, elements of the bio-ecology theory can be used as a post hoc or a-priori analysis of the likely events. It provides a new way of segmenting the target market, albeit the focus is on genetic differences, which will be more relevant to healthcare issues only. The theory introduces the concept of time, which Bronfenbrenner (2005) believes will have a significant impact on future behaviour profiles. Most importantly it provides social marketers with the opportunity of developing and/or accessing campaigns/programmes over a wider ecological domain as opposed to just focusing on the individual that requires the behaviour change.

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