

SICAP Case Study 2019

First Steps Car Mechanics & Driver Safety Programme

Young Mechanics Build Engines From Dreams









Rialtas na hÉireann Government of Ireland



First Steps Car Mechanics Programme

Local community creates a steppingstone towards apprenticeships & employment.

This case study is based on Goal 2.3 – Youth Development & Family Support. The target group is Disadvantaged Young People , who are hard to reach, disengaged from the education system and/or at risk or disengaging from the education system and the Unemployed. This programme was chosen as it clearly demonstrates the critical role SICAP plays in creating, delivering, and supporting participation in essential programmes. The case study sets the context, tells the historical story, shows how the need was identified and describes the process undertaken to achieve the goal. It highlights the productive and successful collaboration between North Tipperary Development Company (NTDC) and Tipperary Educational Training Board (TETB) in the development, design, and delivery of the First Steps Car Mechanics Programme.

Newport town is located in the South West of North Tipperary and has a population of 1,995 people. Encompassing the rural countryside of the Electoral Division (ED) of Newport, which extends beyond the town, the total population in the wider ED geographic area is 2,995. The town lies on the border of Tipperary and Limerick. Limerick City (10 miles) is its closest urban centre and the town of Nenagh in Co Tipperary (17.5 miles), with public transport to both being very limited.

Newport has been part of the regeneration project of Limerick City. It offers people and families an opportunity for rural living with reasonable house prices and easy distance for commuting. Between the years of 2001 and 2010 the population doubled and continues to grow, with 9.39% of the people in the town between the ages of 15-24 (2016 census). Parts of the town are categorised as "affluent" while surrounding a smaller area which is categorised as "disadvantaged" as determined by Census 2016 with a deprivation score of -19.60.



Diagram 1 (Pobal, 2019)

North Tipperary Development Company (NTDC) formerly North Tipperary LEADER Partnership (NTLP), via the Social Inclusion Community Activation Programme (SICAP), has historically worked in the area and previously developed a 5-year plan where a number of strategic priorities were identified, one of which was Combating Early School Leaving.

In 2013/2014 in response to the identified priority Combating Early School Leaving the development of the Youth Car Mechanics course began. This was instigated by a local mechanic and the SICAP community development worker based there at the time. The main target group was young men who had left the

educational system or were at risk of leaving school early. There was a good relationship existing between the local mechanic and the young men in the area which the development worker continued to build on.

The programme originated with the objective of using practical car mechanics as a tool to engage young people with learning. Much of our education system takes place in a formal classroom environment, which poses challenges for participants with active, practical intelligences, or who are disengaged with more mainstream settings. (Gorman, 2018)

As the mechanic said

"it was important to find something for the young people in town to do, especially the ones inclined to get into trouble" "it is a place to entice them to learn out of the school environment... they have an opportunity to move onto an apprenticeship, work or go back to school".

Initially the mechanic gave his time voluntarily to teach what he knew to the participants. NTLP recognised the significance and value of the work he was doing and reviewed the budget and additional funding was allocated to the programme. In later years, he successfully was placed on the ETB tutor panel.

The SICAP worker and the mechanic designed the modules for the Four Stroke Car Engine Maintenance course. it was important for participants that the course have merit and they successfully achieved Fetac Level 4 certification. Many young people are interested in cars, car mechanics, maintenance, and performance. It is noted that the majority of accidents involve young people aged between 17 - 25 years. For this reason, car safety and safe driving was included in the programme. During the delivery of the course there was space and time made to accommodate visits from the Fire Dept. and Gardai who spoke about the accidents they have responded to and showed photos of some of the cars involved in accidents.

A prefab was sourced, and the course started with 8 students. The course proved to be very popular and before long there was a waiting list for the following term. Identified at this time was the low level of literacy of some participants, and the challenges that brought with it to complete the portfolio for certification. The SICAP development worker approached the Tipperary Educational Training Board (TETB) who were very happy to collaborate on the initiative and provide a Literacy support tutor to support this element of learning.

Unfortunately, in 2016 a health and safety inspection deemed the prefab to be unsuitable due to lack of ventilation, so the course had to be stopped. This was disappointing for the young people on the course and those who were on the waiting list, as all participants were very passionate about working with cars / engines. The positive impact of participating in the Car Mechanics was evident even though the course was only running 3 years, some of the participants had found work in garages, been accepted for apprenticeships and others had returned to education through different programmes such as Youth Training Centres. One former student said of his time on the course

"I was never able for school, I wanted to be outside doing stuff, sometimes getting in trouble. Mikey was great, I learnt how to strip the engine and how to look after it. I got stuck into it and after it was finished I got my apprenticeship. The course was a second chance and all lads need that."

In the annual work plan for the 2018 SICAP programme, restarting the Car Mechanics Programme was set as a priority and specific staff were assigned to develop the programme. To get the programme up and running it was essential to continue the collaboration with the TETB. The partnership had been very successful, and the ETB were very interested in continuing it. After conversations with the coordinators of the various programmes in the TETB, it was agreed the Adult Learning Service was the most appropriate. The Adult Learning Service were equally committed to providing the programme and assigned a specific staff member to be part of the working group set up to develop the programme, which included the SICAP worker and the mechanic.

The partnership / SLA between NTDC and TETB was agreed outlining the roles and responsibilities of each agency. The TETB would be providing 2 tutors, one to teach the Car Mechanics, and a Literacy support tutor to meet the needs of some participants to complete the portfolio. This approach was necessary to support all elements of the learning process for the students. The mechanic who had been the tutor of the course had been successful in getting placed onto the TETB tutor panel, and this was vital as he had a rapport with the young lads in the town, they would meet him on the street and ask to be put on the waiting list for the course. He had approx. 12 names for when the course was ready to start back. The funding of the programme was shared equally between the agencies. SICAP"s role was very involved in all elements of the programme and included

- Source a new premises that would pass Health & Safety checks, be affordable and appropriate for the practical learning, desk top learning and outdoor experiential learning needed.
- Collaborate with the TETB to find a programme with a suitable target group that would meet the requirements of SICAP and the TETB
- Using an interagency approach to help identify potential students. Linking in with the 2 local schools, Community Substance Misuse Team, Tusla, Restorative Justice, Youth Services, Gardai, Tipperary County Council, local community groups eg Tidy Towns etc.
- Link with other NTDC programmes to identify participants, Tus, Youth Service, Family Support.
- Sourcing potential participants from across the SICAP goals mainly Work Readiness and Work Planning and Career Support
- Hosting two information and registration session in the local community centre where the worker and tutors got to meet and talk to parents and potential participants
- Promoting the course e.g. social media, posters in local shops, leaflet drops in local estates and mailshot via email data base
- One to one on the ground engagement with the young people
- Creating the appropriate administrative resources needed
- Creating the appropriate consent and registration forms needed for under 18"s
- Gaining appropriate insurance indemnity from the landlord, tutor for his equipment, and the TETB
- Meeting with the potential student to register them and assess that they were SICAP and ETB eligible

A number of premises were inspected and a potential one was found. The overall coordination of the building to ensure it was of the correct standard was the responsibility of the SICAP worker. On the first Health & Safety inspection there were many issues identified which had to be addressed, such as trailing cables, no correct signage, no heating, incorrect lighting, broken sockets, no hot water etc. All parties including the landlord took responsibility for different aspects and all issues were address successfully.

Another challenge at this point was to ensure all elements of the course could take place. There is a point in the curriculum where the student and tutor need access to a running engine, with adequate ventilation to learn/run engine diagnostics. This was a crucial point in the process, lack of ventilation was the reason the classes were stopped previously. A testament to the commitment of the tutors was demonstrated in the solution they found to this problem. The student and tutors actually sat in a car, one tutor recording the class session for the portfolio, and the other tutor and student carrying out the class session. Fumes and ventilation were not then an issue.

The mechanics tutor had over time build up a supply of engines, stands and tools that were necessary for the ripping and rebuilding of the engines. NTDC and TETB could not carry responsibility for insurance as the equipment was his property. The tutor had to take out his own insurance covering his equipment, he found this very challenging and the SICAP worker on his behalf made numerous enquiries to a lot of companies. It was difficult to find an affordable policy but with perseverance one was found.

The TETB staff member and the mechanics tutor reviewed and updated the course material, power point and workbooks for "The First Step Car Mechanics and Driver Safety Programme".

The programme is designed to introduce participants to the basic of car mechanics, good workshop practice and safe driving skills. This would be of interest to the general learner and those who wish to go on to further mechanics related training, plus it could serve as a pre-apprenticeship programme. The programme uses primarily a practical, learn-by-doing approach. A course booklet, participant workbook, and tutor handbook have been developed primarily as companions to a practical workshop-based course. The booklet is written to take into account learning or literacy difficulties the participants may have. (Gorman, 2018)

PROGRAMME AIMS

- To provide a sound base and foundation of learning in motor mechanics and safe driving, that will afford the Learner the opportunity to progress to other programmes
- To develop good workshop and safety practices in relation to Motor vehicles
- To enhance the Learner's confidence in their abilities to use their skills to reach their potential

THE OBJECTIVES OF THE PROGRAMME ARE TO ENABLE LEARNERS

- To develop good workshop and safety practices, and apply appropriate health, safety and personal hygiene procedures when servicing and maintaining a 4 stroke engine.
- To be able to carry out the removal, dismantling and reassembly of a 4 stroke engine using the appropriate tools and equipment, repairing or replacing worn or damaged parts, and carrying out adjustments during the refitting and running of the engine
- · To operate safely and maintain tools and equipment
- To experience a positive training environment, and develop the personal, social and learning skills necessary to undertake further training, for example motor apprenticeships.

Diagram 2 (Gorman, 2018)

Also included was a visit to the TETB Apprentices Training Centre in Archerstown, Thurles. there the car mechanics participants met a tutor who gave them a talk on how the apprentice training works and also a tour of the centre, they also heard from current apprentice participants on their personal experiences.

Initially the programme ran as a pilot in Autumn 2018. There were 10 participants, it was delivered over 10 weeks, with 2 classes a week @ 3 hours a sessions. Feedback from the tutor in the first 2 weeks was mostly positive but they were experiencing a challenge, there was disturbance from the street each night since the course started. There were local teenagers knocking on the door and running away. To address this the tutors covered the glass on the door, and this made the situation worse. They then

took the covering off the door for last hour of class the following night and this seemed to work as they had no more disruption after this. The guards were aware of the class going ahead and the disturbance that was happening and they did some extra patrolling. The disturbance was off putting for the tutors and thankfully stopped

The participants selected met both the Adult Learning Service and came from across SICAP"s target groups

- Disadvantaged Young People (15-24)
- The Unemployed
- Emerging Needs (Newport)
- Low Income Workers / Households
- New Communities
- People Living In Disadvantaged Communities
- The Disengaged from the Labour Market (Economically Inactive)

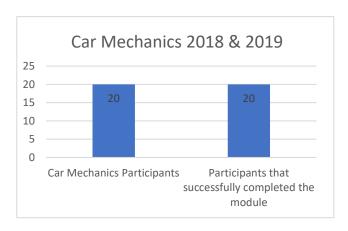
Statistics have been taken from IRIS to demonstrate how the programme aligned with many of the SICAP Programme Requirements and KPI"s (IRIS, 2019)



(IRIS, 2019)

Attendance at the programme was excellent, and all participants completed the course. The commitment, interest and reliability of the participants was underpinned by their desire to attend which varied from person to person. Some are listed below.

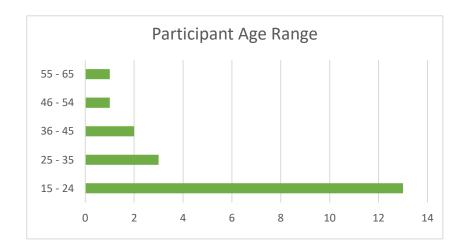
- Wanting to be a car mechanic apprentice
- Wanting to be an aeronautical apprentice
- Knowledge for self and family use
- Familiarity with language and components of an engine to help get a job in an auto parts shop
- A trained mechanic in another country and wishing to get a recognised qualification in this country



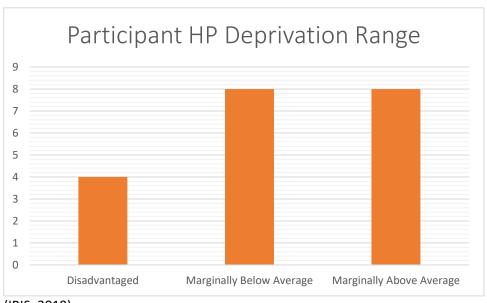
(IRIS, 2019)

There were some unexpected challenges for participants for example, a young man living in a neighbouring village was initially going to drive himself, but he did not have the funds to get his car roadworthy and his mother drove him to each class. Another young person who had been waiting since the course finished was not able to participate because he was now living in Nenagh and was not able to get transport to Newport. This young man went onto the waiting list for the next course as it was his intention to move back to Newport with other family members. There was also 2 young men who were on the waiting list who were only 14 and they were put on the next waiting list.

Participants varied in ages which brought an added learning dimension, an example of this intergenerational aspect is the valuable exchange of experience from the older to the younger and the transfer of new technology learning from the younger to older. This worked very well and there was a tangible respect from participant to participant. This was also a challenge because participants would be under and over 18 years. The SICAP worker created a parental consent form which highlighted that there would be participants over the age of 16 attending the classes and that there would be two tutors present at all times. It also stated that should a tutor deem a young person to be at risk, they will implement our child protection policy (a copy of which was available on request)



(IRIS, 2019)



(IRIS, 2019)

The course included a trip to the Apprenticeship Centre in the town of Thurles, this outing gave the participants an enthusiasm, something to focus on and encouraged them to plan for their future. Included in the course were guest speakers form the ETB giving a talk on continued further education pathways and from SICAP talking about career development opportunities and work readiness supports that are available in the team. Through the 10 weeks the SICAP worker worked closely with the participants to develop their action plan and build the steppingstones to achieve their goals. Further progression of the participant was captured via the 6 month follow up after exiting the system this gave the opportunity to check in with and discuss positive outcomes and challenges that the participant was experiencing. Following are where the participants had progressed to:

- car mechanics apprenticeships
- had returned to mainstream school and were intending to complete their Leaving Cert
- were employed as car mechanic
- other training courses via Work Readiness
- were using the knowledge and skill to maintain their own and family member vehicles
- increased self-esteem and self confidence
- increased knowledge of local services

The development and sustainability of the car Mechanics Programme would not have been as successful without the persistence of the SICAP team, the partnership with the TETB / Adult Learning Service, the local community of Newport namely Michael O Gorman the mechanic, the schools and the young people themselves who knew where their interest and passion was and followed it with such drive and enthusiasm that was inspirational to all involved.

The participants gave honest feedback via the evaluation forms which have been complied in Appendix 1.

Following are quoted from 3 participants, TETB/Adult Learning Service and SICAP

"I never thought how it was for them when they are called to an accident" "seeing them photos was horrible" participant on the visit by the Fire Officers

"I always wanted to work on engines, and I am delighted that I am now going in to 2nd year apprentice, doing the course with Mikey, I learnt loads that has stood to me" Participant who is now on a car mechanics apprentice

"it is good I did the course, I can look after my car better" Participant who has returned to school

"Key to the success of the programmes is the collaboration between people, willingness to make it work and commitment to excellence. Successful completion of the QQI module by all participants attests to this." Ester Mackey, TETB, Adult Learning Service

"It was a great achievement for the SICAP team to bring this programme to life again, with the drive, enthusiasm and expertise of all involved. It really is a worthwhile programme and gave more than a skills set, it supports people to be who and what they want to be." Margo O Donnell-Roche SICAP worker

"A combination of commitment from dedicated tutors with a passion for their subject, blended learning by participants involving classroom study, practical hands on work and field trips lead to the successful outcome of this course." Mary Jo Kennedy Deegan, TETB, Adult Learning Service

After the pilot, the working team came together to review how the pilot went and to consider the next steps. Overall, both agencies agreed that the pilot was a success, it exemplifies the importance and effectiveness of collaboration. The positive experience for the working group, the tutors, the participants, and the community far outweighed the challenges experienced and all agreed that the partnership should continue. The challenges faced were dealt with efficiently eg. the disturbance of local teenagers, and issues like ventilation and insurance were now organised. Lessons learnt for going forward was the need to streamline registration, as it is a requirement of both services, some process needs to be agreed to make it as easy as possible for participants. Both agencies agreed the venue worked out very well, having two tutors was essential, bringing in the guest speakers was successful and the trip to the apprenticeship centre was worthwhile. Equally the agencies agreed that a lot of good work had been put in by everyone and a successful model was there now that could be rolled out elsewhere in the county. Plans were laid to run the course again in the Autumn and the waiting list was already had a number of names on it. The certification of the participants would take place early 2020.

All involved were delighted with the outcomes and were looking forward to the next run in the Autumn.

Appendix 1

Complied evaluations 2019

How would you describe the support/help you were given on this programme?

- Fairly good not long enough to learn more.
- Very helpful x2
- Great x 3
- Was very helpful when you don"t understand they explain clearly.
- Excellent x 2
- Very helpful, explaining of something is not clear.

	-	
How would you rate the course	Excellent	7
as a whole?	Good	3
	Fair	Х
	Poor	Х
Did the course meet your	Fully	6
expectations?	Mainly	4
	Partially	Х
	Not at all	Х

If not, please explain why:

- It could be improved by showing how car brakes and steering works.
- If we could learn about other parts like steering, brakes and car safety and more radiators.
- Could be improved by adding brakes and steering. Road safety and car safety.
- Very informative with excellent tools and equipment at hand.

Please give examples of how this course has helped you in your work:

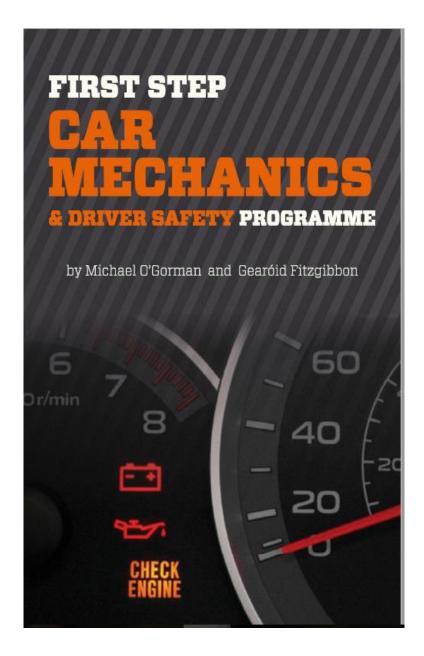
- I undertook the course to get an appreciation of engines and how they work. My expectations were fully met.
- Learned more about engines that I didn"t know.
- It has expanded my knowledge on the internal workings of a combustion engine. How valves work and how to replace and seal new ones.
- Better understanding of engines
- I now have a better understanding of how an engine works. It could be improved if we learned about the braking system, steering and suspension and road and car safety.
- I know how the engine works. It could be improved by adding the brakes, steering and suspension etc.
- Helped me focus on one task at a time and gave me a better understanding of machinery.
- I now understand the workings of an engine and the components and their role.
- Helped to understand better about engines.
- Have more understanding about engines.

Overall comments on course

overall comments on course					
	Poor	Fair	Good	Excellent	
Standard of Presentation			1	9	
Course Content			6	4	
Equipment		1	6	3	
Handouts / Notes			2	8	
Room, Accommodation			4	6	
Discussion / Participation			1	9	
Practical Sessions			2	8	

Appendix 2

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Appendix 3

Photos of the building,
the classroom and
participantsworking on the engine











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Gorman, G. F. (2018). First Steps Car Mechanics & Driver Safety Programme.

IRIS. (2019). IRIS.

Pobal. (2019). *Pobal Maps*. Retrieved from https://maps.pobal.ie/