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From the Workshop to the Classroom - Examining Apprentice Perceptions

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From workshop to classroom: examining the perceptions of Phase 4 apprentices in Dublin Institute of Technology, Dublin

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1. INTRODUCTION

There were 12,000 apprentices registered in Ireland in 2017, an increase of 19% in the number of apprentice registrations that occurred between 2015 and 2016[1]. It is envisaged that this will grow to a cumulative target of 31,000 apprentice and traineeship registrations by 2020. The Irish government has reiterated its commitment to apprenticeships and how they form a central plank of the Further Education and Training Strategy. There are currently 36 apprenticeship programmes, with a further 47 at approval seeking stage [2].

This increased investment in apprenticeships is happening at a time of significant change in the apprenticeship programme itself. The curriculum for certain craft apprentices (Metal Fabrication and Heavy Vehicle Mechanics) has changed recently to include the introduction in September 2017 of Communications and Leadership modules in the Phase 4 programme [3].

A research group of Faculty who teach apprentices has examined the perceived experience of Phase 4 apprentices in two trade areas – Metal Fabrication and Heavy Vehicle Mechanics.

This paper aims to identify both positive and negative perceptions of apprentices' experiences as they engage in modules (workshop and classroom based) in the Dublin Institute of Technology (DIT). Following on from the analysis of interviews with a group of current Phase 4 apprentices, a survey was created and administered to a larger group from the same apprentice trade areas. The interview and survey analysis, combined with a literature review exploring what has been written on this topic to date, will propose an answer to the question of whether these apprentices have a positive or negative perception of their learning experience in Phase 4 in DIT.

1.1 THE IDEA OF APPRENTICESHIPS

Apprenticeship is defined as 'a contract of employment and training....it involves a substantive training programme both on the job, in the company and off the job, by a training provider' [4]. Solas is the body that holds statutory responsibility for the management of the National Apprenticeship System in Ireland [5]. The Irish Standards Based Apprenticeship (SBA) consists of seven Phases, with overall duration of 4 years training as shown in *Table 1* below [2].

Table 1 Apprenticeship Phases

Phase	Location
1	Workplace
2	Solas Training Centre
3	Workplace
4	IoT/DIT
5	Workplace
6	IoT/DIT
7	Workplace

Phases alternate between a workplace and an education centre. Phase 2 is in a purpose built training centre, while Phases 4 and 6 are in a third level Institute (Institute of Technology - IoT)

The current qualification of the National Craft Certificate is placed at Level 6 (the equivalent of a two year full time course at third level) on the Irish National Framework of Qualifications scale [6] and is therefore recognised nationally and internationally. Apprenticeships can now also be awarded up to Level 8 in Ireland [2].

2. METHODOLOGY

This section of the paper outlines the methodology applied to answer our research question, i.e. *Do Phase 4 apprentices perceive their learning experience at DIT to be either positive or negative?* Included are the details and justification of the research method used; the profile of the participants; the research protocol, ethical considerations and how the results were obtained and analysed.

2.1 Research Methods

This study utilised a number of methods, namely a qualitative approach in the form of one-to-one interviews conducted by Faculty members, some of whom lecture on apprenticeship programs, and follow-up quantitative/qualitative research by means of an anonymous online survey. Given the complex nature of apprentice perceptions the qualitative approach was applied first to gather insights on the “how” and “why” of apprentice experiences in order to enable common themes to be identified. No Faculty members interviewed their own students. The quantitative approach was to investigate whether these identified themes or issues could be generalized to the larger apprentice population. As it was anticipated the information may be sensitive, the online survey was anonymous and only general profiling data was gathered from participating apprentices as outlined in the next sub-section. The information provided by interview and surveys was supplemented with a literature review to identify recent research in Ireland and globally on apprenticeships, and apprentice perceptions. This approach is similar to that taken by Greenbank [7] and Winter and Dismore [8].

Interviews lasted on average 15-20 minutes. Prior to the commencement of the interview students were asked to read an information sheet outlining the parameters of the study and they also signed consent forms. It was clearly stated that they could conclude the interview at any stage.

Howieson’s research on the student’s experience of transition [9], provided a useful source for the online survey format. There were 10 questions in total, with initial questions designed to gather information on student profile. Most questions were structured with a comment section provided for respondents to explain or justify their selection. A final open-ended question required students to suggest what the DIT could do to improve the participant’s experience in Phase 4. All apprentices currently studying on Phase 4 received an email requesting them to participate in the anonymous online survey. The quantitative data received from the survey was exported and a graphical analysis was completed. The comments provided to support the selection made by the apprentices was examined in order to help understand their responses more thoroughly.

3. WORLD CLASS APPRENTICESHIP PROGRAMMES

Before examining the perceptions of current apprentices, it is worth assessing what it is that distinguishes a world class apprenticeship programme from others.

In a review of apprenticeships in Ireland, carried out by the Department of Education and Skills, it was established that new apprenticeship programmes should not be unduly narrow or specialised, but be designed to prepare participants for broadly based sustainable and durable careers. In a recent report by Mieschbuehler and Hooley [4] in World-class apprenticeship standards, it is suggested that world-class apprenticeship standards require (inter alia), apprentices to acquire all the skills and knowledge necessary to work effectively in an occupation.

The report notes that in well-functioning apprenticeship systems, there are a number of desirable conditions which support the delivery of world-class apprenticeships, including, good off-the-job training provision that supplements scientific and industrial skills and knowledge with a broader education that enhances, for example, an apprentice’s knowledge in inter alia, communication.

World class standards demand training that exceeds the immediate job role. Consequently world class apprenticeship standards ensures that apprentices have broad skills which support their long term employability.

All of the above research may help to explain the rationale for the broadening of the curriculum. As do the findings of a study published by the UK Skills Funding Agency (SFA) 2015 [10]. In the SFA report, employers were asked, “what employability skills and attributes does your company typically expect higher apprentices to have when they start a higher apprenticeship at your company?”, 37% of respondents answered writing skills, while 65% answered communication skills. Surprisingly, only 25% of respondents said that they expected technical skills relevant to their company’s sector – possibly because this is expected as a minimum.

4. RESULTS

4.1 Participants’ Profiles

Apprentices enrolled in the 2017/2018 academic year Phase 4 stage of the Metal Fabrication (MFA) and Heavy Vehicle Mechanics (HVM) apprenticeship programs were considered. Previous research by Bates [11][12] had concentrated on Phase 6 Painting and Decorating Apprentices.

The total cohort available was 32 apprentices across the two craft areas. Apprentices were asked to volunteer to participate in the face-to-face interviews. Numbers participating are shown in Table 2 below. Overall, 14 apprentice volunteers were separately interviewed (44%) and 9 apprentices took part in an online survey, giving a response rate of 28%.

The number of apprentices who participated is shown in *Table 2* below.

Table 2 Number of apprentices participating

MFA		HGM	
Interview	Survey	Interview	Survey
6	9	8	0

The numbers participating in the online survey were lower than anticipated. Unfortunately, no HVMs took the online survey. This is interesting in itself and may be an issue of timing – the survey is best taken when apprentices are close to the end of their Phase, but not so close that they are engrossed in exams and assessments.

All participants were male, white ethnicity with a minimum qualification of Leaving Certificate Applied – most had their Leaving Certificate, the final exam in an Irish secondary school.

Interestingly, while 29% of participating apprentices said they had a learning disability, only one had registered with the DIT Disability Service.

The areas in which participating apprentices worked were varied and included light/structural engineering, boat yards, Irish Rail, Dublin Bus and other transportation companies.

4.2 Participants' Satisfaction Levels

Apprentices' levels of satisfaction and dissatisfaction were captured in both the online survey and in interviews.

In the online survey, 44% of the metal fabrication apprentices expressed that they were quite positive about the course, whilst 56% said that they were not positive about the course.

The areas in which apprentices expressed satisfaction and dissatisfaction during interviews are shown in Figure 1 and Figure 2 below.

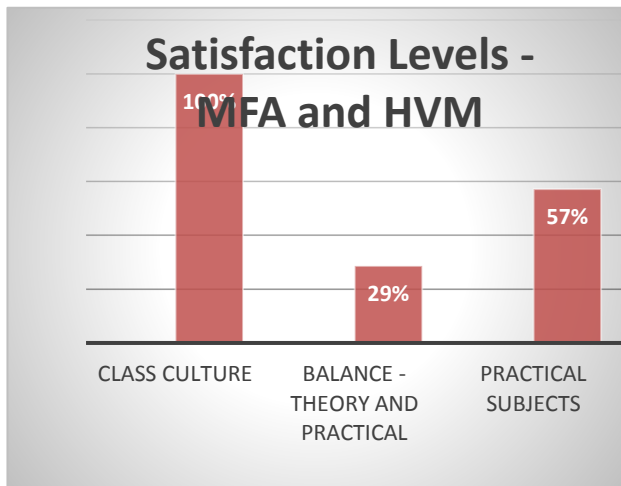


Figure 1 Levels of satisfaction among Phase 4 apprentices

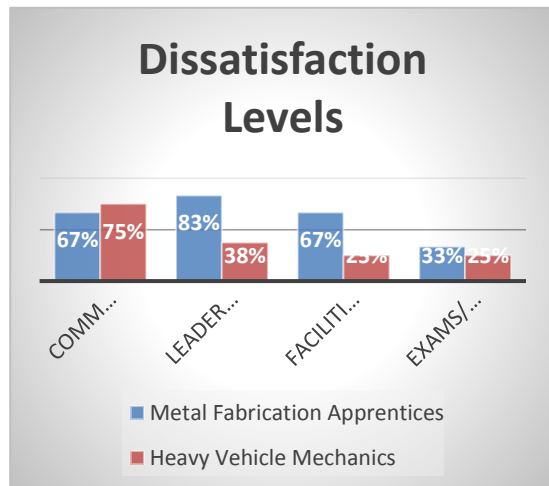


Figure 2 Levels of dissatisfaction among Phase 4 apprentices

Satisfaction was expressed by both groups with regard to culture in the class, and in general with the lecturing staff.

29% of participants were happy with the balance of time on Phase 4, split between practical and theory subjects.

As anticipated, 57% of the participants said they were satisfied with, and enjoyed the practical subjects. Welding and technical drawing were mentioned in particular.

The theme areas in which apprentices expressed dissatisfaction will at this stage, be highlighted and the level of dissatisfaction quantified. A more in-depth analysis will follow in the Analysis and Discussion section.

The highest level of dissatisfaction was expressed with regard to the Communications module (67% MFA and 75% HVM) and the Leadership module (83% MFA and 38% HVM).

Some dissatisfaction was noted with regard to facilities and workshops by both craft areas – 67% MFA and 25% HVM expressed some levels of dissatisfaction. It is notable however, that the highest level of dissatisfaction was observed in the MFA group.

This was in contrast to the replies received from the HVM participants, the majority of whom stated that facilities and resources were not an issue. The issue of long days however, was raised by this group.

Dissatisfaction was expressed by 25% HVM participants and 33% MFA participants with regard to exams and assessments. MFA participants expressed some dissatisfaction in lack of time spent practising past exams. Comments made by HVMs included ‘all assessments are run at the end’. This was considered to be ‘too much’ from a time perspective and a suggestion made that they be ‘spread out’.

5. ANALYSIS AND DISCUSSION

The question this paper set out to answer was: do Phase 4 apprentices perceive their experience at DIT to be positive or negative? This question was analysed using qualitative and quantitative data, and was examined under several themes. These themes derive from apprentices’ comments collated during interviews with faculty, and from an online survey, and they now provide a useful framework for discussion of the results.

5.1 Theme 1 - Content

As anticipated, 57% of the participants said they were satisfied with, and enjoyed the practical subjects. Welding and technical drawing were mentioned in particular.

The highest level of dissatisfaction was expressed with regard to the Communications module and the Leadership module, and this was common to both craft areas – 67% MFA and 75% HGM expressed dissatisfaction with these modules.

Comments made in relation to these modules included ‘too much time is being spent on this’, ‘it takes time away from other modules like CAD and welding’, ‘there is no application for this’ and ‘it’s not what we are here for’. One student noted that he could ‘see the relevance’ but would probably do a relevant course later on.

It was observed that these two modules, Communications and Leadership, were referred to as one module by almost all apprentices, i.e. they did not distinguish one from the other even though they are separate modules, each with different content. This might suggest a general bias against these modules, causing the participants to close their minds to the modules *before* they take them, to the extent that they do not see the difference between them, or indeed the relevance of these modules from an employer’s perspective.

The negative comments regarding these modules contrast with the fact that almost 30% of participants were happy with the balance of time on Phase 4 split between practical and

theory subjects. They also contrast with other positive comments made. One apprentice commented that he enjoyed getting a 'broader perspective' on his craft area, and another, that he enjoyed learning the 'theory behind the practical tasks'. Their comments reinforce the research on what constitutes a World Class Apprenticeship Program [4]. However, the negative comments suggest that participants do not see Communications and Leadership modules as 'theory' that is relevant even in the broader sense to their role in their craft area. This may again be caused by bias, by the content of the modules or their current career level, where the relevance of 'softer skills' is not yet obvious.

5.2. Theme 2 - Facilities

Some dissatisfaction was noted with regard to facilities and workshops by both craft areas. It is notable however, that the highest level of dissatisfaction was noted amongst the Metal Fabrication Apprentices (MFA) with 67% of participants expressing dissatisfaction, versus 25% Heavy Vehicle Mechanics (HVM) participants. Comments from the MFA group included 'not enough welding equipment for 16 students' and concerns were expressed regarding the quality of equipment. These comments again contrast with positive comments made by MFA that they enjoy and are mostly satisfied with the practical subjects in their program. They also contrast with comments from the HVM participants regarding facilities which were mostly positive and included 'well equipped workshops'. The contrast between both groups suggests that the MFA group have suffered the effects of wider budgetary issues. Indeed, it has been confirmed that this group are in the process of ramping up investment again after several years of under-investment.

However, dissatisfied HVM interviewees noted that 'chairs are hard' and there are 'not enough computers' in one of the classrooms. Also, the issue of long days was raised by almost 38% of the participants.

5.3. Theme 3 - Culture

A high level of satisfaction was noted with regard to classroom culture, with 100% of participants (MFA and HVM) answering this question positively in interviews. Satisfaction was expressed by both groups with regard to culture in the class. Comments in this regard included 'we all get on', 'we mix well' and 'good atmosphere'. One reason given for this was that the classes are small. Comments regarding lecturers were also, in general, positive and included 'lecturers are knowledgeable, and 'lecturers are easy to talk to'.

6. CONCLUSIONS

Various reports have shown the necessity for a broader curriculum in World Class Apprenticeships so that apprentices can acquire all the skills and knowledge necessary to work effectively in an occupation [4]. Indeed, a study of employers' experience of higher apprenticeships [10], shows a strong requirement on the part of employers for not just technical skills, but a broader range including writing and communications skills.

The purpose of this paper is to investigate, in the context of recently introduced changes to the Phase 4 curriculum [3] and significant commitment to apprenticeships on the part

of the Irish government [1], Phase 4 Metal Fabrication (MFA) and Heavy Vehicle Mechanics (HVM) apprentices' perception of their learning experience on Phase 4 in DIT.

Apprentice perceptions were examined under three common themes - content, facilities and culture.

Examining the content theme, satisfaction was expressed with regard to practical subjects (welding and technical drawing), and dissatisfaction with the Communications module and the Leadership module, and this was common to both craft areas – clearly at odds with employer requirements

It is suggested that a bias may exist that blinds the apprentices to the benefits of these modules, and the difference between them, even before they take the modules. This bias may be as a result of age – 67% of participants were 20 -23 years of age, and/or experience levels. A further study could clarify whether or not a bias exists, and from where the bias stems. Additionally, a further study could examine the relevance of the content of these modules.

Examining the facilities theme, varying levels of satisfaction were identified between the two craft areas, with 67% MFA participants expressing dissatisfaction versus 25% HVM participants with facilities and equipment. It is suggested that the issue with the MFA group is one of investment in facilities. Indeed, significant funding has recently been approved by the Higher Education Authority to upgrade equipment in this area and new equipment is currently being commissioned [13].

Finally examining the culture theme, high levels of satisfaction (100% of participants) were identified with classroom culture and collegiality. It is suggested that reasons for this may include small classes (16 students) and the approachability of lecturers – both of these points were highlighted by participants.

In summary, and to answer the question posed, participants have both positive and negative perceptions of their learning experience on Phase 4 in DIT. Positive perceptions were identified with regard to some facilities, culture and some content, negative perceptions with regard to the recently introduced modules Communications and Leadership.

Further research areas include:

- Can the findings in this small study be generalised across other craft areas, in other locations? Expand this research out to other craft areas and to other phases.
- Is there bias with regard to Communications and Leadership modules in the craft areas?
- What are employers' perceptions of the newly introduced Communications and Leadership modules?
- Why are apprentices who state they have a disability not registering with the Disability Services at DIT?

REFERENCES

- [1] <https://www.education.ie/en/Press-Events/Press-Releases/2017-Press-Releases/PR17-12-08.html> accessed 23 April 2018
- [2] <http://www.apprenticeship.ie/en/apprentice/Shared%20Documents/List%20of%20Apprenticeships%20in%20Ireland.pdf> accessed 23 April 2018
- [3] [http://solas.ie/metal fab curriculum rev4.1.pdf](http://solas.ie/metal%20fab%20curriculum%20rev4.1.pdf) accessed 22 April 2018
- [4] Mieschbuehler, R. and Hooley, T. (2016) 'World-Class Apprenticeship Standards: Report and Recommendations', Derby and London: International Centre for Guidance Studies (iCeGS), University of Derby and Pearson Education UK
- [5] <http://solas.ie/SolasPdfLibrary/Monitoring%20Ireland's%20Skills%20Supply%20Report%202016.pdf> accessed 14 Nov 2017
- [6] <http://www.nfq-qqi.com/index.html> accessed 23 April 2018
- [7] P. Greenbank, "From foundation to honours degree: the student experience," in *Education + Training*, vol. 49, issue 2, 2007, pp. 91-102
- [8] J. Winter and H. Dismore, "Investigating the experiences of foundation degree students progressing to an honours degree: an integrated approach," in *Journal of Further and Higher Education*, vol. 34, No. 2, 2010, pp. 253-270.
- [9] C. Howieson, "Students' experience of the transition from HN to degree study 2011-12," University of Edinburgh, Centre for Educational Sociology, 2012
- [10] Mieschbuehler, R., Hooley, T. and Neary, S. (2015) *Employers' Experience of Higher Apprenticeships: Benefits and Barriers*. Derby and Melton Mowbray: International Centre for Guidance Studies, University of Derby and PeraTraining.
- [11] Bates, E. The Transformative Power of Learning: an interpretative phenomenological analysis of the learning experience of apprentices. 2012. Proceedings of the *International Academic Conference*, Novotel Lisboa Hotel, Lisbon, Portugal
- [12] Bates, E. (2014) College Is Where The Real Learning Happens: Perceptions From Irish Craft Apprentices Using Interpretative Phenomenological Analysis. *International Journal of Arts & Sciences*,, 7 (3), 419-429.
- [13] Interview with Dr Niall Murphy, Structured Lecturer, School of Mechanical and Design Engineering, Dublin Institute of Technology, 23 April 2018