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Mixed but not mixing: Enabling agency and collaboration among a diverse student teacher cohort to support culturally responsive teaching and learning

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The rich diversity of pupils entering Irish primary schools has risen in recent years. This prompts initial teacher education (ITE) programme designers to be increasingly aware of how to best prepare and support student teachers. Consequently, it is important that such diversity be reflected among cohorts entering ITE. This research explores perspectives of a group of first year students on a primary ITE programme, in an Irish higher-level institution (HEI). The cohort comprised of traditional entrants (TE), who entered ITE directly from second-level education, with a smaller more diverse sub-group of mature students (MS), returning to formal education.. Science education was used as a lens to exemplify markers of diversity and differentiation within the group. While the TE are a relatively homogenous group from social and cultural perspectives, the data indicated that the learning needs of both the TE and MS were highly differentiated. We present the complexities for teacher educators teaching a diverse and differentiated cohort, and the challenges of preparing large undergraduate cohorts in ITE. The results illustrate varied perceptions of the 'other' and assumptions about the 'other' between the MS and TE, which in this study were found to impede integration and collaboration across these discrete groups. This paper suggests that the diversity evident within and across the MS and TE groups offers scope for new understandings about diversity in ITE. We conclude that valuable opportunities exist for significant mutual learning and appreciation of difference, by structuring greater integration and opportunities for peer dialogue and collaboration between MS and TE cohorts.

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Introduction

Diversity among pupils entering Irish primary schools has risen in recent years ((NCCA, 2005; Devine, Kenny & Macneela 2008; CSO, 2017). This prompts initial teacher education (ITE) programme designers to be increasingly aware of how best to prepare student teachers to teach in diverse settings. Consequently, it is important to explore opportunities for greater appreciation and experience of diversity among students in ITE. This paper presents the perspectives of two student groups in their first year of an ITE programme. The participants will be qualified to teach in primary schools at the end of their four-year Bachelor of Education (B.Ed.) degree programme. The specific research groups are comprised of traditional entrants (TE) students and a more diverse sub-group of mature students (MS). Mature students have been categorised in different ways (Kaldi, 2009). The MS in this sample completed their second-level education more than two years prior to commencing ITE. However, the TE cohort comprise students who have entered ITE *directly* from second-level education. Previous literature has referred to these cohorts respectively as, 'non-traditional' and 'traditional' students (Griffiths, 2011; McCune, Hounsell, Christie, Cree & Tett, 2010). This paper is important because it highlights the complexities inherent in a teacher educator's ability to differentiate for different cohorts of learners, when teaching on an ITE programme. Effective teacher education requires an appreciation of the varied experiences and challenges of learners entering ITE, some with more diverse and others with more homogeneous social, cultural and academic backgrounds (Ross, Archer, Thomson, Hutchings, Gilchrist & Akantziliou, 2002; Kaldi, 2009). Teacher educators need to pay attention to the developmental diversity of student teachers, so that appropriate supports might enable increasing levels of self-efficacy and lead to enhanced student retention (Wilson & Deaney, 2010). We argue in favour of focused structuring of greater co-learning opportunities between MS and TE on ITE programmes, to facilitate the sharing of cultural and other knowledges. This is because such exposure to diversity throughout ITE, even if limited, enables student teachers to become more attuned to the importance of cultural pedagogies

(Gause, 2011) in the primary classroom. Therefore, this paper is important as it highlights the potential benefits of exploiting greater cultural mixing and learning, for teacher educators *and* for student teachers. The results suggest that greater integration and collaboration between the TE and MS would facilitate greater learner agency and autonomy, whilst also supporting an appreciation of difference between the diverse groups. This enhanced learning capacity within the student groups could then provide much needed space for teacher educators to explore and innovate their teacher education pedagogies. However, evidence of 'othering' emerged in the perspectives shared between the TE and MS about each other and about their learning. This served to impede meaningful integration and collaboration, and acted as a separator of the groups. Once teacher educators understand more about effective integration of diverse MS groups with TE, this could illuminate further ways of attracting and preparing a more diverse student cohort in ITE (Greaney, Burke & McCann, 1987; Keane & Heinz, 2016; Darmody & Smyth, 2016; Heinz & Keane, 2018). While this is a challenging endeavour, given the socially reproduced and hegemonic field of education (Baker, Lynch, Cantillon, & Walsh, 2009), it must be a fundamental goal for an inclusive education system.

Theoretical Framework

This research study was conceptualised and informed with due regard to relevant theories of diversity and inequality (Drudy & Lynch, 1993; Lynch, 1999; Lynch & Lodge, 2002, 2004; Baker, et al. 2009). These studies highlight how inequalities experienced by marginalised students are socially and culturally reproduced, often having a negative impact on their educational outcomes. Gramsci, Hoare, & Nowell-Smith (1971) theorise that educational institutions act as sites of hegemony valuing the dominant cultural capitals of certain groups over others. This can lead to 'othering', a concept connected to hegemony (Gramsci et al. 1971) where alienation or marginalisation of those who are *different* from the dominant group can occur. Such diversity may relate to race, gender, social and/or cultural background, disability, linguistics,

behaviours/practices or differing values and morality (Giroux 1981). Othering of difference can have consequences for underperformance and increased exclusion for students who are othered on the basis of race, social class or gender or other markers (Wright 2010). The evidence of 'othering' among the MS and TE in this study, indicates a lack of reflexivity among the students in considering their own biases and assumptions about difference (Bryan, 2012). Because 'othering' is steeped in power relations and manifested through 'hegemonic relationships' (Gramsci, 1973), it can be difficult to overcome once it embeds in an institution and can become naturalised or doxic (Bourdieu, 1998).

Diversity in this study was evident through identified differences in social class and age between the TE and MS. The TE were all middle class and the MS mainly from working class backgrounds and returning to ITE following a hiatus in their formal education. Maxwell and Aggleton (2010) found that young private school students positioned themselves as *superior* to others in state schools whom they referred to as 'chavs', evidencing hegemony in educational institutions (Gramsci et al. 1971). Where this study did not uncover discriminatory language about the *other*, both groups described how the other group were different to them by circumstance, '*returning to education*', '*older*', '*more serious*', '*last chance saloon*' '*entitled*' '*wanting the fun*' '*free to socialise*', and as a result of identified differences, did not mix. Significantly, while not overtly acknowledged by either group, the social class differences between the groups, were underpinning many of the circumstantial perspectives cited. Bourdieu's concepts are useful in exploring diversity and othering; particularly his concepts of habitus (familial and institutional) and capital (see Bourdieu, 1998). Burke et al. (2013) purport that social actors interact with the field as well as with each other. Despite some criticisms particularly in relation to the concepts of familial and institutional habitus being theoretically unsound (Atkinson, 2011), many see this collective habitus as flexible and dynamic (Burke et al. 2013). This suggests that opportunities exist for teacher educators to be instrumental in adapting the *field* (Bourdieu, 1998) to enable those with different habituses to interact together. Therefore, it must be a fundamental

aim of ITE institutions and educators to ensure students understand, experience and appreciate difference, in order to teach effectively in diverse settings (Ball et al., 2008).

Gurin, Dey, Hurtado & Gurin (2002) explain how diversity introduces relational discontinuities, which are critical to learner identity construction. Additionally, there are cited benefits associated with student learning and educational experience among diverse peers (Maruyama, Moreno, Gudeman & Marin, 2000). Therefore, exposure to diversity is important as it enables student teachers to appreciate differences between peer groups and to empathise with pupils from varied social and cultural backgrounds (Gurin et al., 2002). The MS and TE in this study provided opportunities to investigate perspectives on peer diversity due to the differences identified across domains such as social, cultural and prior academic experiences. While we acknowledge that markers of diversity are wide ranging and intersectional, we identified social class and age as key diversity markers for investigation in this study. This is because it was evident from the profile data gathered, that the MS in this study were more socially and culturally diverse, with many coming from working-class backgrounds. Nonetheless, it would be incorrect to assume that the TE students are a homogeneous group. The TE group had highly differentiated academic needs as did the MS, based on varied prior education experiences at second-level. This paper examines the perspectives of two discrete groups on the same ITE programme; the MS who are a more socially, culturally, educationally and age diverse group and the TE who despite being more socially and culturally homogeneous, demonstrated highly differentiated educational needs (Heinz, 2008; Heinz & Keane, 2018). Therefore, if the structuring of student integration among diverse ITE cohorts was enhanced, as purported in this research, it is possible that a merging of students' varied inherent social and cultural capitals (Bourdieu, 1998) would eventuate. This could then enhance understanding and appreciation of differences between TE and MS and difference more widely. This is worthy of consideration in the preparation of our teachers who require an appreciation and understanding of diversity, as a fundamental part of becoming inclusive practitioners.

This study contributes valuable insights into the perspectives among this student group, which are of value to other teacher educators and/or policy makers.

Context

The Irish Education System and entry to ITE

In the Irish education system, the majority of students follow a similar pathway. Primary education is an eight-year programme, from approximately age 4 to 12 years. In Irish primary schools, the teacher teaches one class group for the entire academic year, and is responsible for teaching a broad range of subjects in accordance with the Primary Curriculum (DES 1999a). In ITE, student teachers begin to develop their pedagogical content knowledge (PCK) of all subjects of the primary school curriculum, alongside foundation studies, school placement and professional studies modules. Unlike in other European countries, there are no subject specialist teachers in Irish primary education. Therefore, the class teacher needs to develop subject matter knowledge (SMK), PCK and knowledge of the curriculum for all stages of the primary school curriculum (Shulman, 1986, 1987; Ball. Thames & Phelps, 2008, Park & Oliver, 2008). This contrasts with second-level education in Ireland, where teachers are subject specialists. The second-level system comprises of a three-year junior cycle programme, at the end of which students are awarded a *Junior Cycle Profile of Achievement* (DES, 2015). The senior cycle programme terminates with the nationally standardised Leaving Certificate (LC) state examination (see Iannelli, Smyth & Klein, 2016; Smyth & Banks, 2012), when learners are approximately 18 years old. The high-stakes terminal written LC examination awards students a grade based on their content knowledge across a range of subject areas (Banks & Smith, 2015). The LC grades are converted to points, in a system where students compete for places on higher level programmes (CAO, 2017). Mature students can enter ITE using LC points, or alternatively can avail of a number of other access routes, which take account of additional experiences and learning outside of formal education.

Science Education in Primary ITE

Science education is one of a range of curricular areas student teachers study on their ITE programme. Inquiry-based learning is an intricate part of the primary science syllabus, and the constructivist approach is advocated for students learning to teach primary science (DES, 1999). While this paper looks inductively at the themes that were generated from the participants' broad experiential perspectives in their first year of ITE, both cohorts were engaged on a science education module for the duration of the research study. Therefore, this curricular area provides a lens for some of the data shared in the paper. National statistics on second-level science education indicate that the majority (~ 90%) of second-level students study science at lower second-level (age 12-15). Fewer (~60%) continue to study the biology in upper second-level (age 15-18), with a minority (< 15%) continuing to study the physical sciences (SEC, 2013). There was significant differentiation evident in the MS' and TE's experiences of second-level science, in this study. The percentage of primary student teachers with experience of second-level science is much lower than the national average. This contributes to significant differences in student teachers' subject content knowledge entering primary ITE.

National and international literature has documented primary teachers' confidence, competence and attitudes towards teaching primary science (Appleton, 2003; Murphy et al., 2007). This scenario is not exclusive to science, with primary teachers having to be competent in a wide range of disciplines. Therefore, a key component of teacher education programmes is to provide the beginning teacher with a sufficient repertoire of strategies that they could use to acquire effective pedagogical knowledge (Appleton, 2003; Appleton, 2013). Collaboration with others can assist with bridging this gap, and students with varied abilities and backgrounds can widen their knowledge and competencies, within group settings. Velthuis et al. (2014) found that first year students who had enhanced science content had a higher science teaching self-efficacy than other first year students. However, this difference in self-efficacy was no longer present after their second year of

teacher training (ibid). This suggests that peer-learning supports with a diverse group of students working together inside and outside the formal programme, may offer a more sustained effect on confidence in the teaching of science and other disciplines. Velthuis et al. (2014) conclude that the most influential factor on enhanced student teacher self-efficacy was how the science programme content was integrated into the student teachers' school placement experiences. Interestingly, the participants in this study specifically cited school placement as a space where greater integration, collaboration and peer learning took place between the MS and TE groups.

Methodology

The research design centres around qualitative data collected from first year primary ITE students, in an Irish higher education institution. Ethical approval was acquired in advance of the commencement of the study and information in relation to the study and ethics such as, informed consent, right to withdraw, anonymity, confidentiality and time commitment were provided to all potential participants. The first year ITE cohort comprised mainly of TE, with a smaller sub-group of MS. As all participants were enrolled in a first year science module during data collection, with some questions exploring the participants' experiences as learners in science education. However, the researchers primarily investigated the broader academic, social and personal perspectives of both groups of learners on the ITE programme. The dual focus was useful in enabling researchers to gain an insight into the micro and macro perspectives at a programmatic and modular level within and between both learner sub-groups. Qualitative data were gathered via open-ended questionnaires (N=108; n=98 TE, n= 10 MS) at the beginning of semester followed by separate group interviews (n=8 MS, n= 8 TE) at the end of semester. The participants were self-selected. The sample are representative of the ITE population, with a majority of TE and a smaller minority of MS.

Given the researchers' interest in diversity in ITE, brief profiles were requested (on a voluntary basis) from the participants at the

open questionnaire stage, to gather additional data on the social demographic of the groups. These profiles sought information from participants, inquiring if they were mature students or if they had entered ITE directly from school. Profiles also requested data on age, gender, and parents' occupation. Ages provided information about the range of participant ages. The MS ages ranged from 22 to 28 with all TE between 17 and 19 at the time of the study. Gender data was used to establish whether there was a representative gender balance between the cohorts. There were 70% female participants and 30% male participants, which is representative of a general undergraduate ITE cohort in the case HEI. Parents' occupations gave the researchers an insight into the broad social demographic background of the participants. A Weberian approach was taken to identify social class (Weis, 2008) using parental occupation or employment status. In addition, participants shared additional data during interviews mentioning '*being the first in the family to go to college*', or '*coming from a disadvantaged area*', which further validated our social class analysis. A cross check of profile data from the participants (N=108) with qualitative data from interviews (n=16) indicated that the MS cohort were more socially, culturally and age diverse, with 75% from a working class background. No MS' parents worked in education. In contrast, 100% of the TE participants were from middle class backgrounds, with 5 of the 8 citing that a parent or other family member/sibling was working in education. No other domains of diversity were explored such as race/ethnicity or sexual orientation, because our experience as insiders to the institution meant we had contextual knowledge that diversity in the race/ethnicity domain was not largely absent in the first year cohort, so data would have been difficult to obtain. We felt sensitivities around asking first year students about their sexual orientation, given that focus group interviews were the main data collection instrument, presented difficulties for those who may prefer to remain private with regard to sexuality.

The open-ended questionnaires were designed primarily to facilitate the gathering of a wide range of participants' perspectives on domains such as, learning how to teach *science*, experience of *science* lectures/tutorials, challenges on the ITE programme and

ways of learning. These written accounts were initially analysed separately given their written nature, but using the same analysis approach as used with interview data, for consistency. The questionnaire data was used to assist with the development of an interview schedule, which aimed to achieve greater depth and understanding of the broader (macro) socio-cultural ITE experiences of the student teachers. Interview questions related to the participants' perceptions of the ITE programme and of each other, as discrete learner groups. Some questions also aimed to establish the levels of collaboration (if any) between both groups. Therefore, the interviews sought to gain insights into the ongoing experiences of MS and TE in becoming and being a student teacher. The data collected from the interviews was coded and analysed inductively, using a grounded theory approach. The analysis approach mirrored the Huberman and Miles (1994) general inductive analysis framework. Data were coded, indexed and a systematic topic flow used to establish the interactions, connections and outliers in both data sets, and subsequently, to generate subthemes and themes from across the questionnaires and the interviews (Charmaz, 2006). Given the more detailed insights provided by participants in the interviews, much of the thematic content data arose from the interviews. The participants' responses were member checked and dual coded by the two researchers, to ensure rigour in the analysis and interpretation of the key results. The researchers transcribed participants' responses verbatim but all transcriptions used codes or pseudonyms and any data that may have identified participants was obscured or removed during transcription, to ensure anonymity. Two key themes were generated, for discussion in this paper.

Discussion of Results

This research explores the perspectives between both MS and TE under two themes entitled: (A) Diversity *between* the TE and MS student groups and (B) Differentiation *within* the TE and MS student groups. Interview data is identified as (ID) and open-ended questionnaire data as (QD) for reference.

A. *Diversity between the TE and MS student groups*

The MS provided valuable insights into the challenges and joys of returning to education, they shared how their prior experiences such as; working in a bar '*where people were out of it every night*', influenced their decision to become a teacher because they were acutely aware that without education their employment prospects may be more limited. This suggests an acknowledgement among the MS that education could enable them to acquire valuable cultural capital (Bourdieu, 1998). However, while the MS and TE shared the same learning spaces, there was no evidence of social mixing, with the 'other' group. The differing habitus and capital embodied by the discrete groups appeared to operate as a barrier to social mixing (Bourdieu, 1998). The TE described their ITE experience as being very competitive and as a result tended to work individually, indicating a value attributed to acquiring objectified cultural capital in the form of academic qualifications or credentials (Bourdieu and Passeron, 1999). TE (A) says:

> ID-I think it harder now as now we all are competing against each other to get the higher degree. I've heard a lot about going for jobs and the first thing the employers will look for is what your QCA [Quality Credit Average, cumulative grade] was and I find that terrifying because I don't even fully understand that…but girls would tell you in the years above about the QCA (TE-A).

TE (B) acknowledges how the MS are different to them, in terms of their drive to learn, question and debate, something those straight from school felt reluctant to do. This suggests a conformity within the TE group to adhere to the expectations of being passive recipients of knowledge to achieve in the LC, at second-level (Smyth and Banks, 2012; Bourdieu and Passeron, 1990):

> ID-Mature students contribute a lot more than we do. They seem a lot more confident and it's always the matures that ask the questions. Sometimes when they ask questions they start debates…And then its five minutes to the next lecture

and you want to leave the room but they are still going (TE-B).

This recognition of learner difference between MS and TE in engagement and confidence to question, has led to the perception of a number of the TE, that the MS feel superior towards them:

> ID-I know it's awful to say but I think that sometimes they think 'Oh they are only 1st years, they don't care about all of this whereas they think, 'We are here, we got in as matures and we have a lot more work to put in than they do'. I don't know I just I get that vibe off some of them at times and I find sometimes they are not as welcoming as other 1st years. If you sit down beside them, they would not talk to you. I think that they think because they are older they are above us… (TE-C)

However, some MS acknowledged that they felt under pressure to work very hard academically in order to succeed, this is likely connected to their challenge in acquiring cultural capital to fit in at college (Bourdieu, 1998) given that many would have had a different familial habitus to the institutional habitus they were now experiencing. The TE could misconstrue this as arrogance or over-confidence. The MS shared a sense of admiration for the TE, who are managing the workload and the stress of the ITE programme better, while also finding a balance between learning and having a social life at college. MS (A) says:

> ID-I live with a girl who's straight out of school and the difference between the two of us is huge. Before the block school placement week we were doing prep and there was a group of us matures in the library until like 9 o clock and I was saying, '*I have loads to do*' and she's like, '*why are you in there all the time, its fine don't worry about it*'. We just get more and more stressed out it and they are more laid back about it all, but we are the ones freaking out because we absolutely have to do more (MS-A)

This MS' sense of having a second chance and needing to succeed is acknowledged by, MS (B), who says:

> ID-I think they [TE] are warming to us, I think they see like okay at the start there were a few lectures whenever we asked a question you could hear in the background '*argh*'. Looking at the younger students, I do admire them for what they are doing in a short period of time, like they are out every night and can get the work done, HOW? (MS-B)

When asked whether TE and MS socialise or work on assignments together, some valid arguments were presented by the TE to justify why the MS and TE rarely mix. Similar to quotes above, there is a perception of MS superiority, which deters the TE from engaging with them. TE (D&E) respectively state:

> ID-They are way more mature than us like, we are young going to college having a great time and they don't understand it, like they have probably experienced much more than us and understand the world better than us obviously because their older I don't know I think they just think they are more important than us (TE-D).
> ID-It's like they don't really like us and they always stick together so it's hard to get to know them (TE-E).

The MS always sticking together points to their potential sense of alienation from the middle class culture of the TE and indeed the middle class status of the institution (Bourdieu and Passeron, 1990). There were some matures who questioned the authenticity of the TE decision to enter ITE, which does support feelings described by the TE above. MS (C) explains:

> ID-There are some girls here straight from school, who when you say '*why did you choose to do teaching*', they say, '*my mom told me to*' and you are wondering '*are you for real, you're here studying because your mom told you to do teaching*'? (MS-C)

Some reasons the TE gave researchers as to why they wanted to become teachers included '*because it was suggested as a good career'*, or '*because many in my family were teachers*' was in keeping with the MS interaction cited above. Again, the social and cultural reproduction of career paths among the TE was evident here (Bourdieu and Passeron, 1990). In contrast, the MS claimed a real clarity about their decision to enter ITE, with many citing '*wanting to make a difference to childrens' lives*'. The MS also questioned the commitment of some TE, as the following quotes from MS (D&E) indicate:

> ID-As we are matures so we know this is something that we really want to do whereas when you are younger it's more like '*ah sure I'll get this done and its college so sure it's leading somewhere*' but we are here for a reason and have thought long and hard about it (MS-D).

> ID-I think if you're a mature student that you have made more sacrifices to be here and you have more experience. I use that as a motivator, I'm more stressed than the younger students but I know that it's worth it and I know if I don't do this what the alternative will be and can see more of the big picture. It's huge how much we have invested and sacrificed to be here. If you're a mature student you can't just be like '*oh mammy give me more money'*… (MS-E)

The sacrifice of the MS mentioned here points to a greater economic and cultural struggle to attain and maintain their place on the ITE programme. It was clear from the interview data that participants in both groups were making some generalised assumptions about the other, because they did not mix and so did not really know each other. Therefore, it was important to capture evidence of circumstances where collaboration and sharing between TE and MS became possible. One MS discusses how she became friendly with some TE who started college late, following grade rechecks, explaining:

> ID-I think that people who came in late, the ones who came in in week eight who were put into our class and I think that

kind of helped to integrate us all as well because we became friends with them and even though they were younger people and then it all became a together thing… (MS).

Here, it appears that a shared alienation may have brought the *late comers* and *late starters* to ITE together and illustrates TE and MS students becoming friends. This collaboration was unforeseen but illustrates that the groups could mix well if integrated more effectively from early on, '*They were put in our class….'* Currently, in the HEI, MS are all put in one group so that they can avail of additional support if required, more easily, making integration with other TE more challenging. School placement was also instrumental in bringing the diverse groups together, through an early-partnered placement. Two MS (A&F) explain how real collaboration came about between them and their 'non-mature' partners:

> ID-Me and my partner, she was a non-mature, so she had the first three lessons on the week in Irish so shed give me her flash card for the last two lessons and I'd do the same with maths and for music too. That was great for both of us trying to cope we helped each other (MS-A).

> ID-Yeah my partner for school placement like beforehand was like '*oh will we meet up?'* just cause we didn't know each other, to talk through a few things… it made perfect sense for us to meet up and sort things out just talk, because we are partners so why wouldn't we? (MS-F).

These results highlight a number of perspectives. Firstly, there are generalised misperceptions between both the MS and TE, which act as barriers preventing both groups working together. Secondly, there are clear examples of where both groups by chance benefitted from collaborating. Where this data does not illustrate that similar benefits could not have been achieved between two MS or two TE students, the differences in aspirational maturity and work ethic apparent within the MS group could arguably assist with the TE transition to higher-level education and the more autonomous

learning approach required in ITE. In addition, school placement appeared to act as a leveller of capitals (Bourdieu, 1998). Both groups needed to work effectively with a partner to succeed in what was unfamiliar territory for TE and MS, and where habitus and capital perhaps was not as powerful in a diverse classroom as it was in the relatively hegemonic HEI environment. On the other hand, the MS admitted they did not enjoy the full college experience particularly from social perspectives (*social capital*), due to other family and financial commitments (*economic capital*) and a perceived need to study all the time to keep up (*cultural capital*) (Bourdieu, 1998). Notwithstanding the constraints faced by the MS, the balance between study and social experiences enjoyed by the TE might provide insights for the MS to mix more socially with the TE, and acquire varied capitals in doing so, whilst also enjoying their college experience more. Similarly, the TE could benefit from developing a greater understanding of the struggle faced by the MS. This could enable an appreciation of the resilience and determination of the MS, which may engender empathy and challenge a possible perception of entitlement, which may have developed among the TE, growing up in a privileged environment where a third level education is seen as an expectation rather than an aspiration (Devine and Li, 2013).

B. Differentiation within the TE and MS student groups

Despite the significant experiential and perceptual differences evident between the MS and TE cohorts, due in part to their varied social and cultural backgrounds, it is important to acknowledge that the TE were not a homogeneous group and we found significant differences in the academic needs, within the TE group. While the data shared here relates to science education, it indicates considerable differentiation within the TE group in particular, in terms of prior knowledge and learning experiences from second-level school. The influence of the LC and associated ways of learning (Iannelli et al. 2016) was more significant for the TE given their transition directly into ITE. The MS were more homogeneous with regard to what they expected from the programme and

presented a more adapted repertoire of supports and skills to enhance their academic progress. Some participants had no formal experience of second-level science education, and for these, their own level of science SMK was their main concern. In comparison, for other participants who had greater SMK, they had concerns about PCK, how to decipher the suitability of content for primary level pupils. In some cases, TE who were competent in SMK devalued the group learning experiences in the science education module. This suggests an individualised perception of learning among the TE, and a lack of experience or appreciation of collaboration, unsurprising given the competitive nature of the LC (Devine and Li, 2013; Smyth and banks, 2012). TE (H) states:

> QD-I know science is supposed to be hands-on, but you could spend more time teaching us, rather than wasting time on group work (TE-H).

When asked to suggest how their experience of science on the ITE programme could be improved, many of the TE responses referred to the inclusion of '*crash courses'* on science content and '*provision of content notes'*. Despite all TE having studied science in junior cycle of second-level, it was evident that SMK was a barrier for their development of PCK. Importantly, in light of working with a group of diverse others, it highlights the difficulties with adjusting from the all-encompassing LC experience (Smyth and Banks, 2012). This links with previous comments made by TE in relation to the competition on the ITE programme for attaining high grades. It highlights the difficulties with promoting a collaborative approach to learning, especially for this post LC group.

One MS (E) in contrast, cited an example of MS working together.

> ID-One day the college was closed, as it was a holy day, so we all just went to my house and got pizza. We just talked about the [Science] assignment together, it got to eight o clock and we were, okay everyone, we can now go home and our own work as we have worked it out together and it really helped (MS-E)

Also in contrast to the MS group approach, many TE were uneasy about learning through inquiry-based approaches. TE (K&P) illustrate this stating:

> QD-The tutorials were often unbeneficial, as we were expected to know how to complete the activities without been shown exactly how to complete them (TE-K)
>
> QD- I found the experiments quite tough because I did not have the method given in advance, so I wasn't sure how might I simplify them for a primary classroom (TE-P)

As mentioned, inquiry-based learning is an intricate part of the primary science syllabus and the constructivist approach is advocated for teaching primary science. Many pre-service teachers (particularly TE) may not have experienced this type of learning themselves, having come through the exam driven second-level school system (Smyth and Banks, 2012). The recent experience of content and rote learning permeated the comments from the TE, for example, TE (L) asked:

> QD-How can you teach topics without investigations? Like teaching the definitions to the older classes? (TE-L)

This raises awareness for the teacher educator to be more sensitive to the potentially limited experience of inquiry-based learning among student teachers. In contrast to the TE, the MS had adapted well to new ways of learning. This may be attributed to the space and time between second-level and ITE for MS. For example, MS (E) says:

> ID-I like that in science we actually like…where we get to do the stuff without the lecturer leading us first because then you're thinking like a kid because I know that I didn't have science for leaving cert, so I was looking at it is more openly? All I know of science is from 'Grey's Anatomy'… (MS-E).

The quotes above could indicate a resistance among the TE to move from a *way of doing* in the past where they succeeded (Giroux, 1983) and possibly a conformity among the MS in order to embrace new learning to succeed and to acquire the valuable capitals that

will assist with mobilising them in (Bourdieu, 1998). Nonetheless, this data points to opportunities for both MS and TE cohorts to work together and help each other through these challenges. Where the TE have arguably more science knowledge and remember more of it, from their second-level schooling, the MS are open to new pedagogies and trust themselves to approach learning in different ways. They are less bound to the institutional habitus of the second-level school system (Bourdieu and Passeron, 1990). A minority of the TE did acknowledge their own experiential learning as valuable in preparing them to practice similar pedagogies in the primary classroom:

> QD-The active workshops and tutorials enables inquiry based learning to occur which motivated me to learn so now I have a better understanding and are more comfortable with inquiry-based learning (TE)

Similarly, in relation to scepticism around new pedagogies of learning, many of the TE were also overly reliant on 'ready-made' examples of lessons and activities from the teacher educator, with the MS less reliant on these teacher supports as they relied more to their peer group for help. Quotes from a TE (B) and MS (C) respectively evidence this:

> QD-We were not shown exactly how to teach… we need more examples of a good science lesson plan given to us to use (TE-B)
> ID-If I am stuck, then I just talk to other people and you relate your problems to them, and you are like 'thank god, I'm not the only one struggling'. That does really help me personally, talking to other people in the class as when you know you're not the only one struggling that's how your just pick yourself up, you look for support (MS-C).

Being a minority group, the MS have ensured they are not socially or culturally alienated (Gramsci, 1973) in the HEI, by forming a tight knit group for academic and social support during ITE. This enables them to be more collaborative, flexible, autonomous learners, which the TE could arguably benefit from. The data

analysed highlights the ways in which the TE and MS cohorts operate differently on the same ITE programme. These differences extend from the micro disciplinary domain (*science lens*) to the broader macro social spaces outside the lecture hall. These ways of knowing, learning and working together or alone emanate from the participants' varied social and cultural backgrounds, as well as varied influences from prior educational and life experiences. The notion of the client and service provider relationship within the market of education (Ball 2013) is evident in how the TE in particular, view their relationship with the lecturer as *provider* rather than *facilitator* of learning. The TE tended to want to be shown, '*exactly how to teach'* rather than inquiring about teaching. This raises questions about how or whether the TE consider their role as providers of information and content for the children. It questions to what extent the focus on acquisition of the teaching qualification, akin to achieving their LC points, impedes their reflection on the relational and reflective art of teaching and learning. Hence, this paper raises questions about how we aim to educate the 'right way' (Apple, 2001). The existence of a predominantly middle class TE cohort at higher-level (although heterogeneous in other respects) suggests that these student teachers' prior experiences of success at second-level could be socially reproduced through hegemonic perceptions of '*good'* teaching at higher level (Devine and Li, 2013). This needs to be challenged to accommodate the diverse range of learners in our primary school classrooms.

Limitations of this study

It is important to acknowledge that the limitations of this study given it deals primarily with a small cohort of first year students (MS & TE) in one HEI institution. The context of this study undoubtedly influences the results and these may be useful for similar contexts internationally. It is not surprising that many of the participants showed a lack of confidence with the science curricular content given the broad range of curricular areas in the Irish primary school curriculum (DES, 1999). The results also illustrate the diversity of knowledges among the cohorts, stemming from prior

educational and life experiences. This creates a challenge for teacher educators in managing both a diverse and differentiated group, as also suggested by Rice & Roychoudhury (2013) in their research. The TE in particular in this study are recent graduates of the high stakes second-level system (Smyth and Banks, 2012), which in many ways rewards recitation of knowledge rather than higher order problem solving domains (ibid). Despite some acknowledged limitations, this paper reiterates that there are opportunities to improve the learning experiences of students through collaboration between all '*types*' of student teachers, who will likely have varied competencies across different disciplines and pedagogies, by nature of their difference. The integration of MS and TE is of particular interest given the results in this study, and merit further attention in other jurisdictions, to provide additional complementary or contrasting perspectives.

Conclusion

When asked about their confidence and competence to teach primary science, many of the TE referred to their own experience of science, as a learner in second-level school (Jarvis et al., 2004). The participants connected their confidence in teaching science with their prior experiences of learning science at school and also referred to their recent school placements on the ITE programme, as cited previously (Murphy et al., 2007; Rice, & Roychoudhury, 2013). The breadth and depth of ITE knowledges are intricate and challenging, as outlined by Ball et al. (2008), with vast complexities and new learning occurring whilst first years are also managing the transition to higher education (McCune et al, 2010). It was apparent that the students' diverse experiences with different teachers at second-level, and in ITE influenced their perceptions of learner competence (Appleton, 2003). We conclude that new learning on an ITE programme is experienced differently by each participant, influenced by his or her prior educational experiences (Murphy et al, 2007), and based on their own attitudes towards teaching and learning.

The discussion exemplifies how *many* TE and *fewer* MS illustrated a reluctance towards implementation of inquiry-based learning, low confidence in teaching science and a disparity in prior science knowledge. Many TE were critical of the lecturers' lack of provision of a clear systematic, teacher-led delivery of content, pedagogy, assessment and classroom management strategies. This challenged their expectations that the knowledge, skills and methodologies would be provided for them as opposed to being generated and developed by them, as found in other studies (Appleton, 2003; Ball et al., 2008, Murphy et al., 2007). This was less evident in responses by the MS to questions on ITE experiences, where an openness to new teaching approaches and a willingness to work and learn together, was evinced. Therefore, there is a tension evident among the high-achieving TE, straight from second- level, between what they perceive effective science teaching to be, based on their second- level learning experience (Smith & Banks, 2012). We conclude that these tensions could be alleviated through dialogue with MS who have had time to review this, and who appeared to be more open to experience new ways of learning in ITE (Kaldi, 2009, Hamilton & O Dwyer, 2018).

We recommend based on the conclusions above that additional space for interrogation and critique of previous experiences of education and schooling be afforded to all students transitioning to ITE, early on in the first semester, as a structured part of their ITE programme. Ideally, this space should be occupied by as diverse a mix of students as possible who are enrolled on the programme. Student cohorts should be provided with formal opportunities to connect, collaborate and learn from the 'other' from the outset in ITE. This would reduce the development of homogeneous socially reproduced and separate groups sharing a common habitus and dominant cultural capital developing early on, as seen in this study. Teacher educators could play a valuable role in facilitating such discussion prior to embarking on formal training in the SMK/PCK domains of curricular areas. The learning for teacher educators engaged in such a discussion could be informative for their planning and pedagogies and for feeding back to college-wide policies on inclusive practice. We also argue that teacher educators must be

willing to respond to new learning about diversity from their students' discussions and experiences. They must also reflect on their practices, biases and assumptions to become more attuned to the complexities of diversity in ITE and to commit to continuous professional development focused on managing increased diversity *and* learner differentiation in ITE (Hamilton, 2017).

Notwithstanding the need for teacher educators to be active learners and acutely cognisant of managing diverse groups, teaching how to teach could default to becoming a banked (Freire 2000) body of knowledge delivered globally to large groups, if teacher educators are not supported and resourced adequately to meet the differentiated needs of large undergraduate groups. We conclude that if ITE institutions are to commit to attracting, supporting and adequately preparing a diverse student teacher population, constraints relating to resourcing and greater performance demands on academic staff, which lead to diminished practitioner agency (Bourdieu 1998, Gambetta 1987) are issues worthy of consideration. Tutorial group size, programmatic structure, assessment models and modular offerings need to align to afford both teacher educator and learner an optimum space and best conditions to teach and learn.

Whilst acknowledging the considerable importance of extrinsic supports for students and for teacher educators, it is evident from the results of this study, that timely, meaningful, formal structuring of integration of diverse student groups may facilitate continued collaboration *between and among* student groups, during their ITE programme. We purport that by enabling greater student agency and student-to-student support across diverse groups, the potential benefits are twofold. Firstly, the confidence to engage with new unfamiliar pedagogies such as inquiry based learning with others, would develop capacity among students to problem solve. This would in turn reduce reliance on the teacher educator to be the provider of '*all the answers'*, Secondly, by integrating and supporting each other's learning in diverse groups, students will develop a greater appreciation and understanding of the influence of prior experiences, student background and cultural difference.

This would challenge the instances of 'othering' and hegemony, which are prevalent in educational institutions, and which were identified in this study. Together this agency and collaboration could have social and academic benefits for both groups, as well as helping them develop a more culturally responsive pedagogy in their teaching. Importantly, this capacity within the student body could create much needed additional space for teacher educators to explore and research new ways of teaching how to teach.

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