

“So far back, I’m anonymous”: Exploring Student Identity using Photovoice

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Abstract— This Research Full paper presents empirical work focused on the transition experiences of transfer students into computing degrees in Scotland and seeks to understand the complex formation of identity from the student perspective. Drawing on [3]’s work around the traditional concepts of identity, this paper examines the notion of student identity in a transitional context. How students identify in the STEM subject area may impact upon their achievement and provides long-term benefits right through to their graduate career [24]. The concepts of transition and identity are explored in an innovative way using graphical research methods which include students as agents for change. The participatory methodology photovoice (PV) adopted saw participants use cameras to generate data, thereby directly involving the participants in the research process. The photographs are then used to support critical reflection amongst the participants and provide the researcher with ‘direct entry into their point of view’ [2]. This paper examines the transfer students’ journey during transition, exploring their expression of identity through participatory methods using cameras to capture impressions and feelings. Initial findings are shared, including advice on using participatory methods to examine the student voice and experience.

Keywords—*transition, identity, photovoice, widening participation, university, student*

I. INTRODUCTION

Providing equality in educational opportunity has been a long-term goal of the Scottish government and is a concern shared by the UK government. Some progress has been made throughout the UK, however, the participation gap between students from the most and least advantaged areas is greater in Scotland than the rest of the UK [4]. In addition to seeking to recruit more school-leavers from less advantaged backgrounds, developing pathways from community college level study into degree level education can help to address this imbalance and is one method being pursued by universities to address this issue. Despite the relevance to the widening participation agenda and the increasing number of STEM students entering as direct-entrants there has been limited research carried out exploring effective methods to support this student journey [54]. The Department of Education and Skills argue that community colleges provide ladders of

progression for students especially those pursuing vocational routes and those who wish to study locally [1]. With the benefits of this route to higher education understood, additional funding was provided in 2013 to further education institutions (FEIs) and universities in Scotland to work together to support students as they complete this four-year journey through agreed articulation routes. These students are known as associate students and receive dual enrolment, in effect wearing ‘two hats’ – that of the community college student studying for their higher national diploma (HND) and that of a university student who is working towards 3rd-year entry on the university campus. These articulation models pose significant challenges both for higher education institutions (HEIs) regarding student retention and performance, and for the transfer students as they try to fit in and adapt to a new learning environment and traditional academic expectations. An examination of students with HN qualifications who entered HEI’s within the location of this study, found that those who fully articulated (no repeat of study at the same level) found their transition more difficult than those who entered a year earlier [56].

Research recommends that HEIs should plan to provide support for seamless progression with full credit [5] and sustain this support to avoid the issues of lower retention and performance. Retention rates among Scottish-domiciled first-degree full-time students at HEI’s in Scotland were 2.5% higher for women than for men [55]. This may go some way to explaining the poor retention rates for computing disciplines which, in the UK, are dominated by male students [67]. As well as being dominated by male students the HEI in this study also draws over 40% of its undergraduate student population from direct-entry community college students. The majority of this population are first generation university students, also work, have family responsibilities and commute several days a week to classes with little free time for extra-curricular activities. These students experience HEIs through the classroom space and not through additional interactions and locations [57].

During the transition to university, students can experience a significant change in identity as they shed their

community college identity and replace this with their new university student identity. This paper begins by examining the challenges around transition focusing on computing students. This is followed by a discussion on identity for undergraduate computing students and examines the impact upon a student's sense of self and sense of belonging during transition. The paper then explains why PV was selected as a suitable methodological tool for use with the target population of undergraduate computing students, examining the benefits and issues experienced during this study.

II. CHALLENGES AROUND TRANSITION

Transitions occur frequently during an individual's lifetime and educational transitions are part of a broad spectrum which occur predominantly during educational years three to twenty-five. Within these years there are several types of transition which are an accepted part of growing up and educational development. At predetermined points, individuals transition into and out of most, if not all of the following institutions: Pre-school; Primary school; Secondary school; Community College/FEI; University/HEI; Workplace.

Despite these educational transitions being supported by a wide array of interventions and support mechanisms, difficulties still persist, as explored below. Traditional primary to secondary school transition within the UK occurs at age eleven and this is considered an important life-event, characterized by changes in the environment, social interactions and academic demands [6]. Similarly, undergraduate transfer students entering higher education from college are experiencing a change in environment from college to the HEI campus, for some accompanied by a change in living accommodation or travel requirements. The classroom environment of the college is replaced by large lecture theatres with an increased number of students across an array of study programs, removing the small class environment and accompanying social interactions. The increase in academic demands is accentuated by the unknown procedures and IT systems. A recent article by [57] emphasized that community colleges provide a gateway to higher education and shoulder most of the responsibility for servicing the underprepared, underserved and marginalized.

Building a sense of community [12] can help to alleviate this change and appropriate support mechanisms within the educational institution can develop the individual's sense of belonging. The benefit, however, may never be realized if teachers and lecturers fail to recognize the diverse backgrounds which students are drawn from. This view was described eloquently by [13] who said that secondary pupils are 'laden with experiences from primary schools where they have been learning to become pupils for many years'. This observation holds true of transfer students who have experienced only minor changes between high school and community college. The adjustment necessary for successful university study is significant. The focus on belonging and

empowerment [36] was emphasized in the literature as critical during this transition. The transfer computing students come from unpredictable educational and personal backgrounds requiring varying degrees of support. Lecturers within universities should be mindful of students' previous experiences and institutions should consider the differing needs of this diverse student body [37] in order to integrate them into the new learning environment. Preparatory activities can help with students before transition and focus on "building bridges" to ensure a smooth crossing [38], concentrating on familiarization and study support. Reference [39] found preparedness to be multi-dimensional, incorporating academic preparedness, independence, industriousness, conformity to adult standards and development of coping mechanisms.

During transition, a student's sense of identity can change. The identity of an individual is influenced not only by the groups and values they inhabit but also their level of participation in activities, whether at primary school, community college or university. Becoming both academically and socially involved in university aids transition and develops students' sense of belonging. Encouraging simple activities such as engaging students in class discussions and allowing them to ask questions during lectures can build their participation levels. Outside of the classroom, joining clubs and societies can further develop their sense of belonging and student identity. This can be more difficult for those defined as 'new students' [40] - individuals who only attend timetabled sessions [41] spending vastly shorter periods of time on campus [42] than traditional higher education students. The transition from community college to HEI requires students to create for themselves a new identity as higher education students [43]. Identity is discussed in more detail below.

III. UNDERSTANDING STUDENT IDENTITY

A. Theory of Student Identity

Reference [3] posits that a strong sense of personal identity is essential for effective functioning within modern society and that identity formation is prompted by 'crisis' stating that the manner in which these internal conflicts are resolved determines their personal identity. Therefore, identity develops and changes over an individual's lifetime, it is not constant or fixed but alters in response to different experiences [11]. 'Student identity', is influenced by the 'learner identity' formed during early schooling experiences and can be defined as 'the part of an individual's self-concept which is derived from knowledge of membership of a social group together with the value and emotional significance attached to that membership' [10]. This social group or community is fundamental to transfer students who are attempting to construct their new student identity and feeling part of this group through membership and participation impacts the person they become [44]. Students are continually engaged in a process of trying to make sense of their studies, integrating

their study experience in their perception of who they are and want to be [58].

Other studies explore stages of identity formation. Reference [9] addressed [3]’s notion of ‘crisis’ and expanded this to consider the extent to which the individual had explored and committed to an identity. He defined four identity statuses: diffusion, foreclosure, moratorium and achievement.

Diffusion describes individuals who are yet to commit to a particular path and who exhibit a low level of commitment, they are passive and lack goals and direction. In the foreclosure identity status, individuals have committed to a particular path, but not through extensive exploration, they are accepting of beliefs and values assigned by family, community and culture. From an undergraduate student recruitment perspective, these are the students who apply to university because it is a ‘rite of passage’ [15], they are following in familiar footsteps. From a widening participation perspective, these are the students who don’t apply because they would be the first in their family to attend. The moratorium status individuals have been through extensive exploration and questioning but are still in the midst of identity crisis and have not yet established their identity. These are the students who are studying the STEM subjects at university but are not sure why they are there or if this is the right step for them. The final status is achievement and it is here that individuals have achieved and realized ‘who they are’; they are capable of prioritizing what is important to them and have direction in their lives. These confident and focused individuals are driven and ready for any challenges that cross their path on the way to success.

The significance of life choices was upheld by [16] article in 1987 which defined identity formation as ‘problem-solving behavior aimed at eliciting information about oneself or one’s environment in order to make a decision about an important life choice’. He assumes that identity development takes place in various domains.

Identity styles were introduced by [8][17][18] as stable inter-individual differences in short-term processes: in the way individuals construct and revise or maintain their sense of identity [17]. Importantly he does not perceive identity development as a succession of stages, but as a long-term process that has different forms, reliant on an individual’s processing style. This succession of stages is echoed in the work of [19] who built on the moratorium status and defined a distinct group which displayed an ‘evolutive style’ of identity formation, exhibiting gradual, step-by-step exploration of identity issues. For a STEM student, this gradual acceptance of the new identity can be realized through confidence gained after passing the first diet of summative assessment or joining a society or club related to their STEM subject area. ‘Identity capital’ was introduced by [20] and ‘denotes what individuals ‘invest’ in ‘who they are’.

Reference [20] posits that modern society requests and encourages individuals to explore and develop their identity and that the ‘capital’ describes the resources, both personal and contextual, that they call upon.

B. The Influence of Social Identity

Identity is also socially constructed and formed by one’s own self-belief, social group and interactions in our own social context which form our norms, expectations and beliefs [21][22]. Social identity contributes to a person’s self-concept and self-esteem and is formed through group identification and their associated values and emotional significance [23]. Social identity is a strong contributor to student identity formation and [24] posit that individuals favor in-group identities over outgroup (in-group-outgroup bias) and discriminate accordingly. Undergraduate transfer students may perceive themselves as an ‘outgroup’. The identity of community college students has been described as ‘polymorphous’, as they do not possess a single identity, but one which is complex and pluralistic. The need for this identity to adjust to the new institution and association with the university adds a further dimension to an already complex identity [59]. With the university student identity having in-group preference, individual’s social identities are mainly derived from group memberships and the influence of work. The group identity within a HEI context could be thought of as ‘student’ but this is categorized further by faculties, schools and even specific subject classifications or by year of entry – ‘direct-entrant’. The definition of one’s identity goes beyond the general and is specific and contextualized as ‘computing student’ or ‘engineering student’ by most. Students who strongly identify with their subject of study and have a clear achievement identity status can see the long-term establishment of their identity right through to their graduate career.

Reference [7]’s identity framework has been applied in several studies examining discursive identity [25] and identity negotiation [26] and this approach is a relevant reference for identity formation in STEM students. An interesting study by [27] examined identity growth in secondary science teachers and students and allowed students to ‘try on’ identities such as a scientist. The notion of named identities is enforced by [28] theory of pedagogic identity. They identified four identity constructs – retrospective, prospective, de-centered and therapeutic. The first two constructs can be identified as of particular relevance in an educational context as they constitute a model of identity formed through the pedagogic practices of schooling [29]. Like [27], [28] identifies ‘official’ identities of the student, citizen and teacher and posits that identities are made and remade in classrooms but they are not made in conditions of our own choosing rather by those imposed by government policies and curriculum measures.

Notable studies by [30], [31], [32] and [33] have examined identity within academic institutions. Student identity can sit within social identity as it stems from the ‘learner identity’ formed during early schooling experiences. Studies by [31] and [30] examined the experiences of first-year undergraduate students and the onus placed upon the individual students to adapt to their new culture and exhibit their new student identity.

Research by [32] postulated that the process of identity formation is also anchored in a sense of ‘being part of’ – a web of relationships, group solidarity and communal culture. They found three concepts that guide the promotion of identity exploration in an educational context: trigger, sense of safety and scaffold. Similarly, [33] found in a high school study that the institutional identity should be nurturing, encouraging engagement in purposeful activities, promoting positive staff perceptions of the students and establishing a supportive peer environment, mirroring the concepts of scaffold and sense of safety.

Reference [34] found that different kinds of student identity tend to come into conflict as students interact, face-to-face and, with peers during tutorials. Most notably, the imperative of ‘doing education’ – as a keen, enthusiastic proto-academic seeking to attain a good final degree classification – often seems to be overridden by the imperative of ‘doing being a student’ – as an average and/or indifferent student who does not stand out whilst interacting with other students.

The notion of student identity centrality was highlighted by [60] who found that the more central student identity was to the individual, the greater their persistence and likely retention. For transfer students, identifying as a university student increases their likelihood for socializing with other students, participating in events and interacting with faculty and staff. Holding this identity enhances their social and academic engagement, allowing them to ‘live out’ this important part of who they have become [60]. Reference [15] in his book *Modernity and Self-identity* found that ‘a person’s identity is not to be found in behavior, not – important though this is – in the reactions of others, but in the capacity to keep a particular narrative going.’ Identity is socially constructed and formed by one’s own self-belief, social group and interactions in our own social context which form our norms, expectations and beliefs [21][22]. It is these beliefs and expectations which universities must work to influence, building in-group identities students’ subject disciplines, offering scaffold to diminish the impact of changes in the environment, social interactions and academic demands and recognizing transfer students as fully fledged members of their cohort. Students who strongly identify with their subject of study in the STEM area and have a clear achievement identity status can see the long-term establishment of their identity right through to their graduate career. In the context of STEM students this involves

consideration of developing an identity as professional engineers/technologists as opposed to technicians.

Given the impact that transition has on the development of identity, it is important to understand this more fully in order to better support students. Exploring this from the student perspective can lead to deeper insights and so we elected to adopt a student-centered approach to the experience of transfer students, the environment, interaction and changes in academic rigor that they emphasize as being important to their community. Graphical research methods were felt to be particularly relevant as explored below.

IV. BACKGROUND TO PHOTOVOICE

The graphical research method photovoice has grown in popularity as it allows the researcher to visualize individuals’ perceptions about their everyday realities [45] [46]. Graphical research methods are particularly relevant to this study as they allow the students themselves to become the agents for change – highlighting the environmental, social and academic changes that impact their transition into higher education. The student participants are provided with the opportunity to visually portray their experiences and share personal knowledge about particular issues that may be difficult to express with words alone [48]. Photovoice, also known as *photo-novella* [47], *auto-driving* [49], and *reflexive photography* [50], is a participatory photography methodology in which participants use a camera to generate data. The photographs are then used to support critical reflection amongst the participants and provide the researcher with ‘direct entry into their point of view’ [51].

This participant-employed photography (PEP) [29] asks participants to take photographs to elicit their own narrative which leads to a richer understanding of a particular issue, giving greater insight than traditional interviewing techniques [35]. It compels participants to reflect on and discern their own perspectives. Importantly, as the photographs are taken during real-life experiences the bias caused by retrospective reporting can be reduced [61].

V. METHODS

The target population was undergraduate students within the School of Computing studying in the third year of a four-year degree program. Ethical approval was secured. Participants were fully aware of the aims and outcomes of the study. Informed consent was obtained and student contributions were anonymized to protect the confidentiality of all participants in the study. It was important that the participants included a mix of students who were direct-entrants into the third year and associate students from partner colleges. To reflect the broad goal of the research the photovoice research question was formulated to be – *How do students experience their transition into the third year?* The photovoice approach provides the researcher with access to

personal experiences such as home life and insecurities that are rarely, if ever, shared during focus groups [61].

Unlike in traditional research methodologies, data collection and analysis are intertwined with participatory research and photovoice. The data analysis contains two main stages – *participatory analysis* where the participants assume the role of co-researchers and *non-participatory analysis*, wherein the researcher applies appropriate techniques and compares and combines these results with those of the participants [61]. Reference [48] identified six distinct phases. In this study, the first five stages were undertaken over a 6-month period starting in 2017 with the final phase currently being developed. Details of each of the phases undertaken are given below.

Phase 1 – Recruitment and Training Workshop

Recruitment began during induction week of the first trimester. Two main methods of recruitment were used. Firstly, the 3rd year population were emailed inviting them to take part in the study and this was followed by short talks during induction sessions where participants were invited to sign up. Following this, training sessions were provided to ensure participants were aware of the ethical implications of taking photographs and how to ensure consent was received.

Phase 2 – Taking the Photographs

Participants were asked to take photographs around the university and their community over a two-week period at the start of their first trimester in 2017. Guidance provided defined no minimum or maximum number of photographs to be taken. Although over twenty students signed up to take part only seven completed the process by taking their photographs and attending the follow-up focus group. Participants took a range of 5 – 9 photographs of their university and community, averaging 6 photos per participant.

Phase 3 – Focus Groups

The follow-up focus group occurred in the month following the photograph capture. These focus groups were semi-structured, lasting approximately 60 minutes, and guided participants to tell a story about the photographs they had captured. The SHOWeD instrument [52] was used as a guide, the acronym stands for:

- What do you See here?
- What is really Happening here?
- How does this relate to Our lives?
- Why does this situation, concern or strength exist?
What can we Do about it?

Dialogue during the focus group was inspired by the SHOWeD instrument however the method of questioning took a less prescriptive form and was simplified in nature. The interviewer began by providing the participants with a hard copy of each of their photographs and then having them select each of their photographs in turn and describing its meaning to

the group. This continued until each of the participants had discussed their photographs. Following the discussion of the photographs, the participants were asked to write a caption on each of their photographs which captured its meaning for the student community.

Phase 4 – Transcription

All focus groups were audio-recorded and transcribed verbatim by the author. This provided rich insights into the photographs which cannot be captured through the caption alone.

Phase 5 – Analysis

The non-participatory analysis applied an approach that relies on applying techniques to analyze visual and verbal data, interpretative phenomenological analysis (IPA) [62]. IPA is a qualitative research method which examines how individuals make sense of their major life experiences, meaning focused; it is committed to understanding first person experiences from a third person position. As the participants are trying to make sense of their world, the researcher is trying to make sense of the participants trying to make sense of their world [64]. IPA is underpinned by phenomenology, the philosophical study of being, and hermeneutics, the study and theory of interpretation. The use of IPA involves various strategies and can be applied to draw an iterative and inductive cycle [63].

All of the data was analyzed using IPA [63] which shares similar hermeneutic and phenomenological roots with the photovoice methodology [66]. Following the transcription, the photographs were analyzed in conjunction with the verbal data. The researcher read and reread the text, carrying out line-by-line analysis to discovery patterns in the data. The second stage involved initial note taking to highlight points of interest and included descriptive comments alongside interpretative conceptual comments. Finally, the emergent themes are identified, followed by pruning and identification of connections across themes and classes [61].

VI. EARLY FINDINGS AND DISCUSSION

The physical space featured heavily with participants highlighting the group work/study booths located in the 24-hour access computing center. [P1] commented, “Here you need to sit down and think, to be constructive and creative with your ideas.” The area was identified very clearly as a “university space” one which allowed groups of university students to come together and to identify their strengths and weaknesses. These spaces are unique to the university and do not exist in the college campus. [P1] also commented on a photograph of the campus stating “[Campus A] means computing”, this sense of identity does not exist in the college campus where a wide range of subjects and levels are offered.

Participants also focused on the need to fit-in to the new environment with [P20] capturing Fig. 1 “this represents

coming to university and how there are a lot more people... It's like a sea of shoes if you will...I think just maybe keeping my head down a bit to start with when I felt I didn't know anyone and didn't fit in. It was easier to look at feet."



Fig. 1- Sea of Shoes

[P3] produced a photograph of the campus at night time. They identified themselves as a "night time student, this is associated with university, the college campus is 9 to 5 and then you go home. Studying after hours isn't an option." The change in learning style was also highlighted by [P1] stating "at Uni you are reaching way more out of your depth. There's proper group work and you have to really come together." An altered identity was emphasized by [P2] who commented: "I've moved out of my family home, got my own space, am making my own decisions." This change in circumstance has allowed them to grow way beyond the university study but in an individual context as they become an independent adult.



Fig. 2 - New path, new journey, not knowing the destination

Discussion during the focus group also highlighted their HEI time as a journey. [P21] took a photograph of a train track (Fig. 2) – "we don't know where it's going. So that represented to me doing something new in life and following that path but not knowing where it's going to end up. Being on a journey, not quite knowing what the destination is going to be."

The difference in teaching styles was captured by [P19] who commented on Fig. 3 "this shows how different it is here. Because you're just so far away [from the lecturer],

you're anonymous. But in college, you only had 10 or 15 people in your class and the lecturer knew you by name. But this year I think you could go the whole year and the lecturer wouldn't know you."

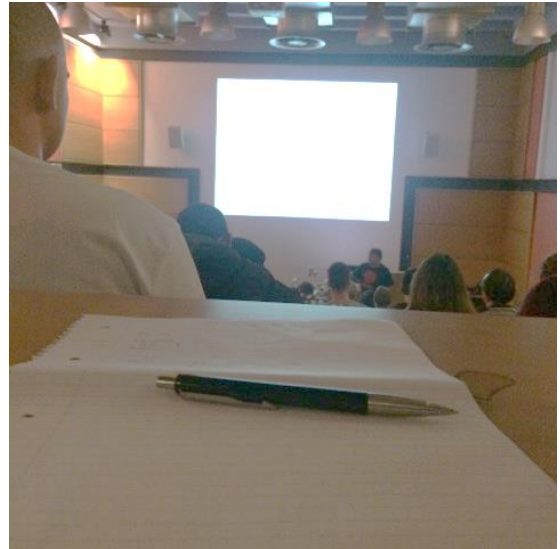


Fig. 3 – So far back, I'm anonymous

[P21] also emphasised the change in teaching style in Fig. 4 - "it's about university and how here's it's a different way. It's different methods of teaching and a new way to learn. The glasses kind of represent how I have more tools to be able to learn and to see more clearly in some ways."



Fig. 4 - A new way to see, a new way to learn

Fig. 5 shows [P24]'s photograph of a lecture slide to describe the content – "It is all new stuff that I haven't really done before. It's a big change, I'm learning new stuff and having to study in a different way. I'm becoming a different kind of student."

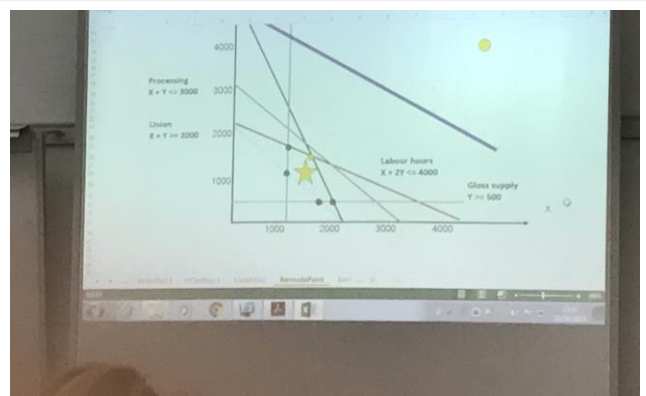


Fig. 5 - Becoming a different kind of student.



Fig. 6 - Ups and down of uni life

The emotional rollercoaster was highlighted by [P24] in Fig. 6. “It’s all about the ups and downs that you are going to experience in uni. There are going to be some good days and some bad days.”

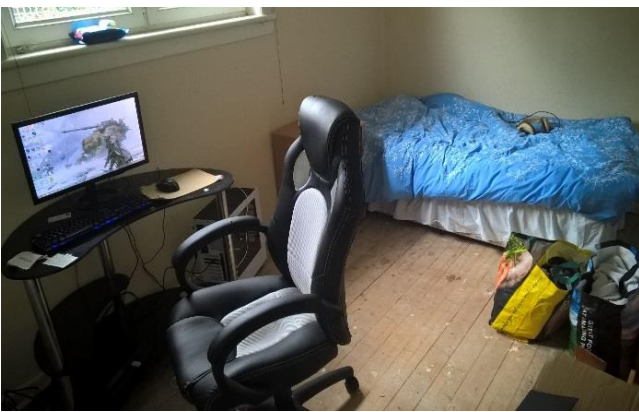


Fig. 7 - New beginnings: moving into a new home

Many of the participants included the word “new” in their discussion and talked of changes in themselves as new me, or a new kind of student; changes in their home life, like [P22] who took the photograph in Fig. 7 stating “It feels like the start of a new beginning. I’m finding a way to get settled down again and into university life.”



Fig. 8 - New me: getting in early

[P22] described Fig. 8 by stating “I have a lot more focus and am a lot more motivated. I’m motivated to be a university student, much more than I ever was in college. It didn’t take much effort in college but at uni you need to work hard to achieve. I’m enjoying the challenge.”

Emergent themes were identified in relation to the changes experienced by the participants. Table 1 summaries the early findings from the photovoice analysis. The physical environment including changes in access to campus resources and the impact this had on their emerging identity as a ‘night time’ students. Having 24-hour access to the computing facilities embedded their feeling of being a ‘computing student’. The sheer numbers of students and the need to fit into this new environment were highlighted by many participants and this was evident in the photographs of lecture theatres and captions highlighting their anonymity. By far the greatest number of comments related to the change in themselves or their personal circumstances – ‘new accommodation’, ‘new flat mates’, ‘new transport routes’, ‘new note-taking skills’, ‘new routines’ and ‘new challenges’.

<i>Theme</i>	<i>Keywords</i>
Physical space	Group work, Study booths, 24 access computing center, Campus [A], University space, Night time student
Belonging	New environment, Isolation, Fitting in, Feeling anonymous
Personal circumstances	new accommodation, new flat mates, new transport routes, new note-taking skills, new routines, new challenges, independence
Learning styles	Out of my depth, Group work, Coming together, Lectures, New tools to learn, Seeing more clearly
Journey	Following a new path, Not knowing the destination, Big changes, All new
Changes	Big changes, All new, Different kind of student, Emotional rollercoaster, Ups and downs, New beginning
Motivation	More focused, More motivated, More effort, Work hard, Achievement, Enjoying the challenge

Table 1: Emergent themes from photovoice study

VII. IMPLICATIONS FOR FUTURE STUDY AND PRACTICE

The use of photovoice provided a depth of understanding to the transfer student’s experience as they become computing students embedded in the higher education institution. The PV method was successful in giving additional insight into student’s personal perspective, particularly the insight beyond the classroom and the campus which highlighted the changes in the personal lives whether in living arrangements, social interactions or ‘new’ identity development. Further work is planned to extend the PV

project with an emphasis on Phase 6 Reaching Others and Making Change [47][48]. The researcher plans to display the photographs and captions to incoming transfer students during the next academic year to encourage discussion during induction week.

Participant recruitment was one area in which the project could have been improved. The number of students who signed up for the study but either did not produce their photographs or did not attend the focus group was high. Gaining greater insight into the barriers to participation could give greater knowledge for future projects. In this project, emergent themes were looked for and a very broad PV question was posed to the participants. In future studies, greater direction could provide clarity on specific aspects of the transition. Future work examining the use of PV as a method for empowering students and providing scaffolding for the changes they are experiencing including developing an identity as a professional engineer as well as a student would provide valuable insight for STEM subjects and may help to reduce retention issues and enhance graduate outcomes.

VIII. CONCLUSIONS

College transfer students experience a different educational experience from those studying at university, the subjects may be similar and the students demographically equivalent, however, the identity formed around their social group, interactions, expectations and beliefs produces a different student identity. How students identify themselves, the groups and associations they perceive and the experiences they encounter, all affect their future actions and success. The impact of their historic 'learner identity' [10] is evident in their comments around developing new skills and a new attitude and motivation to study. Participants did not highlight the skills they had from college but rather those that needed to develop and the 'new student' they were going to become. This is in line with research by [20] and the notion that individuals 'invest' in 'who they are', building the necessary capital.

Universities must invest in interventions and support structures that build transfer students' capital. The graphical research methods were found to be particularly relevant to this study as they allow the students themselves to become the agents for change – they will shape the interventions and frameworks deployed for future cohorts of transfer students. The use of photovoice surfaced insights into student life beyond the classroom and outside of the campus. This personal access could not have been replicated through surveys or structured interviews, confirming the PV method as particularly relevant for gathering the student's voice. Ensuring computing students have awareness of software and hardware contexts, granting access to appropriate online materials, running familiarization sessions and encouraging the development of the skills necessary to become the new student that they aspire to be.

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