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Validation of a new scale Evaluating the Personal, Interpersonal and Contextual dimensions of growth through learning – the EPIC scale

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ABSTRACT

Learning Together (LT) is a co-educational programme that brings prison- and university-based students together to study in ways that encourage growth via transformative learning. Interviews with participating students identified six core factors that they believed LT fosters: self-efficacy, interpersonal-efficacy, self-esteem, perspective-taking, future orientation, and social cohesion. The current study aimed to validate a new scale Evaluating the Personal, Interpersonal, and Contextual dimensions of growth through LT (the EPIC scale) to assesses all of them concurrently. University students (N = 852) completed the EPIC scale, the questionnaires from which it was adapted, and additional measures to ascertain construct, convergent and discriminant validity. Analyses identified seven-factors, where self-efficacy parsed into 'Perseverance' and 'Drive'. Each of the factors showed relations with the original and related measures. The EPIC scale is a psychometrically sound assessment tool that may be reliably used to track the personal development of students across their participation in learning programmes, including LT.

The benefits of transformative learning on the individual have long been documented in past pedagogical research (e.g., Taylor, 2007). Transformative learning theory (Mezirow, 1991) posits that an individual's previously held values and assumptions are challenged when met with a disruptive change in their 'frame of reference' (e.g., a major life event or a significant change in the learning environment; Mezirow, 1997). This confrontation encourages individuals to revise their beliefs, giving way to more inclusive and reflective ways of thinking (Mezirow, 2003). Collective-learning, particularly group discourse, is suggested to be a prime medium for encouraging transformative learning (Taylor, 2007). It has been suggested that working towards a common goal as a community of learners (e.g., via experiential approaches to learning, engaging in debates, taking on the perspectives of others, and performing group tasks) relates to changes in perceived autonomy, esteem, and identity within each member (see e.g., Freire, 2018; Taylor & Cranton, 2012). Additionally, and especially relevant for learning within a prison environment, some trauma informed approaches to learning recognise the primacy of interpersonal connections and the social context of learning for individual learning outcomes (Phillips, & Melim, 2020). Therefore, by promoting interpersonal and socially contextual factors during transformative learning programmes, the benefits within the individual can be 'unlocked' (Armstrong & Ludlow, 2016).

Transformative learning approaches have been at the forefront of mainstream educational initiatives in a variety of countries (e.g., Ghana; Addae, 2020 and the USA; Allred, 2009) and at different levels of learning, from primary (Castelijns, Vermeulen, & Kools, 2013) to tertiary (Walter, 2019a and 2019b) education. More recently, these advances have generated interest in integrating transformative learning into prison-based education programmes. 'Learning Together', one such programme, is an ongoing prison and university partnership based at the University of Cambridge (Armstrong & Ludlow, 2016). The aim of Learning Together, driven by social justice values, is to increase the inclusivity of higher-education by bringing together diverse cohorts of university- and prison-based students to promote individual, institutional and broader social transformations through learning. Groups of approximately 20 students (ten university-based and ten prison-based) typically convene in a shared classroom at their local prison, where they take part in lectures and discussions in their chosen discipline (e.g., criminology, philosophy, law or creative writing etc.) once a week for ten weeks. The emphasis of prison and university partnerships, such as

Abbreviations: LT, Learning Together; EPIC scale, The Evaluating of Personal, Interpersonal and Contextual dimensions scale.

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Learning Together is on theoretically led, experientially grounded, collaborative learning group collaboration and interaction for instance via higher education lectures and small group discussions including two prison-based and two university-based students and a facilitator. Thus, in line with transformative learning theory, the core ethos of Learning Together is that through encouraging collective work, breaking down preconceived notions of others, and reducing 'us versus them' thinking, transformative learning communities can be created (Armstrong & Ludlow, 2016, 2020) . It is hoped that Learning Together offers the university- and prison-based students benefits that are both mutual (e.g., increased self-esteem) and group-specific (e.g., decreased chance of reoffending after serving their sentence in the prison-based students, or a broadened appreciation of professional capacities and employment options for university-based students).

Results from qualitative interviews conducted with Learning Together student cohorts have begun to evidence these benefits and impacts (Armstrong, Ludlow, Obsuth, & Lamour, 2020). A recurring theme that emerged from this qualitative data was an improvement in students' perceived self-worth, a strengthened belief in their agency and confidence in themselves to achieve their goals as a result of interacting and working closely with their fellow course-mates. In other words, it appeared that individual development was achieved via the students' beliefs in their competency to successfully collaborate, communicate, and learn together with their peers. For example, through taking the perspectives of prison-based students on board, university-based students reported having clearer visions of their futures; particularly regarding their desire to pursue careers in social justice linked professions. Likewise, prison-based students noted that working closely with university-based students gave them a better view of themselves in society and more optimistic views of how they might contribute in the future. The final key theme that emerged was an increased sense of community between the students. Students reported a strong sense of 'oneness' with their peers, identifying, at times with notable initial surprise, a number of similarities between them that were not diminished by their differences. This realisation led students to feel empowered in the classroom and beyond.

The themes that emerged from the analyses of students' qualitative interviews are in line with existing pedagogical and psychological research and theory. At the *individual* level, students reported increased feelings of self-esteem and self-efficacy as a result of Learning Together participation. While the two concepts are distinct, self-esteem and self-efficacy (i.e., the belief in one's capabilities and agency to achieve one's goals; Bandura, 2010) are often thought of as conceptually intertwined, both at the theoretical and empirical level (Gardner and Pierce, 1998). For example, it has been posited that these psychological factors may exist within a general self-evaluative domain, containing affective, motivational, and cognitive components (Judge, Thoresen, Pucik, & Welbourne, 1999). Thus, it can be predicted that if an individual recognises their self-worth, they will also have confidence in their abilities to achieve and succeed, as reported by the Learning Together students. Developing a more positive sense of self and a stronger sense of agency can give rise to a more positive outlook related to one's future. This is important to Learning Together, as increased self-efficacy, self-esteem (Johnston, Brezina, & Crank, 2019), and future orientation (Walters, 2013), have each been found to significantly improve the chance of individuals within the criminal justice system desisting from crime.

Furthermore, there is evidence that *interpersonal* skills, such as perspective taking and interpersonal-efficacy, lie at the heart of the self-esteem/self-efficacy relation within learning environments (Schunk & Usher, 2012; Armstrong et al., 2020). For example, Bandura (2010) speculated that social experiences are an important source of self-efficacy, where observing the success of others can strengthen the observer's beliefs that they too possess the skills required to succeed. Similarly, Laal and Ghodsi (2012) posited that valuing and incorporating the perspectives of others can create caring social systems within the community of learners; creating a synergistic atmosphere where individuals can support, and be supported, by peers in their learning. This can give way to feelings of self-worth and a sense of purpose within each individual (Laal & Ghodsi, 2012); as echoed in the Learning Together students' data.

In a similar vein, enhancing personal (e.g., self-esteem) and interpersonal (e.g., interpersonal-efficacy) factors during collective learning experiences can, in turn, have positive outward effects on perceived *social cohesion*. In other words, a group of learners realising their individual worth and personal strengths through Learning Together may be more able to see the worth and strengths of those around them. Social cohesion is one aspect of collective efficacy. It describes how people think and feel about others with whom they interact in their immediate social context. Social cohesion is well established as an important element of safer and healthier communities (e.g., Sampson, 2006) and facilitating social cohesion in order to develop a sense of belonging within diverse neighbourhoods has long been an important policy objective in the UK (Home Office, 2004). Interest in measuring student's perceptions of social cohesion in their immediate social circles stemmed from qualitative data suggesting that as university- and prison-based students learned together, and they became a more cohesive and empowered community of learners, they began to perceive and interact with their immediate social and institutional contexts differently. This mirrors findings from educational research in diverse and divided societies, which has shown how building social cohesion through shared education can enhance broader community relations, even beyond the relations of the immediate learners (Loader & Hughes, 2017).

The clear next step for evaluation of the Learning Together prison and university partnership was therefore to develop a questionnaire that could function as an assessment-tool to capture individual, interpersonal and contextual aspects of growth through Learning Together that were consistent with transformative learning theory and had been identified in the qualitative interviews. Currently, there is no single measure that can assess growth in the three areas that transformative learning aims to foster within a learning context (i.e., the personal, interpersonal, and socially contextual factors). There were several advantages of developing such a learning context-specific measure. First, using a battery of previously validated questionnaires that assess each of the six factors emerging from the themes in the qualitative data (i.e., self-esteem, self-efficacy, future orientation, interpersonal efficacy, perspective taking and social cohesion) could be both time-consuming to the students and may fail to detect nuances in their personal growth. Moreover, for some measures, for instance self-efficacy, it has been previously recommended that measures relating to it should be tailored for the areas of function that are being examined (Bandura, 2006), for instance, in a learning environment, the measure of self-efficacy would be related to learning. Thus, a questionnaire comprised of the most pertinent items of each of the original measures, adapted for the Learning Together students, could provide a more time-efficient and accurate way to evaluate their development. Second, this brief measure could offer Learning Together the opportunity to collect data from the students longitudinally, from early involvement in Learning Together, to course completion and beyond, to track their individual, interpersonal and contextual development trajectories over time and in different contexts. Finally, looking beyond Learning Together, having a single questionnaire that taps key aspects of transformative learning and may be utilised across different learning contexts will enable a direct and reliable comparison of outcomes of different educational programmes related to each of the assessed factors.

1. The Current Study

The current study's overarching goal was therefore to investigate the validity of the newly developed measure (dubbed the 'Evaluating the Personal, Interpersonal and Contextual growth through Learning Together Scale'; henceforth the 'EPIC' scale), using a large sample of opportunistically recruited university students. There were four aims:

(1) First, to investigate the underlying factor structure of the hypothesised EPIC scale. It was expected that the scale would yield the six factors it was designed to assess (i.e., self-esteem, self-efficacy, future orientation, interpersonal efficacy, perspective taking and social cohesion).
(2) Second, to investigate if the EPIC scale encapsulates the core characteristics of transformative learning. We predicted that the EPIC scale would yield the three latent factors comprising of the six individual factors (i.e., 'Individual' characteristics: self-esteem, self-efficacy, future orientation; 'Interpersonal' characteristics: interpersonal efficacy, perspective taking, and 'Contextual' characteristics: social cohesion).
(3) Third, to investigate the internal consistency/reliability of the EPIC scale's factors. Given the questions underpinning these factors were derived from previously validated measures, it was predicted that they would yield satisfactory Cronbach alpha values.
(4) Fourth, to examine the construct validity of the EPIC scale's factors in relation to the original measures from which each of them was developed. It was hypothesised that each of the proposed EPIC scale's adapted subfactors would correlate significantly with the corresponding original measure from which it was adapted.
(5) Lastly, to examine the convergent and discriminant validity of the EPIC scale factors. As past research has illuminated links between improved psychological health and each of the factors assessed by the EPIC scale (e.g., Mann, Hosman, Schaalma, & De Vries, 2004; Siddiqui, 2015; Williams, Maguire, Morrissey, Taylor, & Wyatt, 2020), correlational analysis between EPIC scale factors and a measure of mental wellbeing was expected to reflect this. Likewise, differing associations between psychological factors and styles of motivation have been previously documented. For example, feelings of self-determination and self-worth are associated with intrinsic motivation (Deci & Ryan, 2013). Conversely, perceived abilities in working successfully with others have been found to be exclusively linked with extrinsic motivation (Liu, 2020). Given this, it was expected that factors related to personal development (e.g., self-efficacy) would be more associated with intrinsic motivation, while interpersonal development (e.g., interpersonal-efficacy) would be more associated with extrinsic motivation.

2. Methods

2.1. EPIC Scale Development

Given the findings from the qualitative interviews, previous research, and theory, it was concluded that six key concepts emerged from the students' responses; three factors related to personal development (i.e., self-esteem, self-efficacy, and future orientation), two factors related to interpersonal development (i.e., interpersonal-efficacy and perspective-taking), and one factor related to the broader collective-learning context (i.e., social cohesion). Construction of the scale began by identifying existing measures that could be adapted. To ensure that the new scale was as reliable as possible, scales considered to be the best-performing and most accurate in assessing each of the six factors were selected; The Efficacy Scale (Sherer et al., 1982; adapted to assess self- and interpersonal efficacy), the Rosenberg Self-Esteem Scale (Rosenberg, 1965; adapted to assess self-esteem), the perspective-taking subfactor of the Interpersonal Reactivity Index (Davis, 1980; adapted to assess perspective-taking), the Dimensions of Identity Development Scale (Luyckx et al., 2008; adapted to assess future-orientation) and the Collective-Efficacy Scale (Sampson, Raudenbush, & Earls, 1997; adapted to measure social cohesion).

Next, a number of items from these scales were chosen and reworded to be specific for the collective-learning context. For example, the original item in the Collective-Efficacy Scale (Sampson et al., 1997), "People around here are willing to help their neighbours", became, "They would help someone else by motivating them to achieve their goals." Taken collectively, the adapted items were then collated to give the 37-item EPIC scale. All of the adapted scales were adjusted to be scored on a scale from 1 to 10 to capture greater variance and allow for the assessment of change. Items within the Self-Efficacy and Interpersonal-Efficacy subfactors were scored from 1 = "Cannot Do at All" to 10 = "Highly Certain Can Do"; the Self-Esteem, Perspective--Taking and Future Orientation subfactors were scored from 1 = "Strongly Disagree" to 10 = "Strongly Agree"; and the Social Cohesion subfactor was scored in terms of how each statement applied to 1 = "Nobody" to 10 = "Everyone" with respect to the individuals the student interacted with on a regular basis (their broader social circles).

2.2. Participants

Information from 852 students primarily from the University of Cambridge and the University of Edinburgh was analysed to test the validity of the EPIC scale. The sample was predominately female (69.5%) of white ethnicity (65.3%) with English as their first language (88.3%), and with an average age of 24.45 (SD = 6.69). Most of the sample were postgraduate students (60.7%), with an additional 39.3% of the sample consisting of undergraduate students (see Table 1 for a full overview of the sample).

2.3. Procedure

Students were invited to participate in an online questionnaire, constructed using Qualtrics. Students were recruited opportunistically via the University of Cambridge's and the University of Edinburgh's official student email lists and via social media. Participants were first provided with an electronic information sheet that gave an overview of the study's key aims and were then invited to sign a consent form. It was stressed to the participants that involvement in the study was voluntary and their responses would be anonymous. Participants were then asked to complete the questionnaire and provide demographic information (i.e., age, sex, degree type, ethnicity, university in attendance, and if English was their first language). To incentivise study involvement, participants were invited to enter a prize draw to win one of four £ 40 Amazon vouchers. Data collection occurred from November 2019 to January 2020. Ethical approval was obtained from both the University of Cambridge and the University of Edinburgh Ethics Committee. All measures were administered in English.

2.4. Materials

2.4.1. Evaluating the Personal, Interpersonal, and Contextual Characteristics of Growth through Learning (EPIC) Scale

In the sections that follow, we provide summaries of the original measures that were used to develop the EPIC scale. Both the full EPIC scale and each of the original measures were administered to the participants as a battery of questionnaires.

2.4.2. Self- and Interpersonal-Efficacy

Twenty adapted items of the 23-item Self-Efficacy Scale (Sherer et al., 1982) were selected to encapsulate the Efficacy subfactors of the EPIC scale. A total of thirteen items assessed self-efficacy (e.g., "I can face difficulties in my learning") and seven items assessed interpersonal-efficacy (e.g., "I can handle myself well in groups of people I know"). The original Self-Efficacy Scale has been found to have excellent psychometric properties (Imam, 2007), with the current study finding the scale had good internal consistency (α = 0.884). The Self-Efficacy Scale is rated on a 5-point Likert scale (1 = "Completely Disagree" to 5 = "Completely Agree") with scores ranging from 23 to 115. Higher scores on both the newly developed efficacy subfactors and

Table 1
Overview of sample characteristics (n = 852).

Metric	N *(%)*
Participant Gender	
Males	243 *(28.5)*
Females	592 *(69.5)*
Prefer Not to Say	17 *(2.0)*
Participant Age	
18 – 25	607 *(71.2)*
26 – 35	183 *(21.5)*
36 – 45	31 *(3.6)*
45 +	20 *(2.4)*
Missing	*11 (1.3)*
Participant's University	
University of Cambridge	553 *(64.9)*
University of Edinburgh	202 *(23.7)*
Other UK Universities	48 *(5.6)*
Other European Universities	31 *(3.6)*
Other International Universities	18 *(2.1)*
Participant Ethnicity	
White	556 *(65.3)*
Black/African/Caribbean/Black British	12 *(1.4)*
Mixed/Multiple Ethnic Groups	43 *(5.0)*
Asian/Asian British	201 *(23.6)*
Other Ethnicity	25 *(2.9)*
Prefer Not to Say	15 *(1.8)*
English as First Language	
Yes	752 *(88.3)*
No	100 *(11.7)*
Degree Type	
Undergraduate	335 *(39.1)*
Masters	270 *(31.5)*
PhD	182 *(21.2)*
Postgraduate Certificate/Diploma	65 *(7.6)*

Measure	Mean	SD	Range	Skewness	Kurtosis
EPIC Scale's Proposed Subfactors					
Self-Efficacy	95.54	19.58	9–130	-1.12	1.54
Interpersonal-Efficacy	52.14	11.66	2–70	-1.04	1.00
Self-Esteem	27.87	8.07	1–40	-0.897	.454
Perspective-Taking	24.03	4.21	4–30	-1.22	1.79
Social Cohesion	43.42	11.39	0–60	-1.09	1.03
Original Measures					
Rosenberg Self-Esteem Scale	28.00	5.82	10 – 40	-0.177	-0.159
IRI: Perspective Taking	18.98	4.63	0–28	-0.453	.491
Self-Efficacy Scale	78.99	12.61	38–113	-0.102	.070
Collective Efficacy Scale	29.72	6.45	10–49	.045	.046
Dimensions of Identity Development Scale	85.05	14.57	30–125	-0.620	.807
Work Preference Inventory	92.55	8.28	60–111	-0.579	.250
Warwick Edinburgh Mental Wellbeing Scale	46.11	9.07	14–70	-0.273	.308

Note. EPIC: Exploring the Personal, Interpersonal and Context IRI: Interpersonal Reactivity Index

the original scale are indicative of better self- and interpersonal-efficacy.

2.4.3. Self-Esteem

Four items of the widely administered ten-item Rosenberg Self-Esteem Scale (Rosenberg, 1965) were selected and adapted to underpin the 'Self-Esteem' subfactor (e.g., "I feel that I have a number of good qualities"). The Rosenberg Self-Esteem Scale has been widely used for over six decades, with numerous past investigations finding support of the scale's validity and reliability (Schmitt & Allik, 2005). In the current study, the Rosenberg Self-Esteem Scale scores were found to have excellent internal consistency (α = 0.910). The scale's items are rated on a 4-point Likert scale (1 = "Strongly Disagree" to 4 = "Strongly Agree"), with scores ranging from 10 to 40. On both the newly developed self-esteem subfactor and the Rosenberg Self-Esteem Scale, higher scores are indicative of higher self-esteem.

2.4.4. Perspective-Taking

Three items were selected for use from the seven-item Perspective-Taking subfactor of the Interpersonal Reactivity Index ('IRI: Perspective-Taking', Davis, 1980; e.g., "I sometimes try to understand people I know better by imagining how things look from their perspective"). The IRI: Perspective-Taking subfactor have been previously found to have good psychometric properties and good internal consistency (Fernández, Dufey, & Kramp, 2011), similar to the current study (α = 0.796). Scores ranged from 0 to 28, with higher scores indicative of more intact abilities to take on board the perspective of others.

2.4.5. Future Orientation

Four items from the 25-item Dimensions of Identity Development Scale (Luyckx et al., 2008) were adapted and used to underpin the Future Orientation subfactor (e.g., "I often think about the future I strive for."). The Dimensions of Identity Development Scale assesses identity formation, with items rated on a 5-point Likert scale and scores ranging between 25 and 125. In the current study, Dimensions of Identity Development Scale scores were found to have good internal consistency (α = 0.889). Higher scores on the Future Orientation subfactor are indicative of a clearer outlook of one's future prospects, whereas higher scores on the Dimensions of Identity Development Scale are indicative of a more secure global outlook on one's uniqueness and sameness with others in society.

2.4.6. Social Cohesion

The Social Cohesion scale was developed from analysis of qualitative data on students' perspectives of their immediate social context, which included reference to aspects of social cohesion linked to support from others during positive and negative experiences. Items were adapted from the original 10-item Collective Efficacy Scale (Sampson et al., 1997) developed to assess social cohesion amongst neighbours and their willingness to intervene on behalf of the common good, such as reducing community crime and violence. It also included item for the 'support during positive times' factor, adapted from the Strengths-Based Practices Inventory (Green, McAllister, & Tarte, 2004). In the current study, the scales were adapted to capture the Learning Together students' social cohesion, particularly regarding the students' beliefs that others in their immediate social circles would support, motivate, and encourage them in their learning. The newly developed scale consists of six items rated on a 5-point Likert scale (1 = "Very Unlikely" to 5 = "Very Likely"), with scores ranging between 10 and 50. Collective Efficacy Scale scores were found to have good internal consistency in the current study (α = 0.822). Scores on both the Social Cohesion subfactor and the Collective Efficacy Scale are indicative of social cohesion, and are measures of the social context relevant to transformative learning. In the interests of study duration reduction, the full Strengths-Based Practices Inventory (Green et al., 2004) was not administered to the current study's sample.

2.5. Additional Measures

2.5.1. Work Preference Inventory

The Work Preference Inventory (Amabile, Hill, Hennessey, & Tighe, 1994) is a 30-item measure that assesses individual differences in work motivation. The measure was developed to have two underlying subfactors that assess intrinsic motivation (i.e., doing work, tasks or other efforts for the sake of the individual's enjoyment and satisfaction, e.g., "What matters most to me is enjoying what I do") and extrinsic motivation (i.e., performing tasks for the sake of gaining compensation, recognition, or any other reward, e.g., "I believe that there is no point in doing a good job if nobody else knows about it"). Past investigations have examined the scale's validity and reliability, finding it has good psychometric properties (e.g., Penagos-Corzo, Olvera Esquivel, &

Pintado Cucarella, 2017), similar to the observations in the current study (α = 0.705). Items were rated on a 5-point Likert scale (1 = "Never or Almost Never True of Me" to 5 = "Always or Almost Always True of Me"), with scores ranging between 30 and 150. Higher scores on both subfactors were indicative of more motivation.

2.5.2. Warwick-Edinburgh Mental Wellbeing Scale

The Warwick-Edinburgh Mental Wellbeing Scale (Tennant et al., 2007) is a 14-item measure of general mental health (e.g., "I've been feeling good about myself"). The scale's validity has been reported in past investigations, showing construct validity with other gold-standard measures of mental health and internal consistency (Tennant et al., 2007), with the current study finding an internal consistency of the scale at α = 0.912. Items are rated on a 5-point Likert scale (1 = "None of the Time" to 5 = "All of the Time") with scores ranging between 14 and 70. Higher scores are indicative of better-quality mental wellbeing.

2.5.3. Statistical Analysis Plan

Prior to the main analysis, the data were cleaned, multivariate outliers were excluded, and descriptive analyses were conducted. Given that it was expected that both exploratory factor analysis (EFA) and confirmatory factor analyses (CFA) would be required to be conducted, participants were first split into two randomized groups; one larger sample (n = 500) for CFA, and one smaller sample (n = 382) for EFA. These sample sizes were considered satisfactory, as larger sample sizes are typically required for CFA (Kyriazos, 2018; Wolf, Harrington, Clark, & Miller, 2013) when compared to EFA (e.g., minimum recommended sample size of n = 200; MacCallum, Widaman, Zhang, & Hong, 1999). Using a random number generator, the dataset was split at the 501st participant in order to create the two samples. This was done to avoid running both exploratory and confirmatory factor analyses on the same sample; as recommended by Finch (2020) and Henson and Roberts (2006). Furthermore, given that the same sample can be used for repeated CFAs (Finch, 2020), the larger sample (n = 500) was used across the three confirmatory factor models tested in the current study.

In order to investigate the optimal factor structure of the EPIC scale, a similar statistical procedure to Sarac and colleagues (2011) was used; whereby an EFA was first conducted based on the data from the smaller sample (n = 382) to identify the feasibility of the hypothesised six-factor model, as well as to explore an alternative model. A significant Barlett's test of sphericity and a Kaiser-Meyer-Olkin test of sampling adequacy value > 0.500 were used to determine whether the data was suitable for factor analysis (Williams, Onsman, & Brown, 2010). As the subfactors were expected to significantly correlate, an oblimin rotation was selected. Further, because maximum likelihood is recommended over other extraction methods (e.g., principal components analysis; Costello and Osborne, 2005) it was thus used in the analysis. To simplify interpretation of the results, factor loadings under .300 were suppressed and factor(s) with eigenvalues > 1.00 were considered meaningful.

Next, continuing Sarac and colleagues' (2011) method, a series of CFA models were run on the second larger sample (n = 500) in order to test model fit of both the hypothesised six-factor structure, as well as an optimised, seven-factor structure that was identified in the EFA. Model fit was considered satisfactory if the following criteria were met; CFI > 0.900, RMSEA < 0.060 and SRMR < 0.080 (Sun, 2005). Given that the model chi-square test is highly sensitive to sample size (Anderson & Gerbing, 1984), it was expected to emerge as significant in the model. As recommended by Enders and Bandalos (2001), full maximum likelihood estimation was used in the CFA to address missing data.

After identifying the best model fit for the EPIC scale, a final second-order CFA was conducted, with 'Personal', 'Interpersonal', and 'Contextual' characteristics latent second-order variables. Goodness-of-fit was assessed using the same criteria outlined by Sun (2005). In order to assess model fit difference between the hypothesised six-factor structure and the three-laten variable SEM model, Bayesian information criterion (BIC) values will also be compared. A smaller BIC value and change in BIC value > 10 will be used to identify the better fitting model (Raftery, 1999).

Lastly, the validity and reliability of the EPIC scale's subfactors were examined, using the data from the larger CFA sample (n = 500). Cronbach alpha values for the seven identified first-order and the two second-order factors were first computed, in order to investigate their internal consistency. Using the recomenedations of Nunnaily (1978), internal consistency was considered satisfactory when the alpha values were above.700. The construct validity of the EPIC scale's first- and second-order subfactors were then explored by running correlations between the subfactors and the original measures from which they were adapted. Convergent and discriminant validity was then assessed by conducting further correlations that explored the strength of associations between the EPIC scale's subfactors and the external measures, the Work Preference Inventory and the Warwick-Edinburgh Mental Wellbeing Scale. For continuity, all correlational analyses were conducted on the first randomised sample (n = 500). Further, using the recommendations of Cohen (1988), effect sizes of the correlational values were interpreted as follows; r < 0.300 = small, r < 0.500 = medium, and r > 0.500 = large. Descriptive analyses were conducted on SPSS version 24 and factor analyses were conducted using the lavaan and psych packages for R (Rosseel, 2012; Revelle, 2021).

2.5.4. Data Cleaning and Missing Data

A total of 1107 students completed at least part of the survey. On inspection of the dataset, 243 participants did not complete any of the psychometric measures and were thus excluded, giving a sample size of n = 864. Furthermore, a proportion of the participants partially completed the questionnaire. Thus, the sample sizes for each of the measures were as follows; the EPIC Scale's Efficacy subfactors (n = 864), the EPIC scale's Self-Esteem, Perspective-Taking and Future Orientation subfactors (n = 797), the EPIC scale's Social Cohesion subfactor (n = 737), the Rosenberg Self-Esteem Scale (n = 721), the Perspective Taking subfactor of the Interpersonal Reactivity Index (n = 713), the original Self-Efficacy Scale (n = 765), the Work Preference Inventory (n = 675), the Dimensions of Identity Development Scale (n = 658), the Collective Efficacy Scale (n = 651) and the Warwick-Edinburgh Mental Wellbeing Scale (n = 646). As no missing data was observed at the item-level across all the psychometric measures, data from these participants were retained and included in the analyses. Thus, to address the varying sample sizes for each of the variables, pairwise deletions were run when appropriate (e.g., when computing correlation matrices).

Next, two participants were found to be under the age limit of inclusion and were removed from the dataset. To identify Multivariate outliers, Mahalanobis' distances were calculated with the critical alpha set at p < .001. With the critical chi-square of 27.88, five participants were identified as outliers and were thus removed from the dataset, to give a sample size of n = 857. Lastly, five participants were identified as not currently attending university, and were thus not considered students. These participants were also removed from the dataset, to give a final sample size of n = 852. Independent sample t-tests revealed no significant differences on any of the demographic variables (i.e., age, gender ethnicity, English as first language, degree type, and university) between the participants included (n = 852) and those excluded for the various reasons described above (n = 255). Furthermore, a final independent sample t-test revealed no significant difference between the number of missing data points between the subsample generated for the CFA (n = 500) and the subsample generated for the EFA (n = 382) [t (850) = 1.36, p = .174].

3. Results

3.1. EPIC Scale Factor Structure

3.1.1. EFA to Identify Optimal Factor Structure

Using EFA, it was first of interest to test the feasibility of the

hypothesised six-factor structure, as well as potentially identify an alternative factor structure, using data from the smaller randomised sample (n = 382) (see Table 2). The KMO test of sampling adequacy was.924, suggesting the data had high factorability. Furthermore, the Bartlett's test of sphericity was significant [χ^2 (666) = 13637.81, p < .001]. The analysis revealed seven, not six, factors underpinned the EPIC scale, where the Self-Efficacy items parsed into two factors we have identified as 'Perseverance' and, 'Drive' subfactors. The model was found to explain a total of 54% of the variance, with 'Self-Efficacy: Perseverance' explaining 11%, 'Social Cohesion' explaining 10%, 'Interpersonal Efficacy' explaining 9%, 'Self-Esteem' explaining 7%, 'Self-Efficacy: Drive' explaining 7%, 'Future Orientation' explain 6%,

Table 2
Exploratory factor analysis of the EPIC scale[1], with oblimin rotation and maximum likelihood extraction.

	Personal Characteristics				Interpersonal Characteristics		Contextual Characteristics
Item	**F1:** Self- Efficacy: Perseverance	**F2:** Self-Efficacy: Drive	**F3:** Self-Esteem	**F4:** Future Orientation	**F5:** Interpersonal Efficacy	**F6:** Perspective-Taking	**F7:** Social Cohesion
I can keep trying even when I fail.	.800						
I can put myself forward to try new things even when they look too difficult for me.	.720						
When trying to learn something new, I can persevere even if I am not initially successful.	.690						
I can handle unexpected challenges in my learning.	.650						
I can try doing a task even if it seems complicated at first glance.	.510						
If I can't do a job the first. I keep trying until I can.	.470						
I can face difficulties in my learning.	.450						
I can stick to things until I finish them even if I am not enjoying them.	.430						
I can get down to work when I should.		.880					
I can get down to work even when I am faced with distractions (something I may rather do).		.830					
When I make plans, I can make them work.		.420					
When I decide to do something, I can go right to work on it.		.400					
I can complete a task even when I am tired and feel like giving up.		.320					
I feel that I have a number of good qualities.			.770				
On the whole, I am satisfied with myself.			.740				
I feel that I am a person of worth, at least on equal plane with others.			.700				
I feel I do not have much to be proud of.			.570				
I know what I want to do with my future.				.880			
I am uncertain what I want to do with my future.				.730			
I feel positive about who I am because I know what I want to do with my future.				.690			
I often think about the future I strive for.				.310			
I can handle myself well in groups of people I do not know.					.900		
I can introduce myself to new people and start a conversation.					.850		
I can build positive relationships with people even if they don't seem that interested in me at first.					.630		
I can work well with new people.					.560		
I can share my ideas confidently with other people.					.510		
I can build relationships that help me to work with people who seem different to me.					.500		
I can handle myself well in groups of people I know.					.400		
I sometimes try to understand people I know better by imagining how things look from their perspective.						.590	
Even if I feel that I am right about something, I listen to other people's arguments.						.540	
I believe that there are different ways to look at every question and I try to consider as many different viewpoints as possible.						.540	
They would be willing to help each other when things get difficult.							.880
They would be genuinely interested in how others are getting on.							.780
They wouldn't give up on each other.							.760
They would help someone else by motivating them to achieve their goals.							.730
They would try something outside of their comfort zone.							.680
They would interact with people who are not like them.							.660

[1] To use the EPIC scale, please contact the authors.

and 'Perspective-Taking' explaining 4% of the variance.

3.1.2. CFA to Test Hypothetical (6-Factor) and Optimised (7-Factor) Models

Next, to test the model fit of the hypothesised 6- and optimised 7-factor stuctures, two independent CFA were conducted using data from the larger randomised sample (n = 500). The hypothesed model was found to have an acceptable but not optimal goodness-of-fit ($\chi 2$ (614) = 1595.24, $p < .001$; CFI = 0.891; SRMR = 0.054; RMSEA = 0.057; 95% CI [.053,.060]); and BIC = 72724.456). In contrast, the optimised model was found to have an improved fit,

with $\chi 2$ (608) = 1430.05, $p < .001$; CFI = 0.908; SRMR = 0.055; RMSEA = 0.052, 95% CI [.049,.055); and BIC = 72596.56).

3.1.3. Second-Order Confirmatory Factor Model

Lastly, as hypothesised, it was expected that the EPIC scale could be conceptualised with having three second-order latent variables; 'Personal' (comprised of the Self-Efficacy: Perseverance, Self-Efficacy: Drive, Self-Esteem and Future Orientation subfactors), 'Interpersonal' (comprised of the Perspective-Taking and Interpersonal-Efficacy subfactors), and 'Contextual' (comprised of the Social Cohesion subfactor). The optimised seven-factor model was thus rerun with the three second-order latent variables (see Fig. 1). Items measuring social cohesion were used to underpin the 'Contextual' latent variable, instead of the individual 'Social Cohesion' subfactor. Model fit was found to be acceptable ($\chi 2$ (620) = 1493.58, $p < .001$; CFI = 0.903; SRMR = 0.06; RMSEA = 0.053, 95% CI [.050,.057); and BIC = 72585.51). Further, standardized parameter estimates between 'Personal' and 'Interpersonal', ($\beta = 2.52$, $z = 9.26$, $p < 0.001$, 95% CI [2.00, 3.04]), 'Personal' and 'Contextual' ($\beta = 0.891$, $z = 4.38$, $p < .001$, 95% CI [.493, 1.29]) and 'Interpersonal' and 'Contextual' ($\beta = 0.796$, $z = 3.28$, $p < .001$), 95% CI [.231, 1.27]) were significant. Lastly, significant positive correlations were identified between all the EPIC scale first- and second-order subfactors (see Table 3), with effect sizes ranging from small (e.g., $r = 0.120$, $p = .020$) to large ($r = 0.873$, $p < .001$).

3.1.4. Model Fit Comparisons

To identify the best fitting model across the hypothesised six-factor, optimised seven-factor, and second-order models, BIC values were compared. Model fit was improved from the initial six-factor to the optimised seven-factor model (ΔBIC = 127.90). Furthermore, an improvement was observed from the optimised seven-factor model to the second-order model (ΔBIC = 10.98) suggesting that the latter best captures our data and the interconnectedness of factors. As a result, we reported the remaining analyses based on this model.

3.1.5. Scale Reliability

After establishing the factor structure of the EPIC scale, it was next of interest to confirm the internal consistency of the first- and second-order factors. Most of the EPIC's first-order factors were found to have good internal consistency ('Drive': $\alpha = 0.818$, 'Perseverance': $\alpha = 0.883$, 'Interpersonal-Efficacy': $\alpha = 0.871$, 'Self-Esteem': $\alpha = 0.802$, 'Future Orientation': $\alpha = 0.816$, and 'Social Cohesion': $\alpha = 0.904$), however the 'Perspective-Taking' subscale approached satisfactory internal consistency ($\alpha = 0.626$). Likewise, the second-order factors 'Personal' ($\alpha = 0.920$) and 'Interpersonal' ($\alpha = 0.857$) were found to have good internal consistency.

3.1.6. Construct Validity

Correlations were run to investigate the construct validity of the EPIC scale's seven subfactors and the measures on which they were based (see Table 4). Results revealed high construct validity between the newly developed and original measures, with correlations ranging between $r = 0.317$, $p < .001$ (proposed Social Cohesion subfactor and the Collective Efficacy scale) to $r = 0.773$, $p < .001$ (proposed Self-Esteem subfactor and the Rosenberg Self-Esteem Scale). No non-significant correlations were observed.

3.1.7. Convergent and Discriminant Validity

Convergent and discriminant validity was assessed by examining relations between the EPIC scale's seven subfactors and the additional measures (see Table 5). As predicted, significant correlations, with effect sizes ranging between small ($r = 0.233$, $p < .001$) and large ($r = 0.622$, $p < .001$), were observed between all seven of the EPIC scale subfactors and the Warwick-Edinburgh Mental Wellbeing Scale. Furthermore, discriminant validity was observed in the correlations between the EPIC scale's subfactors and the subfactors of the Work Preference Inventory. Specifically, while the Future Orientation ($r = 0.204$, $p < .001$; $r = 0.247$, $p < .001$), Self-Efficacy: Perseverance ($r = 0.124$, $p = .014$; $r = 0.191$, $p < .001$), and Self-Esteem ($r = 0.116$, $p = .022$; $r = 0.104$, $p = .039$) subfactors were associated with both intrinsic and extrinsic motivation with small effect sizes, respectively, the Social Cohesion

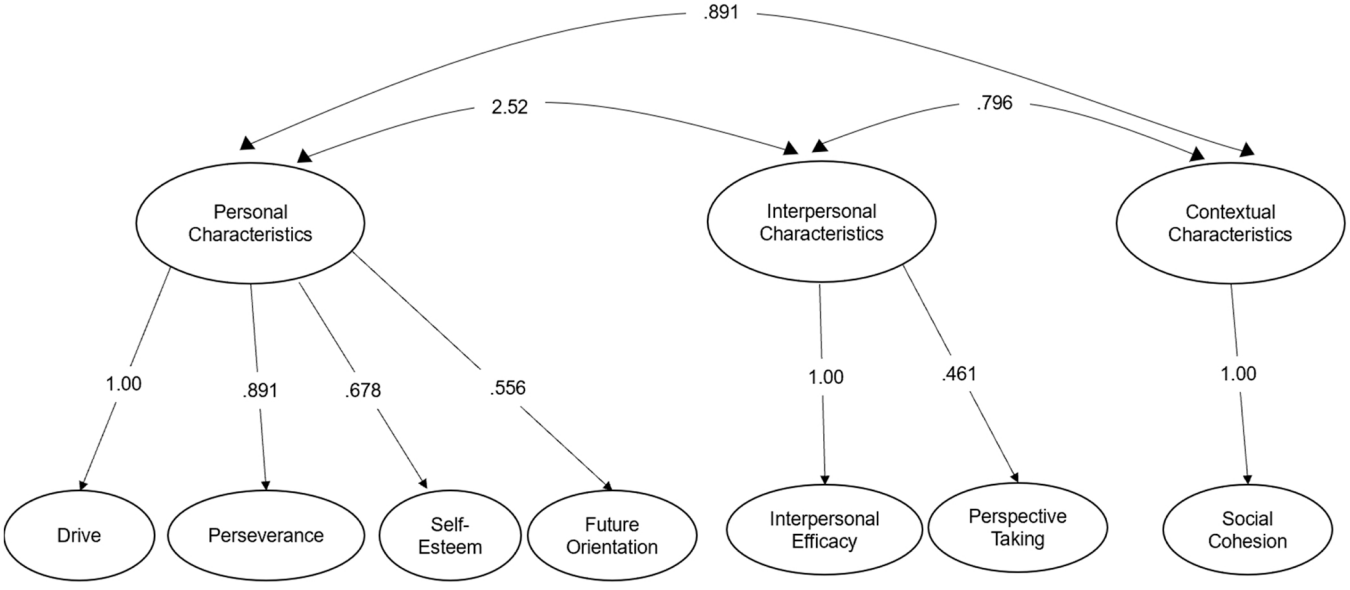

Fig. 1. Second-order model of the EPIC scale, with 'Personal', 'Interpersonal', and 'Contextual' Characteristic second-order factors. Predictors of the first-order factors are not shown for visual clarity. Solid lines indicate significant paths.

Table 3
Correlations between the EPIC's seven identified first-order subfactors and three second-order subfactors.

EPIC Scale Subfactor	1	2	3	4	5	6	7	8	9
1. Self-Efficacy: Drive	/	.650***	.459***	.499***	.362***	.415***	.120*	.788***	.506***
2. Self-Efficacy: Perseverance		/	.560***	.504***	.433***	.474***	.184***	.873***	.599***
3. Interpersonal-Efficacy			/	.498***	.472***	.388***	.170***	.615***	.964***
4. Self-Esteem				/	.366***	.525***	.257***	.765***	.519***
5. Perspective-Taking					/	.326***	.137**	.472***	.689***
6. Future Orientation						/	.153**	.745***	.417***
7. Social Cohesion							/	.229***	.183***
8. 'Personal' Characteristics								/	.620***
9. 'Interpersonal' Characteristics									/

Note. Results from the 'Contextual' Characteristics second-order factor are not presented as they are identical with the Social Cohesion first-order factor results. *p < .05, **p < .01, ***p < .001.

Table 4
Correlations investigating the construct validity of the EPIC scale's seven proposed subfactors with their original measures.

	Original Measures					
	Self-Efficacy Scale: self-efficacy subfactor	*Self-Efficacy Scale: social-efficacy subfactor*	*Rosenberg Self-Esteem Scale*	*IRI: Perspective-Taking*	*Dimensions of Identity Development Scale*	*Collective Efficacy Scale*
Self-Efficacy: Drive	**.669*****	.247***	.429***	.126*	.178***	.138**
Self-Efficacy: Perseverance	**.683*****	.188***	.405***	.170***	.289***	.177***
Interpersonal-Efficacy	.379***	**.621*****	.410***	.144**	.165***	.176***
Self-Esteem	.520***	.342***	**.773*****	.111*	.266***	.210***
Perspective-Taking	.295***	.201***	.233***	**.582*****	.267***	.153***
Future-Orientation	.476***	.238***	.486***	.140**	**.546*****	.132**
Social Cohesion	.179***	.125 *	.179***	.104*	.119*	**.317*****
'Personal' Characteristics	.761***	.313***	.642***	.179***	.408***	.209***
'Interpersonal' Characteristics	.406***	.581***	.412***	.296***	.218***	.194***

Note. Coefficients in bold indicate correlation between newly developed measure and the original measure it was based on. IRI: Interpersonal Reactivity Index. Results from the 'Contextual' Characteristics second-order factor are not presented as they are identical with the Social Cohesion first-order factor results. **p < .01, ***p < .001.

Table 5
Correlations exploring the convergent and discriminant validity of the seven EPIC subfactors.

EPIC Scale Subfactor	WPI: Intrinsic Motivation subfactor	WPI: Extrinsic Motivation subfactor	WEMWS
Self-Efficacy: Drive	.095	.163***	.390***
Self-Efficacy: Perseverance	.124*	.191***	.378***
Interpersonal-Efficacy	.055	.134**	.422***
Self-Esteem	.116*	.104*	.622***
Perspective-Taking	.109*	.027	.273***
Future Orientation	.204***	.247***	.403***
Social Cohesion	.073	.045	.233***
'Personal' Characteristics	.171**	.229***	.559***
'Interpersonal' Characteristics	.072	.120*	.435***

Note. WPI: Work Preference Inventory, WEMWS: Warwick-Edinburgh Mental Wellbeing Scale. Results from the 'Contextual' Characteristics second-order factor are not presented as they are identical with the Social Cohesion first-order factor results. *p < .05, **p < .01, ***p < .001.

subfactor did not correlate with these Work Preference Inventory subfactors. Furthermore, the Perspective Taking subfactor was found to have an exclusive association with intrinsic motivation (r = 0.109, p = .022) whereas the Self-Efficacy: Drive and Interpersonal-Efficacy subfactors were exclusively associated with extrinsic motivation (r = 0.163, p < .001; r = 0.103, p = .008, respectively), with small effect sizes.

4. Discussion

The primary purpose of this study was to examine the psychometric properties and suitability of the newly developed EPIC scale as a measure of personal, interpersonal and contextual growth through Learning Together. To the authors' knowledge, this is the first study to develop such measure for use in individuals participating in a coproduced prison and university partnership in learning, such as Learning Together. Across all analyses conducted, the EPIC scale demonstrated both validity and reliability; suggesting the new scale may be used to accurately assess changes for students that participate in Learning Together.

Four core findings emerged from the current study. First, unsupportive of the hypothesised six-factor structure of the EPIC, the initial EFA revealed an underlying seven-factor structure, where questions assessing self-efficacy parsed into either a factor that assessed students' drive to learn (e.g., "I can get down to work when I should"), and a factor that assessed students' perseverance to overcome difficulties in their studies (e.g., "I can handle unexpected challenges in my learning"). While this was not initially predicted, the finding accords with previous work in self-efficacy. For example, Bandura (2010) speculated that self-efficacy is comprised of four core domains; cognitive (e.g., belief in one's ability to achieve), motivational (e.g., desire to achieve goals, despite potential setbacks), affective (e.g., coping in the face of anxiety and avoidant behaviour), and selectional (e.g., choosing to deal with situations that can be perceivably handled, and avoiding situations that cannot be handled). Given the questions parsed in the analyses, it is thus possible that items measuring students' drive tapped into the motivational processes of self-efficacy, whereas questions pertaining to perseverance captured cognitive processes. These results were supported by two follow-up CFAs, whereby the seven-factor structure demonstrated an optimised model fit when compared to the hypothesised six-factor

structure. Thus, it concluded that the EPIC scale is best conceived as having an underlying seven-, not six-, factor structure.

Second, it was of interest to explore if the three theorised dimensions, 'Personal', 'Interpersonal', and 'Contextual' characteristics, existed within the EPIC scale; tested with a second-order model. Given that all goodness-of-fit criteria were both met and showed an improvement compared to the optimised seven-factor model, and because the second-order factors are both meaningful and useful, it was concluded that this way of contextualising the EPIC scale was valid and accurate. Thus, the measure appears to tap into the individual factors (e.g., self-esteem), the interpersonal factors (e.g., interpersonal efficacy), and the contextual social factors (e.g., improved social cohesion) that can be fostered during Learning Together, supportive of transformative learning theory. This is consistent with the factors at the heart of the Choices and Changes Research Resource Pack Supporting Young Adult Men (also referred to as the Maturity Resource Pack) developed by Her Majesty's Prison & Probation Service (Her Majesty's Prison and Probation Service, 2019). The aim of the resource pack that is delivered to young men who are in prison or following release is to facilitate young men's prosocial change and choice through a range of skill development exercises. Much like in Learning Together, some of the key components include a focus on personal (e.g., self-sufficiency), interpersonal (e.g., perspective taking), and socially contextual (e.g., prosocial decision making) factors. Thus, it appears that the EPIC scale is consistent with other relevant interventions and tools which have been created to foster personal and interpersonal development in individuals within the criminal justice system. The authors therefore recommend the use of the second-order model in future applications of the EPIC scale.

Third, significant relations were found to be shared between the EPIC scale's seven subfactors and the original measures on which they were based (e.g., the EPIC scale's self-esteem subfactor and the Rosenberg Self-Esteem Scale; $r = 0.789$). This was critical to establishing the scale's construct validity, as these strong correlations indicate that the questions selected for use in the EPIC scale (based on the themes from the underpinning qualitative data) were tapping the original constructs and were accurately adapted for use in a learning context. Further, as expected, all seven subfactors were also found to be linked to students' ratings of their well-being (Tennant et al., 2007). In other words, students who rated themselves higher across the personal, interpersonal and contextual domains of the EPIC scale also reported an improvement in their sense of wellbeing. This is consistent with past literature that has identified links between increased mental wellbeing and self-esteem (Mann et al., 2004), efficacy (Siddiqui, 2015), and social cohesion (Williams et al., 2020).

Finally, it was predicted that convergent and discriminant validity between the EPIC scale's subfactors and motivational types would emerge in the analyses. Factors related to self-improvement (e.g., self-esteem, perseverance in learning, and future orientation) were found to be related to an overarching improvement in motivation, showing significant associations with both intrinsic and extrinsic motivation. In contrast, perspective-taking was exclusively associated with intrinsic motivation. This is in line with previous work which has suggested that individuals, who are interested in the viewpoints of others, are typically intrinsically motivated to learn from and integrate these viewpoints into their own perspectives (Grant & Berry, 2011). Additionally, interpersonal-efficacy was uniquely associated with extrinsic motivation. This is also in accordance with past investigations, finding exclusive links between extrinsic motivation and the confidence in oneself to interact socially and work alongside others (Liu, 2020). Lastly, non-significant relations between social cohesion and motivation were observed. This was reasonable to expect as items within the social cohesion subfactor were observer-rated; thus, they could not be influenced by the individual's feelings of increased intrinsic or extrinsic motivation. It was, therefore, concluded that each of the subfactors within the EPIC scale captured a range of important characteristics that may be positively influenced by participating in prison and university partnership, such as Learning Together.

4.1. Previous Work Using the EPIC Scale

The current study relies solely on cross-section data, thus making conclusions about the measure's sensitivity to change difficult. However, an early version of the EPIC scale (comprised of the self-efficacy, interpersonal-efficacy, perspective-taking, and self-esteem subfactors) has been utilised in Learning Together initiatives since 2017, where it was administered at the start, upon completion, and 12 months following the completion of attendance in Learning Together (see Armstrong et al., 2020). Tracking the students' responses over this time period revealed significant gains in the four factors assessed by the EPIC scale. Furthermore, quantitative analyses revealed an exclusive moderating effect of interpersonal-efficacy in the links between increased self-esteem and self-efficacy; and increased self-efficacy and perspective-taking. It was concluded that the social elements of Learning Together (e.g., encouraging the students to learn with, and from, each other) lay at the heart of the transformative learning process; and were thus the key to each students' transformation from within. The results from the current study therefore provide additional support for the validity of the measures used in previous work of Armstrong and colleagues' (2020), as well as new evidence supporting the validity of an updated version of the EPIC scale with additional components that assess personal development within a transformative learning context (i.e., future orientation and social cohesion). As such, our findings thus far suggest that this measure may be used as a reliable and change sensitive tool to assess key aspects of learning and learning gains in educational contexts.

4.2. Future Directions

Looking forward, the EPIC scale offers numerous opportunities for measuring growth through learning in prison and university partnerships and other educational contexts in prisons and beyond. Primarily, continuous applications of the EPIC scale (e.g., from course commencement, course completion, and beyond) can elucidate important information regarding how the students develop across the individual, interpersonal and in different social contexts throughout their lives. In particular, longitudinal data from the EPIC scale can identify causal links between the measure's seven domains; building upon the work of Armstrong and colleagues (2020). For example, exploring the relations between increases in self-esteem and self-efficacy and increases in interpersonal-efficacy, and how these relate to student's future trajectories in life including their social circumstances, wellbeing, involvement in meaningful activities, levels of psycho-social maturity and indices of reoffending, would be a fruitful line of enquiry. As this scale is intended to be utilised with students in university as well as prison settings, it will be important to assess the stability of its factor structure (measurement invariance) across these settings. Following further validation in the prison context, the EPIC scale will permit direct comparisons to be drawn between the experiences and development of university- and prison-based students. Thus, it would be beneficial for prisons to use EPIC scale scores to identify the areas, fostered during Learning Together (e.g., future orientation), that are critical in improving prison-based students' chances of more positive trajectories through their sentences in prisons and outcomes post release. The availability of this validated scale also offers opportunities to pragmatically and philosophically expand systematic evaluations of collective education initiatives, especially in prisons. Likewise, the use of the EPIC scale for students self-assessment of their learning progress, and to collect and compare group-level data through the non-networked digital learning platform developed by Learning Together and Coracle Inside (Bradshaw, 2021), provides opportunity for both systematic data collection, and also the ability to utilise the scale in international Prison-University Partnerships, contributing to comparative study of

transformative learning in prisons in different cultural contexts across higher education and criminal justice settings.

4.3. Limitations

Notwithstanding its insights, this study has several limitations. First, as participants were recruited opportunistically, biases may have been introduced where only students who were particularly motivated to take part in psychological studies participated in the current study. Secondly, the study's sample consisted exclusively of university students and students who have not taken part in prison and university partnerships. This is not uncommon for validation studies where large numbers of participants are necessary to carry out the relevant analyses. However, it is unclear if the findings can be extrapolated to prison-based students who participate in prison and university partnerships. Thus, additional work is required to confirm the validity of the EPIC scale in samples of individuals who are currently resident in prison. In particular, assessing the EPIC scale's measurement invariance between the university- and prison-based students would be a fruitful line of inquiry for future research. A potential limitation within the SEM analysis may have also arisen, where only one indicator variable (social cohesion scores) was used to predict the 'Contextual' latent variable. Ideally, a minimum of three indicator variables should be used to predict one latent variable in SEM analysis (Schumacker and Lomax, 2004), thus, the results should be interpreted with caution. Lastly, while most of the EPIC scale's subfactors were found to have good internal consistency, scores on the perspective-taking subfactor were slightly below acceptable values ($\alpha = 0.624$). One possible explanation for this is the small number of items within this subfactor ($n = 3$), compared to the other EPIC subfactors (e.g., the interpersonal-efficacy subfactor; $n = 7$). Thus, if similar results emerge when the scale is utilised with Learning Together students, it may be beneficial for future iterations of the EPIC scale to include additional items which assess students' perspective-taking abilities.

5. Conclusion

Taken together, results from the current study highlighted the validity of the newly developed EPIC scale. The EPIC scale can therefore be used to accurately evaluate the personal, interpersonal, and contextual aspects of students' growth. Further, the scale can be used to track incremental changes in students' personal and interpersonal development and their assessment of their social context, from the beginning of their learning experience and beyond. Writing as we are, amidst the current Covid-19 pandemic that has seen in-person educational provision in prisons in the UK all but disappear, the EPIC scale also offers an opportunity in the future to evaluate differences in individual, interpersonal and contextual growth through learning for students who study higher education in shared classrooms, and those who study at a distance. Importantly, a questionnaire that taps different key aspects of learning may be utilised across different learning contexts and will allow for an accessible comparison of outcomes following different educational programmes. Used longitudinally, the EPIC scale can help us to understand what aspects of growth through learning are associated with more positive outcomes for students at and after study at university and in our criminal justice system. This is especially important to assessing the longer-term outcomes of more exclusive and excluding 'closed' systems of learning, or more inclusive and involved 'open' ways of learning and will help us to design educational opportunities that are most likely to support student's learning in ways that can be individually, institutionally and socially transformative. This is the kind of education Freire (2018) argued can avoid reproducing the status quo and instead nurture new possibilities for all involved.

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