

Experienced Based Co Design: Nursing Preceptorship Educational Programme

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Method Article

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Abstract

Background

Patients play a central role in nursing preceptorship relationships, a professional educational relationship between a staff nurse and student nurse that is grounded in providing patient care. Yet the patient experiences and perspectives are largely uncaptured in the literature or represented in current preceptorship education programmes. Furthermore, the lack of student, staff nurse & patient involvement in the design of preceptorship education programmes has been noted.

Objective

To use a codesign process to develop an innovative educational programme for developing interpersonal and communication skills among nurses who act as preceptors. We sought to a) clarify experiences and events from all three members involved in a preceptorship relationship (student nurse, preceptor, and patient (SPP)) in order to develop a shared understanding of nursing preceptorship relationships and b) identify the key informational and educational needs recommended by SPP for the educational programme.

Methods

Using the principles and the iterative process of Experienced Based Co Design (EBCD), data was collected from qualitative interviews and used to inform a series of codesign workshops and the co-production of the new educational programme.

Results

Twenty-six individuals, including undergraduate student nurses, staff nurses, patients, and a team of nursing, educational and educational technologist experts, contributed to developing a Preceptorship educational programme that consists of three core elements 1) online reusable learning objects, 2) role play simulations and 3) a virtual reality storytelling simulated experience.

Conclusions

The EBCD process ensured that the educational programme was developed to meet SPP viewpoints associated with fostering positive interpersonal relationships in a nursing preceptorship. EBCD is a valuable framework for developing human-centred educational resources that combine experiential knowledge (experiences) and scientific knowledge (literature-based knowledge). It facilitated the identification and the development of IP & C skills training required within a nursing preceptorship

relationship, creating an authentic and memorable learning programme. The structure of EBCD harnesses SPP involvement throughout the research and development process, ensuring transparency and continuity of message, scope, and outcomes.

Plain English Summary

Nursing preceptorship is a professional educational relationship between a staff nurse and student nurse based on providing patient care. This paper describes a codesign project that involved engaging nursing students, nurses, former patients, and educational & nursing specialists in creating a new nursing preceptorship education programme. The goal was to develop an educational programme that combined scientific evidence with real-life experiences of nursing students, nurses, and patients with a focus on developing nurses' interpersonal and communication skills.

Collaborative codesign workshops were held virtually over several months. Activities included one to one interviews, group discussions and feedback on various drafts of the developing educational programme. Participants provided their stories, opinions, and ideas to create an outline of the new programme. The codesign team then collaborated with educational technologists and a virtual reality production company to complete the state-of-the-art innovative educational programme.

The programme is now ready to be piloted. It is hoped this new innovative programme that blends both scientific knowledge with real-life experiences will help nurses develop the interpersonal and communication skills required when interacting with students and patients.

Introduction

Nursing preceptorship plays a central role in nursing education. *Preceptorship* is defined as a professional educational relationship situated within the clinical hospital environment, between a staff nurse (the preceptor) and a graduate or student nurse, involving the delivery of patient care [1]. Therefore, this professional relationship comprises a triadic relationship between the student nurse, preceptor, and the patient (SPP) [2]. The preceptor acts as a role model, supervises, provides guidance and learning experiences, facilitates the socialisation and development of the student in the nursing profession and provides patient care [3, 4]. When students feel their presence is valued and part of the team, and preceptors' express empathy towards students, positive interpersonal relationships develop [5, 6]. The quality of the preceptorship relationship can significantly influence the student's integration into the nursing profession and the clinical environment and can affect the student's professional development and delivery of patient care [7, 1].

However, interpersonal attributes demonstrated by preceptors can negatively influence the relationship also, including a hostile cultural environment created by preceptors that imposes a hierarchical status on students [9, 10]. Additionally, preceptors that are dismissive and exclude students from daily activities on the ward result in sometimes hostile or resentful attitudes from students [11, 12]. Furthermore, ineffective

feedback methods, i.e., inappropriate locations (In front of the patient) or unconstructive feedback [9, 13], can leave students feeling humiliated and will negatively impacted their relationship with their preceptor. Indeed, within the researcher's institution, each year, several students report difficulties regarding their lived experiences of preceptorship that occur in the clinical setting. These findings suggest that creating positive interpersonal attributes amongst preceptors is an issue that requires a stronger emphasis in preceptorship education programmes. Despite this a recent scoping review emphasised a lack of focus on interpersonal and communication skills training in current nursing preceptorship programmes internationally[14].

Similarly, positive student-patient relationships are fundamental to the quality of clinical education, delivery of patient care and nursing preceptorships. Patients have valuable perspectives that enrich students' clinical education [8]. However, a recent scoping review [14] highlighted the absence of patients' perspectives on being involved in the preceptorship relationship and the lack of Public and Patient Involvement (PPI) in designing and creating such educational programmes [14]. PPI focuses on the active and meaningful engagement of patients and public members in research processes and activities across a projects cycle [15]. In the UK, the National Institute for Health Research [16] defines PPI as researching with patients and the public, so they are not just participants in the research. The triadic relations involved in preceptorship include the patient; therefore, this project included patients in the codesign team.

This project aims to design a new practical "how to precept" based programme that will allow preceptors to actively engage and reflect on their developing interpersonal and communication skills associated with nursing preceptorship. Studies show that continuous reflection on practice facilitates the development of professional-pedagogical competence and positive interpersonal relations [17]. In addition, crucial skills such as teaching and feedback practices will be incorporated into the developed educational programme. It will also include the patient's voice and experiences for the first time to provide trainee preceptors with the knowledge and skills to effectively carry out their roles as preceptors and improve interpersonal relations. This study aims to codesign and coproduce an educational intervention for nursing preceptorship programmes that support interpersonal and communication skills development using EBCD processes. This aim is addressed through two distinct phases.

1. A series of semi-structured interviews with SPP will explore experiences and perceptions of preceptorship and their identified barriers and facilitators to fostering positive interpersonal relationships.
2. A series of EBCD workshops with relevant stakeholders will plan, codesign and develop an educational intervention.

Methods

Experienced Based Codesign (EBCD) is a form of participatory action research that involves healthcare professionals and patients/members of the public working collaboratively to develop practical service improvements and patient care improvements in healthcare [18]. It is a multistage process that involves

exploring and sharing subjective experiences (narrative-based approach) to enhance the skills and knowledge of healthcare professionals and organisations [19]. In this research project, the team adapted an EBCD process to provide a systematic way to identify and prioritise real-world problems experienced by SPP in a nursing preceptorship to inform the co design and co-production of a new preceptorship educational programme.

The EBCD process facilitated the involvement of all three members of the preceptorship relationship (SPP) in conjunction with Clinical Placement Coordinators (CPCs) (end-users; facilitators of the new educational programme), design experts, nursing experts, educational experts, and researchers at every stage of the design process from problem diagnosis to the design and development of this educational programme and its future implementation. The experiential knowledge SPP brings is essential to helping educators acknowledge multiple realities and meanings of nursing preceptorship relationships. It may also identify aspects of the professional relationship that are poorly understood. The codesign workshop employed a design thinking approach, a *"human-centric"* approach that involves the collaborative generation of ideas, defining and refining issues identified by the SPP. Resulting in iterated and generated solutions through brainstorming and prototype building [41].

Throughout the EBCD process, the researchers ensured authentic involvement from all members of the codesign team by implementing Knowles et al.'s framework [20] for authentic co-production. This involved providing a "space to talk", a "space to change", and a "space to talk" again, creating space for shared dialogue and decision making while offering a supportive and friendly environment throughout the project. The project ran for 16 months, commencing in January 2021. Due to Covid-19 government restrictions, the researchers hosted codesign workshops virtually; the codesign and co-production comprised the following steps (See Table 1).

Step 1: Recruitment of Co Designers

For the first phase of recruitment of the co design team, this study adopted a purposive sampling approach to choosing a cross-section of the population that represents "typical" members of a nursing preceptorship relationship (SPP). SPP were recruited to participate in one-to-one interviews and co design workshops. Students undertaking a Bachelor of Science (BSc) General nursing degree programme and qualified nurses who held the position of preceptors, were invited to participate via email through a gatekeeper (a senior administrator from the university programme office). Members of the public were recruited through several methods, including social media advertising posts, community advisement boards and word of mouth through the wider community.

For the second phase, representation was sought from nursing experts, educational experts and technology-enhanced educational experts to collaborate with the SPP groups to inform the design and development of the educational programme in a series of co design workshops. These were chosen based on their expert knowledge in pedagogical design, universal design, storytelling, simulation, and virtual reality and they joined the team as the codesign process evolved. They were invited to participate via email directly by the lead researcher.

All interested participants received an information leaflet by email from the lead researcher describing the nature and purpose of the proposed project, how the project would operate and what level of involvement would be required, to ensure an informed decision about joining the project could be made. They were informed that participation was voluntary, with a right to withdraw from the project at any point without consequences. A two-week period between receipt of the email and obtaining written digital consent occurred. After receiving consent, a short video presentation outlining the practical organisation of the study, the proposed flow of the design workshops, and the goals, tasks, and roles was sent by the lead researcher by email to each co-designer prior to the first codesign workshop.

Twenty-six co-designers were recruited (listed in the acknowledgements section). A small sample size of approximately five participants were present per workshop, in line with expert opinion for effective EBCD workshops[43]. Table 2 outlines the diverse sample achieved and the participant demographics. Ethics approval for this study was granted by the University Human Research Ethics Committee.

Step 2: Capturing narrative experiences.

Narrative interviewing is a method employed to allow the participant to narrate their experience and have their stories captured [21]. Employing a narrative interview methodology using open-ended questions followed by questions based on the key themes identified in a recent scoping review [14], the researcher aimed to capture the experiences and perspectives of being involved in the interpersonal dynamics of a preceptorship relationship from students, preceptors, and patients (SPP). A key component of EBCD is to identify touchpoints, important moments with emotional tone, within an individual experience [22]. Touchpoints in this study denote personal or crucial memories that shape experiences of a nursing preceptorship relationship, where students, preceptors, and patients connect or disconnect.

Semi-structured in-depth interviews were carried out individually with each participant and independently of the group they belonged to (i.e., SP or P) as recommended [19], via teleconferencing, video call or telephone. Each interview lasted between 1-1.5hr. The interview was divided into two parts; the first used a series of open-ended questions exploring their individual experiences and the second part used a series of questions based on key themes from the literature. Participants were provided with the open-ended questions before the interview via email, e.g., "*have there been any key moments that you feel have shaped your experiences of being involved in a nursing preceptorship, either positively or negatively?*" They were informed that there would be further questions based on major themes from the literature, including the themes of *First Impressions* (of an occasion of preceptorship), of *Workplace Incivility* (if experienced) and the theme of *Feedback* (their experience and or observations). A typical question posed was "*Have you ever observed a nurse giving student feedback? How did you feel at the time?*" The researchers withheld the second set of questions until they had finished the open-ended questions as they did not want to influence the participants' responses to the earlier questions (See supplemental information 1 for a complete list of questions and key themes).

Step 3: Thematic Analysis

Thematic analysis is a method for identifying, analysing, organising, describing, and reporting themes within a data set. A dualistic inductive and deductive thematic analysis technique using Braun and Clarke's six-phase framework was applied [23].

Each semi-structured interview (n=15) was transcribed verbatim by a transcription software package (www.happyscribe.com). The lead author immersed himself in the data through repeated listening and reading of the audio transcripts. Data was manually colour coded; semantic codes (explicitly expressed meaning) generated themes from the data. An inductive thematic analysis (bottom-up approach) was carried out on the data gathered from the open-ended questions regarding SPP touchpoints to conceptualise both positive and negative themes that influence nursing preceptorship relationships without fitting them into pre-existing themes from the literature or the researchers' analytic preconceptions. Using supporting quotations, themes were categorised into major positive and negative "touchpoints". The prevalence of a theme was counted in terms of the number of speakers who articulated the theme.

Secondly, a deductive thematic analysis applying a top-down approach to identify key topics the SPP wished to include in the new educational programme was carried out. Similarly, a deductive thematic analysis of the data gathered from the second set of questions based on key concepts from the literature to identify participants' experiences of these themes was carried out.

Combining these approaches allowed the development of patterns from the unknown parts of a nursing preceptorship that may fall outside the predictive themes of deductive reasoning. However, the lead author noted that when carrying out the interviews, many of the "touchpoints" iterated by SPP spoke to themes previously identified in the literature suggesting universal themes and experiences are prevalent. Similarly, the lead author reflected on his previous experiences as a preceptor and student nurse, recognising similar concepts and experiences in the clinical environment. Data was then lifted from its original context and deidentified for each group of the SPP.

Step 4: SPP individual group codesign workshops.

During this phase, the lead researcher met with each SPP group online, where participants took part in design activities utilising a virtual collaborative whiteboard (Padlet). Before the workshop, the findings from step 3 were sent by email or post to allow sufficient time for participants to review and digest the data gathered prior to the codesign workshop. The workshop began with an "icebreaker exercise" to help the group get to know one another and develop a safe environment for creativity and design thinking mindset [40]. The lead researcher then read aloud the group's touchpoints

The group discussed, organised, and reorganised the touchpoints until a consensus was reached on two critical positive and negative ones. The most suitable qualitative quotes representing these were chosen encapsulating an accurate account of the group's experiences in a meaningful and valuable way (See Supplemental Information 2). Two members of each cohort agreed to audio record verbatim the original touchpoints identified in the individual interviews. These are known as trigger videos in EBCD, and their

aim is to effectively communicate the SPP experiences for the group co design workshops in the next phase. The original audio recordings were not used to maintain the confidentiality of each member's stories.

Secondly, each group presented, discussed, and reached a consensus on two key educational topics and pedagogical approaches for the programme, e.g., feedback and building inclusive relationships using simulation role play. The workshop finished by summarising the key themes to be brought forward to the next round of the codesign process, and one member of each cohort was elected to represent the SPP at the next codesign workshop.

The patient group did not wish to have a group workshop; therefore, the lead researcher adapted and encouraged participation by emailing or posting the thematic analysis results from the one-to-one interviews and spoke with each person individually over the phone. The lead researcher then combined all their ideas and populated their chosen outcomes. These were then emailed or posted to all patients for further review and the opportunity to comment. All group members responded positively with the selected touchpoints and key educational topics/suggested teaching approaches for the new educational programme.

Step 5: SPP joint codesign workshop

The multi-group collaborative design workshop was held virtually with a representative from each SPP cohort present. Each SPP's touchpoints were introduced using audio clips. Participants expressed that this design exercise was beneficial in increasing awareness and understanding of each SPP perspective, particularly aspects of the patient experience invisible to students and preceptors, for example, how a patient can feel if there is tension between a student and preceptor. Next, the lead researcher presented a table summarising the educational topics and pedagogical approaches suggested by each group. Participants discussed several issues with the current preceptorship education programmes, including the lack of focus on practical skills such as teaching methods and feedback skills to be an effective preceptor. Preceptors emphasised that current preceptorship programmes focus primarily on regulatory guidelines and documentation associated with preceptorship. A critical insight from the group discussion was that similar themes arose from all three groups for inclusion in the new programme. These themes included: building inclusive relationships, psychological safety, and feedback. Similarly, active pedagogical approaches that placed the learner at the centre of their learning were suggested by all three groups; examples included online interactive learning resources and role-play simulations.

It was collectively agreed that the new educational programme would adopt an active blended learning approach consisting of a series of online reusable learning objects (RLOs), face to face role-plays and a state-of-the-art virtual reality storytelling experience (Table 2). Two pilot studies previously led by the lead researcher influenced the blended learning programme, having identified that students felt prepared to engage in face-to-face simulation following exposure to RLOs [24]. In addition, his experience of VR storytelling offered the unique ability to provide an immersive storytelling learning experience to supplement learning [25]. A constructivist approach was applied to the new educational programme,

believing that active learners in their learning journey create new knowledge from experiences. [26], with Kolb's [27] experiential learning theory principles also guiding the programme's design. In addition, the principles of Universal Design for Learning (UDL), an inclusive approach, were embedded in the programme to ensure that the programme offered all learners, including those with disabilities or required accommodations, providing equal opportunities to learn [28; 42]. Table 4 outlines Kolb's Experiential Learning Theory & UDL principles strategies for the Nursing Preceptorship Programme.

Step 6: Specialists Codesign Workshop

To validate and further develop the programme several nursing, educational, psychological and design specialists were recruited to examine and discuss the project's outcomes to date. An overview of the project, including suggested educational topics and pedagogical approaches, was presented at a virtual workshop, followed by audio presentations of SPP touchpoints. The specialist group discussed and agreed on the proposed outline for the new educational programme, agreeing it would meet its intended outcome to create an authentic learner-centred educational programme for developing interpersonal and communication skills amongst trainee preceptors.

Finally, to improve the effectiveness and uptake of the new educational programme, the expert group suggested that the programme should also be underpinned by behavioural change theory. Identifying the behavioural barriers and enablers to facilitating positive interpersonal relationships would strengthen the likelihood that the new educational programme would act as a catalyst to change practices among established preceptors. Members of the expert group worked with the lead researcher to achieve this. Table 5 outlines the combined approach of behavioural change theory and EBCD and Kurt Lewin's Model of Change Principles and how they were applied to the new educational programme to promote change in preceptorship practice. To conclude the workshop, experts agreed to continue peer-reviewing the new educational content as it was designed and created.

Step 7: Presentation of an outline of the new programme.

Upon completion of the first stage of codesign workshops, all participants and codesign team members were invited to a presentation of the outline of the new educational programme, offering further opportunities to provide input and feedback. An overview of the suggested timeline for the development of the programme was presented, and a collective agreement was made that the lead researcher would send the codesign team bi-monthly updates on the status of the project.

Step 8: Part1: Codesign of RLOs

RLOs are defined as "a digital resource that can be reused to facilitate learning" [30]. It was collectively agreed that a series of RLOs would be created to promote flexible and autonomous learning online to support a proposed half-day face to face simulation. Six RLOs were developed, each addressing a specified learning objective. The six-month process involved the codesign team following a participatory

approach based on the ASPIRE framework (Aims, Storyboarding, Population, Implementation, Release, and Evaluation) [31].

Aims: Firstly, the team outlined and agreed on the learning outcomes of each RLO unit, mapping them back to the overall programme outcomes to ensure the RLOs were focused and met the acquired learning objectives of the programme.

Storyboarding: Each RLO was then storyboarded in PowerPoint using a purpose-built instructional design framework created by the lead researcher. Once storyboarded, each RLO unit was peer-reviewed by all codesign team members using the learning object review instrument (LORI) [32], reviewing the overall design, usability, motivation, learning goal alignment, and quality of the content before production began. During this phase, the group agreed on the sequence and structure of the RLOs, how the information would be presented, including SPP touchpoints, multimedia content and images and how learners would be provided with opportunities for self-testing and reflection to achieve the desired learning outcomes.

Population: During this phase, the content for the RLOs was created, including videos, images, voiceovers, and infographic slides. An educational technologist (A.B.) populated all media on an online platform, Articulate 360 (<https://articulate.com>). The codesign team members were provided with links for further peer-review, focusing on the representation of the content to ensure it was effective. All co-designers had one final opportunity for comment before the final product was completed. Release and evaluation will be discussed in the coming sections.

Step 8: Part 2: Co Design of Role Play Simulations

Simulation role play will allow learners to practice the theoretical and practical information provided in the RLOs. It facilitates the practice of interpersonal and communication skills in a realistic yet safe learning environment [33]. The lead researcher and an academic with a specialist background in simulation-based education and patient safety led the design of the role-play simulations, which was iteratively peer-reviewed by the remaining co-designers. Applying the International Nursing Association for Clinical Simulation and Learning (INACSL) framework [34], the codesign team considered design criteria such as creating a simulation experience that can achieve measurable objectives, is participant-centred and incorporates a level of fidelity that creates a perception of realism to the simulated scenario. The INACSL framework also guided the inclusion of a structured pre-brief session and a structured debrief session following the role plays. The final outputs were two role-play scenarios simulating fundamental interpersonal interactions in a nursing preceptorship requiring dynamic and practical interpersonal and communication skills. All co-designers had one final opportunity for comment before the final product was completed.

Step 8: Part 3: Codesign of Immersive Virtual Reality Storytelling Experience

In addition to the RLOs and role-play simulations produced, it was decided to develop a new state of the art immersive storytelling experience. This pedagogy combines the emerging world of VR technology with

the art form of classical storytelling. During the VR storytelling experience, the learner embodies the role of the patient, feeling the same sensation toward a virtual body within an immersive virtual environment as the biological body in the real world would experience [35]. This will permit trainee preceptors to step into a patient's shoes, experiencing the interpersonal dynamics of a preceptorship relationship from the patient perspective, creating a meaningful and memorable learning experience. It is planned that trainee preceptors will engage with this experience as part of their face-to-face learning, followed by a structured debrief session.

The lead researcher and a member of the codesign team with a specialist background in storytelling and film production led the design of the VR simulation in collaboration with a VR production company [36]. It was also iteratively peer-reviewed by the remaining co-designers applying the INASCL framework [34] (see Table 1).

Narratives collected from the interviews with patients set the foundations for the narrative of the VR storytelling experience. Using critical touchpoints from the narratives and the three-act structure to storytelling (Introduction; rising action; falling action (conclusion)) to structure the storyline, a short 10 mins VR storytelling was scripted, storyboarded and peer-reviewed. Using a state of the art 360 VR camera, the simulation was filmed in a simulated hospital ward environment using actors. All co-designers had one final opportunity for comment before the final product was completed.

Step 9: Celebratory Event

The final step involved a celebratory event, all co-designers (as well as family and friends) were invited to an informal celebration and launch of the new preceptorship education and training programme. The final product was available for all to experience. The lead researcher gave a short talk summarising the project, how it is hoped it will impact nursing education and plans for future research projects investigating the impact of the educational programme on nurses' interpersonal and communication skills. and thanked everyone involved in the project. Co designers expressed they felt they had a meaningful involvement throughout the co design and co production process and were grateful for the opportunity to be involved in the project, particularly the patient co designers who felt it was important their voice was heard and included in the new educational programme.

Step 10: Pilot Study

This blended learning programme will be piloted across several general nursing hospitals in Ireland that run preceptorship programmes in late 2022. Following implementation, the researchers will seek feedback from preceptees to establish possible areas for improvement and the perceived impact on learners' future practice regarding their interpersonal and communication skills and their role as a preceptor.

Discussion

Several papers have discussed nurse preceptors learning needs from a preceptor's point of view [37, 38], while Tsai et al. [39] collected data from both preceptors and student nurses on their preceptorship experiences. However, there is no evidence to date investigating patients' experience of a nursing preceptorship to the best of the author's knowledge. Thus, this empirical research implementing an EBCD process to identify preceptor training needs from all three members of the nursing preceptorship relationship is a unique and novel approach to designing and creating a preceptorship education programme.

Unfortunately, due to Covid-19 restrictions, the researchers could not carry out observational studies in the hospital during the initial stages of the project. Direct observations could have provided further insight into behaviours and interactions during preceptorship. However, a comprehensive review of the literature identified and supported several key themes that emerged from the one-to-one interviews with each of the different cohorts suggesting that their experiences are universal and experienced internationally. Moreover, the diverse codesign team involved in this project provides a unique human-centred educational programme that captures real-life experiences and expert knowledge, creating an authentic learning experience. Similarly, hosting the one-to-one interviews and codesign workshops virtually facilitated broader demographic participation and increased transferability over a study carried out at a single hospital location. Overall, the codesign team actively engaged in the virtual codesign workshops. However, some voiced that they were uncomfortable with teleconferencing technology and preferred to engage over the phone. Bimonthly emails were therefore sent to all codesign members to keep the entire codesign team updated with all the latest outcomes of the workshops.

Several opportunities arose for future projects from information that emerged throughout the codesign process. Most patients highlighted they were unsure what stage a student nurse was at in their training programme and considered this important as they would not ask a first-year student nurse the same questions they would ask students at a later stage of their training. The opportunity to launch an awareness campaign using infographic posters codesigned with students and patients highlighting the different colour epilates student nurses wear for each year of their training could be beneficial for future patient experiences and interactions with students. Also, nurses reported a lack of familiarity with the current undergraduate curriculum structure, reporting uncertainty with theory and skills covered with students prior to their practice placements, making it difficult to determine the level of competency expected. Hosting information sessions and digital informational resources outlining the curriculum for nurses may be beneficial in tackling this issue.

Conclusion

This paper outlines an innovative adaption of the EBCD method to develop a new preceptorship education programme. It facilitated the opportunity for all participants to have ample opportunities to suggest, create and refine ideas. It brought together individual viewpoints of all involved in nursing preceptorship to create a unique educational programme that captures real-life experiences. Combining interpersonal and communication skills theory with nursing theory, educational theory and behavioural

change theory resulted in the development of what is hoped to be an authentic learner centered educational programme that will equip preceptors with the knowledge and skills to effectively carry out their roles as a preceptor and build positive interpersonal relationships.

List Of Abbreviations

EBCD

Experienced Based Co Design

SPP

Students, Preceptors, Patients

CPC

Clinical Placement Coordinator

IP & C Skills

Interpersonal and Communication Skills

Declarations

Ethics approval and consent to participate ethical approval was granted by the University Ethics Committee.

Consent for Publication: "Not applicable".

Availability of data and materials: "The dataset(s) supporting the conclusions of this article are included within the article (and its additional file(s))."

Competing interests: "The authors declare that they have no competing interests."

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Authors' contributions: PH carried out the initial one to one interviews, conducted thematic analysis, facilitated co design workshops, and completed the first full draft of the manuscript. AM reviewed the manuscript and wrote a plain English section. CR and SJ reviewed thematic analysis data, co design workshop outputs and iterative development of the educational programme. PH prepared Figures 1-5. All authors read and approved the final manuscript.

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Tables

Table 1
Steps, purpose and outputs of preceptorship education programme using EBCD.

Step	Purpose	Outputs
Recruitment of Co Designers	Utilise a purposive sampling approach to recruit a diverse cross-section of the population representing "typical" members of a nursing preceptorship relationship (SPP). Recruitment of representation was sought from nursing experts, educational experts and technology-enhanced educational experts to collaborate with the SPP groups.	Recruitment of (n = 26) diverse sample incorporating SPP, nursing, educational and technology-enhanced educational experts from across Ireland.
Capturing Narrative Experiences	To understand the lived experiences of SPP in a nursing preceptorship. Identify educational topics for inclusion in the new programme.	Detailed qualitative data capturing the participants' lived experiences and suggested themes for the new educational programme.
Thematic Analysis	To carry out a dualistic inductive and deductive analysis of the qualitative data gathered.	SPP touchpoints, both positive and negative that influence nursing preceptorship relationships. Key topics the SPP wished to include in the new educational programme.
Individual SPP Co-Design Workshops	Each SPP group held a collaborative workshop separately to discuss findings from thematic analysis to reach a consensus on touchpoints and themes, and teaching methods for inclusion in the programme.	Agreement on touchpoints to represent each group. Development of audio trigger videos. Agreement on key concepts and pedagogical approaches to include in the educational programme.
SPP Joint Co-Design Workshop	Multi-group design workshop to bring all groups together to work collaboratively.	Agreement on SPP touchpoints to embed in the new educational programme. Agreement on educational themes and pedagogical approaches (see Table 2,4).
Specialists Co-Design Workshop	To ensure the new educational programme was also guided by nursing, educational and technology enhanced educational experts, thus grounded in nursing and educational theory and SPP experiential knowledge.	Agreement on outputs from SPP joint co design workshop. Agreement to underpin the new programme in behavioural change theory to ensure effectiveness and uptake of the new programme.
Presentation of an outline of the New Programme	All codesign team members were invited to a presentation of the outline of the new educational programme, offering further opportunities to provide input and feedback.	The programme outline was finalised and agreed upon.

Step	Purpose	Outputs
Codesign/ Production of RLOS, Role Play Simulations & Virtual Reality Experience	An iterative design process grounded in educational design was implemented to codesign and produce the new educational programme.	Prototype of the new educational programme.
Celebratory Event	To celebrate the completion of the prototype and thank the team for their time and engagement with the project.	Informal celebration event held on a university campus.
Pilot Launch of the New Programme	To pilot the new educational programme across several university teaching hospitals in Ireland for feedback.	Set to be piloted in late 2022.

Table 2
Co Design Team Demographics

Co Design Team	Sample	Short Description of Experience
Student Nurses	N = 5	Experienced preceptorship across several general hospital sites in the East of Ireland, ranging from year 1st to 4th year of the undergraduate nursing programme.
Qualified Nurses that act as Preceptors	N = 5	Experience ranging from 5-15yrs both nationally (n = 3) and Internationally (Australia, America/(n = 2) as preceptors. Currently working across 4 different general hospitals throughout Ireland.
Members of the Public	N = 5	Experienced being a patient in 5 different general hospitals sites across Ireland.
Experts	N = 11	Nursing, educational, technology enhanced education, psychological and design experts from several educational intuitions.

Table 3
Outline of Active Blended Learning Preceptorship Educational Programme

Programme Component	Description	Implementation
<p>Online Learning Resources</p>	<p>A series of six online reusable learning objectives (RLOs) was created incorporating a mixture of presenting information, touchpoints, video demonstrations, case study scenarios, interactive exercises, reflective exercises and on the spot feedback.</p> <p>Unit 1: Introduction to Interpersonal and Communication skills in Nursing Preceptorship</p> <p>Unit 2: Psychological Safety: Creating a Safe Learning Environment</p> <p>Unit 3: First Impressions & Orientation</p> <p>Unit 4: Teaching in the Clinical Environment</p> <p>Unit 5: Feedback</p> <p>Unit 6: Conflict Resolution</p>	<p>All learning units will be opened up to learners (hosted on Articulate) to complete at their own pace over the three weeks prior to the half-day face to face teaching described below. Each unit takes approximately 40–60 mins to complete. Learners can complete the units repeatedly if they wish to do so. An accompanying workbook will also be provided for learners to use with the RLOs to make notes and complete their reflective exercises.</p>
<p>Role Play Simulations</p>	<p>Two role-play simulations were designed to provide a safe learning environment to apply the new knowledge and skills from the RLOs.</p> <p>Role-play scenario 1: focuses on the learners' ability to provide a psychologically safe learning environment for students.</p> <p>Role-play scenario 2 focuses on the learners' ability to provide effective feedback and conflict resolution skills.</p>	<p>Learners will be provided with a pre-brief pack that will outline the role play goals and objectives. Learners will be divided into groups of three and alternate between the student, nurse, or patient positions. Each will run for 20 minutes, followed by 20 minutes debrief session each time. The learner playing the part of the patient will be provided with an observational feedback sheet to provide structured feedback during the debriefing session.</p>
<p>Virtual Reality Simulation</p>	<p>A state-of-the-art VR simulation was designed to experience nursing preceptorship from a patient's perspective, permitting the learners to "walk in someone else's shoes". The VR simulation depicts a patient's interpersonal interactions with a nurse and student and what it feels like from their perspective, e.g., if a nurse doesn't make eye contact when speaking to the patient or a student who talks over a patient.</p>	<p>Learners will be provided with a pre-brief pack that will outline the VR simulation goals and objectives. Each learner will be provided with a VR headset to use with their smartphones. The VR simulation will run for 7 mins. A structured 20 mins debrief session will follow the VR experience.</p>

Table 4

Kolb's Experiential Learning Theory & UDL Principles Strategies for Nursing Preceptorship Programme.

Kolb's Experiential Learning Theory	Strategies for blended learning Preceptorship Programme	UDL Principle	Strategies for blended learning Preceptorship Programme
Concrete Experience	The learner is provided with an opportunity to gain new learning experiences, i.e., online learning resources, role-play simulations and VR simulation	Multiple means of engagement	Identify clear learning objectives. Provide learners with multiple opportunities to achieve the programme's learning outcomes, e.g., RLOs, Reflective exercises, Simulations, and debriefing sessions. Provide learner choice.
Reflective Observation	The learner is provided with an opportunity to reflect through written reflective exercises, self-reported questionnaires, and during simulation debriefing sessions.	Multiple means of representation	Use multiple media including audio, visual and text. Ensure learners have access to digital documents, e.g., transcript of all RLOs and videos that the learners can edit (colour, font size). Furthermore, all videos have closed captions.
Abstract Conceptualisation	The learner is provided with an opportunity to learn from the experiences offered in the programme.	Multiple Means of Action & Expression	Facilitate active learning. Learners can work at their own pace and demonstrate their knowledge in various ways, i.e., in group discussions and role-play simulations. Encourage learner metacognition.
Active Experimentation	The learner is provided with an opportunity to plan and try out what they have learned during the half-day simulation training and future preceptorship practice.		

Table 5

Combined use of EBCD, Behavioural Change Theory & Kurt Lewin's Model of Change Principles in the new educational programme.

Step of Behavioural Change Theory	How EBCD was utilised.	How the new educational programme aims to facilitate change in preceptorship practice	Kurt Lewin's Model of Change Principles	How the new educational programme aims to facilitate change in preceptorship practice
Identify the key determinants of behaviour.	<p>A comprehensive review of the literature was completed.</p> <p>Priorities for improvement and enablers were identified from the co-design team's touchpoints considered in terms of attitudes & behaviour.</p> <p>Expert opinions from the field of nursing were also sought.</p>	Key enablers and barriers to facilitating positive interpersonal relations in a nursing preceptorship are embedded throughout the programme, providing the learner with real-life stories, interpersonal skills theory, and practical skills to develop effective IP & C skills for preceptorship practice.	The unfreezing stage refers to persuading others that the status quo is not beneficial and encouraging others to view a problem with a fresh perspective, including the patient experience in nursing preceptorship.	This programme highlights that the current literature regarding nursing preceptorship primarily excludes the patient experience and perspective, which we argue is incorrect and non-inclusive of the patient, as the patient is central to the relationship. Secondly, the programme aims to highlight the importance and negative impact ineffective interpersonal and communication skills can have on the patient experience and the students' learning experience to spark motivation for change among the learners of the educational programme.

Step of Behavioural Change Theory	How EBCD was utilised.	How the new educational programme aims to facilitate change in preceptorship practice	Kurt Lewin's Model of Change Principles	How the new educational programme aims to facilitate change in preceptorship practice
Identify the techniques that target these determinants.	A comprehensive review of educational theory and pedagogical approaches in preceptorship education so participants could select educational and nursing interventions (From validated methods identified in the literature) that they felt would be most effective in the given context and based on their personal experiences.	Active learner-centred pedagogy is embedded throughout the programme to facilitate the development of practical IP & C skills associated with a nursing preceptorship.	The moving phase refers to the stage in which the researchers will roll out the new educational programme and work collaboratively with CPCs (typically facilitate preceptorship education in hospital settings) to ensure they feel supported in implementing the programme.	To enhance the capability, opportunity and motivation for the new programme, the researchers will train the trainer days and ensure all materials for the programme are readily available, including access to virtual reality technology required to roll out the programme successfully. Support will be offered throughout the first run of the programme.
Model to fit the target population, culture and context.	The design of the programme content closely involved those that will deliver (CPC staff) and receive the educational programme (preceptors) to elicit perspectives on the programme's acceptability, practicality, and cost-effectiveness.	The new programme is designed to run as a blended learning programme with a half-day face to face simulation training (tackles the issue of releasing staff to attend and costs associated and increase accessibility to the programme).	The refreeze stage refers to when the programme will have been implemented multiple times over two years.	The programme aims for a new change in perspective to include the patient in a nursing preceptorship relationship and improve the knowledge and practice of practical interpersonal and communication skills required in a nursing preceptorship. It is hoped that nurses who complete the programme will act as a driving force for change in practice.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Supplemental3GRIPP2PPIreportingchecklist.docx](#)
- [SupplementalInformation1SemistructuredInterviewGuide.docx](#)
- [SupplementalInformation2ExamplesoftheTouchpointsgeneratedfromthecodesignprocess..docx](#)
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