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From theory to practice: Enhancing career counselling theory understanding through problem-based learning

Muliana Mohamad Taha*, Janet Ann Fernandez, Mohd. Shahrul Kamaruddin & Aina Razlin Mohammad Roose

Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia.

ABSTRACT

Despite the increasing emphasis on theory-practice integration in counselling education, empirical research on the effectiveness of problem-based learning (PBL) in teaching counselling theories remains limited. This study investigated the effectiveness of PBL in enhancing undergraduate counselling students' understanding of the Learning Theory of Career Counselling (LTCC) within an application-orientated career counselling course conducted prior to practicum and internship. A mixed-methods exploratory quasi-experimental, one-group pre-test-post-test design was employed with 29 third-year counselling students at a public university in Malaysia. The PBL intervention engaged students in an authentic career counselling scenario that required them to apply the seven LTCC stages. Quantitative data were collected using a pre- and post-intervention LTCC quiz, while qualitative data were obtained through a sticky note reflection activity. Results from the paired-samples t-test indicated a statistically significant improvement in LTCC knowledge following the intervention, $t(28) = -3.65$, $p = .001$, with a medium-to-large effect size ($d = 0.68$). Stage-specific analysis showed the greatest improvement in the Re-evaluate/Recycle stage, suggesting enhanced understanding of LTCC's iterative nature. Qualitative findings supported these results, highlighting themes of learning orientation, exploration, and experiential understanding. Overall, PBL appeared to be a promising pedagogical approach for facilitating theory-practice integration in counselling education.

Keywords: problem-based learning, learning theory of career counselling, counselling education, career counselling, Malaysia

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Email address: mtmuliana@unimas.my (Muliana Mohamad Taha)

*Corresponding author

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1 INTRODUCTION

Career counselling began in the late 1800s in the United States as a way to help people find jobs and adjust to changes in the job market (Savickas & Savickas, 2019). Grounded in Parsons' trait and factor framework and supported by the increasing use of psychological assessment, the field subsequently evolved to encompass developmental and contextual approaches to career development (Chope, 2011). Today, career counselling is a professional practice that supports individuals in understanding themselves, exploring career options, making informed decisions, and managing career development across the lifespan (Lent & Brown, 2020). It adopts a holistic and developmental approach, recognising the influence of personal values, abilities, life roles, and broader social, cultural, and economic contexts. Career counsellors work collaboratively with clients to clarify goals, identify resources and barriers, and develop adaptive strategies to support meaningful career development and work-life balance (Hirschi, 2020). Contemporary practice emphasises adaptability, resilience, and lifelong learning, which enables individuals to navigate transitions and uncertainties in an increasingly complex labour market.

Accordingly, career counselling education aims to equip counselling students with strong theoretical foundations alongside applied reasoning skills necessary to effectively support clients' career exploration, decision-making, and development (Arthur et al., 2025; Chen, 2013). However, despite exposure to multiple career theories and models, many students and early-career practitioners struggle to translate theoretical knowledge into effective counselling practices (Smith & Peterssen, 2024). A growing body of literature indicates a persistent theory-practice gap in counselling education, with learners often struggling to translate theoretical knowledge into effective practice, particularly in real-world contexts (Arthur et al., 2025; Kindsvatter & Desmond, 2013). This theory-practice gap is further exacerbated by contemporary career counselling approaches that emphasise non-linear, dynamic processes, such as adaptability, uncertainty, and lifelong learning, which are inherently more difficult to operationalise in practice. As a result, counselling students often struggle to apply abstract theoretical frameworks to case conceptualisation and intervention planning. Traditional lecture-based instructional approaches, which emphasise passive knowledge transmission, have been criticised for their limited capacity to support higher-order thinking, reflective reasoning, and applied competencies, particularly in contexts that require integrating theory and practice (Hmelo-Silver, 2004; Kindsvatter & Desmond, 2013; Savery, 2006). This underscores the need for more active, experiential, and practice-orientated pedagogical approaches to career counsellor education.

The Learning Theory of Career Counselling (LTCC), initially introduced by Krumboltz et al. (1975), is widely acknowledged as a significant framework in career counselling. It conceptualises career development as an ongoing learning process shaped by genetic endowments, environmental conditions, learning experiences, and task approach skills, rather than as a one-time decision (Zunker, 2016). The LTCC's central notion is that both planned and unplanned experiences influence dynamic career trajectories. Despite its theoretical significance, LTCC can be conceptually challenging for counselling students. Unlike traditional trait- and factor-focused models, or decision-focused models, the LTCC emphasises non-linear processes, uncertainty, and continuous adaptation. Students are therefore required not only to understand multiple interacting

variables but also to apply these concepts flexibly in complex, real-world scenarios. Such complexity often makes it difficult to translate abstract theoretical concepts into practical counselling strategies, hindering the effectiveness of the counselling process and the ability to meet clients' diverse needs.

Accordingly, career counselling within the LTCC framework focuses on helping clients cultivate flexibility, curiosity, and adaptability while identifying and amending faulty beliefs that hinder effective career decision-making. Counsellors are encouraged to normalise uncertainty and support clients through iterative exploration rather than premature closure (Zunker, 2016). For counselling students, particularly those previously exposed to trait- and factor-focused or decision-focused models, this non-linear, learning-orientated perspective can be conceptually challenging to understand and apply without opportunities for active engagement and experiential learning. Theoretically, Problem-Based Learning (PBL) is well aligned with LTCC, as both emphasise learning through experience, engagement with uncertainty, and iterative meaning-making. PBL requires students to confront authentic problems, develop knowledge through inquiry, and reflect on their evolving understanding, mirroring LTCC's emphasis on exploration, adaptation, and the reuse of learning experiences. In this context, PBL has been proposed as a student-centred pedagogical approach that may address these challenges by engaging learners in an authentic career counselling scenario that requires active knowledge construction, self-directed learning, and reflective reasoning (Waalkes et al., 2024). Strong empirical support for PBL has been demonstrated across educational contexts. For example, a recent meta-analysis by Lu et al. (2025), synthesising findings from 25 experimental studies, demonstrated that PBL significantly outperformed traditional instructional methods in enhancing critical thinking among children and young adults. These findings collectively demonstrate that PBL is a resilient and scalable instructional methodology, ideally suited for application-orientated career counselling curricula.

Despite strong evidence supporting PBL, its application in counselling education has primarily focused on counselling and problem-solving skills rather than theoretical learning (Kholili & Purwaningrum, 2024; Kindsvatter & Desmond, 2013). Limited empirical research has examined the effectiveness of PBL for teaching counselling theories, particularly learning-orientated models such as the Learning Theory of Career Counselling (LTCC), within application-orientated coursework. Originating in medical education, PBL emphasises learning through authentic structured problems that foster inquiry, self-directed learning, collaboration, and reflection (Manuaba et al., 2022). As such, PBL is well-suited to counsellor education because it promotes professional reasoning, reflective practice, and tolerance of ambiguity. Consequently, there remains a gap in research examining PBL as an instructional approach to teaching career counselling theories. This study contributes to the literature on counselling education and learning development by examining the use of PBL to teach a learning-orientated career counselling theory in an authentic classroom context. It provides preliminary empirical evidence on how PBL may support students' conceptual understanding and theory-practice integration of the LTCC. This study thus aims to examine the effectiveness of PBL in enhancing undergraduate counselling students' understanding of LTCC within an application-orientated career counselling course conducted prior to the internship. Therefore, the aim of this study was to examine the effectiveness of Problem-Based Learning (PBL) in enhancing undergraduate counselling students' understanding of the Learning Theory of Career Counselling (LTCC) within an application-

orientated career counselling course. Two research questions guided the present study, as outlined below:

i) Is there a significant difference between pre- and post-test quiz scores for LTCC knowledge following the PBL intervention among undergraduate counselling students?
ii) How do undergraduate counselling students describe their understanding of LTCC following a PBL intervention?

2 METHODS

2.1 Design

This study employed a mixed-methods, quasi-experimental, exploratory design to examine the effectiveness of problem-based learning (PBL) in enhancing undergraduate counselling students' understanding of the Learning Theory of Career Counselling (LTCC). This design was selected to evaluate instructional impact in an authentic classroom context, where random assignment and a control group were not feasible due to curricular constraints. The use of PBL in counselling classrooms has been documented in previous studies (Waalkes et al., 2024), and quasi-experimental designs have been widely employed to examine its effectiveness in undergraduate courses (Benítez-Chavira et al., 2023). The pre-test-post-test design enabled assessment of changes in students' LTCC knowledge and conceptual understanding following participation in the PBL intervention. In counselling education, where developing reflective reasoning and integrating theory with practice are key learning goals, it is especially important to measure both learning outcomes and students' understanding of what they have learned.

2.2 Participants

Participants comprised 29 undergraduate students enrolled in a four-year counselling programme and registered for a career counselling course at a Malaysian public university. The sample comprised the full cohort of students enrolled in the course during the semester, allowing the study to be conducted in a naturalistic learning environment and thereby preserving ecological validity. The course was conducted prior to practicum and internship requirements and was designed to support students' transition from theoretical learning to professional preparation. During the PBL activity, students were organised into small groups of approximately five members based on natural classroom groupings to facilitate collaborative learning. Convenience sampling was employed, as the PBL intervention was embedded within regular course instruction. This sampling approach is commonly used in educational and classroom-based research, particularly in quasi-experimental designs where random assignment is impractical due to curricular and administrative constraints (Asif Zeb et al., 2022; Benítez-Chavira et al., 2023; Creswell & Creswell, 2018).

Furthermore, the within-subject pre-test-post-test design enhanced statistical power, enabling the detection of meaningful changes despite the relatively small sample size (Cohen, 1988). In light of these considerations, the study adopts an exploratory approach to offer insights into students' knowledge and conceptual understanding following the PBL intervention. All students in the

selected cohort were invited to participate. Participation was voluntary, and students were informed that their decision to participate or withdraw would not affect their course evaluation, grades, or academic standing. The inclusion of third-year students was pedagogically appropriate, as they had prior exposure to foundational career counselling theories during their second year, which enabled more meaningful engagement with LTCC through PBL.

2.3 Instruments

2.3.1 Problem-Based Learning Intervention

The Problem-Based Learning (PBL) intervention was implemented within the Learning Theory of Career Counselling (LTCC) instructional unit of the Career Counselling course. The activity structure was adapted from previous studies integrating PBL into counselling classroom instruction (Waalkes & DeCino, 2019; Waalkes et al., 2024) and aligned with the core PBL procedures described by Barrows and Tamblyn (1980). The intervention was conducted during a single class session lasting approximately three hours, during which students worked in small groups of five. The PBL implemented in this study can be characterised as a guided, facilitator-less PBL approach, in which structured task prompts were used to support student inquiry in the absence of a dedicated facilitator for each group.

Participants engaged in a structured group-based activity comprising four stages: (1) problem engagement, in which students were presented with an authentic written case involving Aina (pseudonym), a final-year undergraduate student experiencing career uncertainty despite prior completion of career assessments; (2) identification of prior knowledge and learning needs, whereby students collaboratively identified available client information, determined which LTCC stages were evident, and specified additional learning required to support client progress; (3) inquiry and application, during which students analysed the case using LTCC terminology across the seven counselling stages (Interview, Assessment, Generate Activities, Collect Information, Share Information and Estimate Consequences, Re-evaluate/Recycle, and Job Search Strategies); and (4) synthesis, in which each group produced a consolidated forum posting summarising LTCC-informed learning and distinguishing LTCC from decision-focused approaches.

In the present classroom-based implementation, a dedicated facilitator was not assigned to each group. Instead, collaborative inquiry was supported through structured task prompts embedded within the PBL activity. Such adaptations are consistent with learner-centred PBL applications in larger instructional settings, where facilitation may be distributed across groups or partially transferred to students through structured collaborative roles and inquiry prompts (Hmelo-Silver, 2004). Barrows and Tamblyn (1980) similarly emphasised that PBL is designed to engage learners in self-directed inquiry through problem analysis, hypothesis generation, and collaborative reasoning rather than instructor-led knowledge transmission. This instructional sequence therefore reflects key features of PBL, including engagement with authentic problems, identification of knowledge gaps, collaborative inquiry, and theory-guided reasoning.

2.3.2 Learning Theory of Career Counselling Quiz

Participants' cognitive understanding of the Learning Theory of Career Counselling (LTCC) was assessed using a 7-item multiple-choice quiz administered before and after the PBL intervention. Each item corresponded to one of the seven stages of LTCC: Interview; Assessment; Generate Activities; Collect Information; Share Information and Estimate Consequences; Re-evaluate/Recycle; and Job Search Strategies. Each item consisted of one correct answer and three distractors. The quiz was designed to assess participants' conceptual clarity and stage-specific understanding rather than factual memorisation. Items focus on identifying the purpose, emphasis, and appropriate application of each LTCC stage within a learning-orientated counselling process. Alignment between quiz items and LTCC stages ensured that pre-post comparisons reflected changes in participants' understanding of the full LTCC framework. The researchers developed the quiz items based on the seven stages of the LTCC to ensure alignment with the study's conceptual framework. For example, one item evaluating the assessment stage asked, “A client reports confusion after completing multiple career tests. Which counsellor action BEST reflects LTCC at this stage?” Another item assessing the collect information stage asked, “After initial exploration, what type of information should the counsellor prioritise gathering to support the client's learning and decision-making process?” These items were designed to evaluate students' ability to apply LTCC principles in context rather than to recall isolated definitions.

2.3.3 Sticky Note Reflection Activity

Participants' conceptual internalisation of LTCC was explored through an individual sticky note reflection activity conducted after completion of the PBL task. Participants were asked to write brief reflections that capture key learning points from applying LTCC to the problem scenario. Responses were analysed using frequency-based thematic coding, with themes mapped to the seven LTCC stages and the model's core philosophical principles. This activity served as a formative qualitative measure, capturing participants' spontaneous conceptual associations with LTCC, particularly their understanding of career counselling. Frequencies reflected the number of times each theme was mentioned across responses.

2.4 Procedure

The entire procedure was conducted within a single three-hour class session. Data collection was conducted in three sequential phases aligned with the intervention and research instruments used in this study. Prior to the Problem-Based Learning (PBL) intervention, participants completed a pre-intervention quiz as part of Phase 1: Pre-Intervention Data Collection. The quiz assessed their knowledge of the Learning Theory of Career Counselling (LTCC) through seven multiple-choice items, each corresponding to one of the seven stages of LTCC. Its purpose was to establish a baseline measure of participants' cognitive understanding before their engagement in the PBL activity. The quiz was administered during scheduled class time to ensure consistency in administration conditions and took approximately 10 to 15 minutes to complete.

This was followed by Phase 2: PBL Intervention and Reflection Activity, in which participants engaged in a group-based PBL task centred on a LTCC problem trigger involving a client experiencing career uncertainty. Working collaboratively in small groups, they analysed the case using the seven stages of LTCC, with an emphasis on learning, exploration, and iterative development rather than immediate career decision-making. After the group discussion, participants individually completed a brief reflection activity using sticky notes to record key learning points or insights. These reflections were collected immediately to capture their spontaneous conceptual understanding and took approximately 10 to 15 minutes to complete. The procedure concluded with Phase 3: Post-Intervention Data Collection, during which participants completed a post-intervention LTCC quiz containing the same seven items as the pre-intervention quiz. The post-intervention quiz took approximately 10 to 15 minutes to complete. This enabled direct comparison of their understanding before and after the PBL intervention. Data were collected during scheduled class sessions, and participants were reminded that participation was voluntary and that all responses would be kept confidential and used solely for research purposes.

Throughout all three phases, the study was guided by key ethical principles, including voluntary participation, informed consent, the right to withdraw, confidentiality, anonymity, and minimising harm. To minimise potential power imbalances, students were explicitly informed that participation was voluntary and unrelated to course assessment, and all responses were anonymised prior to analysis. Participants could withdraw at any time without penalty. No identifying information was collected, and all data were anonymised, securely stored, and reported in aggregate form. To minimise harm and avoid coercion, the study was embedded within regular instructional activities while clearly distinguishing research participation from course requirements, thereby reducing potential power imbalances in the classroom setting.

3 RESULTS

This section presents the data analysis conducted in alignment with the research questions and data types. Quantitative pre- and post-LTCC quiz data were analysed using descriptive and inferential statistics (paired-samples t-test and Wilcoxon signed-rank test) to assess changes in scores. Qualitative reflection data were analysed using frequency-based thematic coding, with responses grouped into themes aligned with LTCC stages and core principles. Theme frequencies indicate the number of mentions across responses.

3.1 Demographic Data

Table 1 presents the demographic characteristics of the participants. The majority of participants were female (93.10%), and most of the participants were 23 years old (41.38%).

Table 1. Participant demographics (N = 29).

Category	Number (n)	Percentage (%)
Sex		
Female	27	93.10
Male	2	6.90
Age		
21 years	2	6.90
22 years	10	34.48
23 years	12	41.38
24 years and above	5	17.24

3.2 Pre-Post LTCC Quiz

Participants' cognitive understanding of the LTCC was assessed using a 7-item pre-post quiz, with each item aligned to one of the 7 stages of the LTCC framework. A paired-samples t-test was conducted to analyse changes in participants' overall performance on the LTCC quiz before and after the PBL intervention. Before conducting a paired-samples t-test, the normality of the difference scores (post-test minus pre-test) was assessed using the Shapiro-Wilk test. The Shapiro-Wilk test indicated that the difference scores were normally distributed, with $W = 0.963$ and $p = 0.398$. This means that the assumption of normality was met. Therefore, a paired-samples t-test was considered appropriate. Results from the paired-samples t-test indicated a statistically significant increase in post-test scores ($M = 4.48$, $SD = 1.90$) compared to pre-test scores ($M = 2.62$, $SD = 1.82$), $t(28) = -3.65$, $p = .001$, with a medium to large effect size ($d = 0.68$). The negative t-value reflects the direction of the mean difference (pre-test minus post-test), indicating that post-test scores were higher than pre-test scores.

Table 2 presents the descriptive statistics for the pre- and post-test LTCC scores. Table 3 summarises the results of the paired-samples t-test. Results indicated an increase in mean LTCC quiz scores from pre-test to post-test, suggesting an overall improvement in students' understanding of the LTCC following the PBL intervention.

Table 2. Descriptive statistics for pre-test and post-test LTCC scores.

Measure	N	Mean	Median	Std. deviation
Pre-test LTCC score	29	2.62	2.00	1.82
Post-test LTCC score	29	4.48	4.00	1.90

Table 3. Paired-samples t-test.

Pair	Mean difference	Std. deviation	Std. Error mean	95% CI lower	95% CI upper	*t*	*df*	Sig. (2-tailed)
Pre-test-Post-test	-1.86	2.75	0.51	-2.90	-0.82	-3.65	28	.001

To examine the robustness of the findings, a non-parametric Wilcoxon signed-rank test was conducted in addition to the paired-samples t-test. This analysis was performed as a robustness check given the relatively small sample size and bounded score range. The results indicated that post-test scores were significantly higher after the PBL intervention ($Mdn = 4.00$, $n = 29$) compared to before ($Mdn = 2.00$, $n = 29$), $Z = -3.07$, $p = .002$, with a large effect size ($r = .57$). This finding is consistent with the paired-samples t-test results, supporting the robustness of the observed improvement in LTCC understanding. Table 4 summarises the results of the Wilcoxon signed-rank test.

Table 4. Wilcoxon signed-rank test.

Measure comparison	N	Z	*p* (2-tailed)
Pre-test - Post-test	29	-3.07	.002

To examine stage-specific patterns of understanding, Table 5 presents the percentage of correct responses for each LTCC stage before and after the intervention. The stage-level comparisons are presented descriptively to illustrate patterns of understanding across LTCC stages. Overall improvements were observed across all seven LTCC stages. The largest gain was observed in Stage 6 (Re-evaluate/Recycle), suggesting an improved understanding of the LTCC model's iterative and non-linear nature. Substantial gains were also evident for Stages 3 and 4, suggesting enhanced understanding of activity generation and information collection. In contrast, Stage 7 (Job Search Strategies) demonstrated the least improvement. While Stage 5 (Share Information and Estimate Consequences) showed comparatively smaller gains, this result may reflect greater cognitive demands involved in evaluating consequences and integrating information.

Table 5. Pre-post quiz performance by LTCC stage.

LTCC stage	Pre-quiz (%)	Post-quiz (%)	Change
Stage 1: Interview	51.7	75.9	+24.2
Stage 2: Assessment	48.3	69.0	+20.7
Stage 3: Generate Activities	41.4	72.4	+31.0
Stage 4: Collect Information	44.8	79.3	+34.5
Stage 5: Share Information & Estimate Consequences	24.1	41.4	+17.3
Stage 6: Re-evaluate/Recycle	20.7	72.4	+51.7
Stage 7: Job Search Strategies	31.0	37.9	+6.9

3.3 Sticky Note Reflection Activity

Participants' conceptual internalisation of LTCC was examined through an individual sticky note reflection activity conducted after completion of the PBL task. Responses were analysed using frequency-based thematic coding, with frequencies reflecting the number of mentions across responses rather than the number of participants. The findings indicate that participants most frequently associated LTCC with learning orientation and the learning process, consistent with LTCC's core philosophy as a learning-based approach to career development.

The second most frequently reported theme was exploration and experience, corresponding to LTCC Stages 3 (Generate Activities) and 4 (Collect Information). This is reflected in responses such as *"lifelong learning", "self-concept", "growth",* and *"exploration",* highlighting the emphasis on learning through experience. In addition, themes related to adaptation, change, and recycling suggest that participants conceptualised career development as an ongoing and iterative process, as illustrated by responses such as *"lifelong process"* and *"recycling"*. Mentions of job search strategies (Stage 7) were comparatively limited, aligning with LTCC's emphasis on learning and exploration prior to action. It is important to note that there were no explicit mentions corresponding to Stage 5 (Share Information and Estimate Consequences). Overall, the findings suggest a strong internalisation of LTCC as a learning-orientated, adaptive model of career development. Table 6 summarises the frequency of key themes extracted from the sticky note reflection activity.

Table 6. Frequency of key themes from the sticky note reflection activity.

Theme	LTCC alignment category	No. of mentions
Learning Orientation & Learning Process	Core LTCC philosophy	20
Exploration & Experience	Stages 3-4	18
Adaptation, Change & Growth	Core LTCC philosophy	10
Interview, Assessment & Activities	Stages 1-3	9
Evaluation, Recycling & Uncertainty	Stage 6	6
Tentative Decision-Making & Career Direction	Stage 6	6
Job Search Strategies	Stage 7	3
Social Learning/Support	Learning experiences & environment	3

4 DISCUSSION

The present study examined the effectiveness of Problem-Based Learning (PBL) in enhancing undergraduate counselling students' understanding of the Learning Theory of Career Counselling (LTCC) within an application-orientated career counselling course conducted prior to the practicum and internship. Overall, the findings suggest that PBL is a promising instructional approach that may support conceptual understanding, theory-practice integration, and reflective reasoning in career counselling education. Consistent with the study's aims, both quantitative and

qualitative findings suggest that engaging students in an authentic career counselling issue was associated with more profound engagement with LTCC as a learning-orientated and non-linear career counselling model. Nonetheless, given the exploratory quasi-experimental design and limited sample, these findings should be interpreted as preliminary rather than definitive.

Quantitative results indicated a statistically significant increase in students' LTCC quiz scores following the PBL intervention, with a medium-to-large effect size. This finding is consistent with prior research suggesting that PBL may support higher-order cognitive outcomes, including conceptual understanding and critical thinking, in higher education contexts (Lu et al., 2025; Manuaba et al., 2022). Moreover, improvements were observed across all seven LTCC stages, suggesting broader engagement with the counselling process rather than isolated theoretical components. In particular, the largest gains were observed for the Re-evaluate/Recycle stage, where clients and counsellors review outcomes, clarify preferences, and revisit earlier career decision steps. This pattern may indicate an improved understanding of the non-linear, iterative nature of LTCC, which students often find challenging when taught through traditional lecture-based approaches.

Qualitative findings from the sticky note reflection activity further support the quantitative results. Participants most frequently associated LTCC with learning orientation and the learning process, consistent with LTCC's core philosophy as a learning-based approach to career development (Zunker, 2016). Exploration and experience, corresponding to LTCC Stages 3 and 4, were also commonly reflected, indicating engagement with learning through active exploration. References to uncertainty, adaptation, and recycling further suggest that participants conceptualised career development as an evolving and iterative process rather than a one-time decision. The relatively limited mention of job search strategies (Stage 7) may reflect an emphasis on learning and exploration before action, consistent with LTCC principles and the PBL task design.

Extending this observation, Stage 5 (Share Information and Estimate Consequences) and Stage 7 (Job Search Strategies) showed comparatively lower improvements and fewer qualitative mentions. This pattern may reflect the more applied and action-orientated nature of these stages, which require clients to evaluate consequences and engage in real-world career behaviours. Within the LTCC framework, learning is shaped through both cognitive and experiential processes, including interactions with the environment and engagement in actual tasks (Krumboltz, 1996). As such, these stages may be more difficult to fully engage with through discussion-based PBL activities alone and may require extended or experiential learning opportunities beyond a single classroom session. Taken together, these findings highlight the value of integrating quantitative and qualitative data to better understand students’ learning processes. In line with the present study, prior research has highlighted the value of mixed-methods approaches in examining learning processes in higher education contexts (Kaeedi et al., 2023), while qualitative studies have also provided in-depth insights into students' learning experiences (Ni et al., 2024). Together, these approaches support a more comprehensive understanding of both learning outcomes and students' conceptual interpretations, particularly in the context of PBL.

From a pedagogical perspective, this study addresses a gap in the counselling education literature concerning the limited use of PBL for teaching counselling theories. The findings suggest that embedding theory learning in authentic counselling problem scenarios may support students in actively constructing knowledge, integrating theoretical concepts with applied reasoning, and moving beyond rote memorisation, consistent with student-centred learning principles in PBL (Hmelo-Silver, 2004; Savery, 2006). This finding is also consistent with emerging applications of PBL in counselling education, which have shown its potential in supporting applied reasoning and professional skill development (Waalkes et al., 2024). Similar findings have been reported in other disciplines, including healthcare education, where PBL has been shown to enhance applied skills and learning outcomes (Benítez-Chavira et al., 2023). This approach appears particularly relevant in pre-practicum settings, where students are developing foundational conceptual understanding and professional reasoning skills (Kindsvatter & Desmond, 2013). By framing LTCC as a sense-making framework rather than a prescriptive model, PBL may support students' readiness to engage with the complexity and uncertainty inherent in real-world career counselling contexts.

Future research could extend this work by examining the use of PBL in teaching other career counselling theories, such as trait and factor theory, Super's developmental theory, and Holland's theory of vocational choice. These theories differ from LTCC in their underlying assumptions but represent widely taught frameworks in career counselling, allowing for the examination of whether PBL is similarly effective across different theoretical approaches. Despite its contributions, the present study has several limitations that warrant acknowledgement. First, the study employed a one-group pre-test-post-test quasi-experimental design without a control group. Although this design is appropriate for classroom-based instructional research, it limits the ability to attribute observed changes solely to the PBL intervention. Future research could strengthen causal inference by employing comparison groups using traditional lecture-based instruction or alternative active learning approaches. Second, the sample size was relatively small (N = 29) and was drawn from a single cohort at a single public university in Malaysia. As such, the findings should be interpreted as exploratory due to the one-group design and small sample, and they cannot be generalised beyond similar educational contexts. While the sample represents an intact classroom group appropriate for exploratory instructional research, replication studies across larger and more diverse samples are needed to establish the broader applicability of PBL in teaching career counselling theory.

Third, learning outcomes were assessed using a short multiple-choice quiz and a brief reflection activity. While these measures aligned with the study's objectives and LTCC stages, they may not fully capture the complexity and depth of students' conceptual understanding. The LTCC quiz consisted of a limited number of researcher-developed items, and formal reliability analysis was not conducted because the instrument was intended as a formative measure rather than a standardised assessment tool. The sticky note reflections also produced brief responses, and the use of frequency-based thematic coding may not fully capture the richness of participants' perspectives. Future research could incorporate more comprehensive and rigorous instruments, such as written case conceptualisations, reflective journals, or performance-based assessments, as well as longitudinal designs to examine the sustainability and transferability of learning outcomes.

In conclusion, the results indicate that Problem-Based Learning (PBL) may be an effective approach for helping undergraduate counselling students connect theory to practice, develop critical thinking, and enhance conceptual understanding of the Learning Theory of Career Counselling (LTCC). By embedding theoretical learning in real-world problem scenarios, PBL appeared to promote deeper engagement with the complex, developmental frameworks of career counselling. These findings provide preliminary evidence that learner-centred pedagogical approaches can support meaningful theoretical understanding and professional preparation in a pre-practicum counselling education setting.

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AUTHOR CONTRIBUTIONS

The first author was primarily responsible for data collection, analysis, and manuscript preparation. The second author contributed to data analysis and drafted the manuscript. The third and fourth authors contributed to the writing and review of the manuscript. All authors approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest related to this study.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL STATEMENT

This research was conducted as part of the first author's Postgraduate Diploma in Higher Education Teaching and Learning project. As the study involved minimal risk to participants, formal approval from the Human Research Ethics Committee (Non-Medical), Universiti Malaysia Sarawak, was not required in accordance with institutional guidelines.

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REFERENCES

Arthur, N., Borgen, R., & McMahon, M. (2025). Career development practices: What theories and models have to offer. *Canadian Journal of Career Development, 24*(1), 85–105. https://doi.org/10.53379/cjcd.2025.431

Asif Zeb, M., Mahboob, U., & Shaheen, N. (2022). Effect of team-based learning on critical thinking: A quasi-experimental study. *Pakistan Journal of Medical Sciences, 38*(8), 2234–2238. https://doi.org/10.12669/pjms.38.8.6146

Barrows, H. S., & Tamblyn, R. M. (1980). *Problem-based learning: An approach to medical education*. Springer Publishing Company.

Benítez-Chavira, L. A., Zárate-Grajales, R. A., Moreno-Monsiváis, M. G., Vite-Rodríguez, C. X., Hernández-Rosales, C. M., & Brito-Carbajal, C. E. (2023). The effect of problem-based learning on care management skills: A quasi-experimental study. *Revista Latino-Americana de Enfermagem*, *31,* e3867. https://doi.org/10.1590/1518-8345.6272.3867

Chen, C. P. (2013). Rejuvenate career counselling training in counsellor education. *Australian Journal of Career Development, 22*(2), 72–81. https://doi.org/10.1177/1038416213486774

Chope, R. C. (2011). Career counseling. In E. M. Altmaier & J.-I. C. Hansen (Eds.), *The Oxford handbook of counseling psychology* (pp. 545–569). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195342314.013.0021

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

Hirschi, A. (2020). Whole-life career management: A counseling intervention framework. *The Career Development Quarterly, 68*(1), 2–17. https://doi.org/10.1002/cdq.12209

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review, 16*(3), 235–266. https://doi.org/10.1023/B:EDPR.0000034022.16470.f3

Kaeedi, A., Nasr Esfahani, A., Sharifian, F., & Moosavipour, S. (2023). The quantitative and qualitative study of the effectiveness of the problem-based learning approach in teaching research methods. *Journal of University Teaching & Learning Practice, 20*(5), 6. https://doi.org/10.53761/1.20.5.06

Kholili, M. I., & Purwaningrum, R. (2024). Assisted problem based learning mobile learning application to improve preservice counselor problem solving skills. *Jurnal Penelitian dan Pengembangan Pendidikan, 8*(2), 199–208. https://doi.org/10.23887/jppp.v8i2.74890

Kindsvatter, A., & Desmond, K. J. (2013). A problem-based approach to skill acquisition and cognitive complexity with pre-practicum supervisees. *The Clinical Supervisor, 32*(2), 212–223. https://doi.org/10.1080/07325223.2013.846759

Krumboltz, J. D. (1996). A learning theory of career counseling. In M. L. Savickas & W. B. Walsh (Eds.), *Handbook of career counseling theory and practice* (pp. 55–80). Davies-Black Publishing.

Krumboltz, J. D., Mitchell, A., & Gelatt, H. G. (1975). Applications of social learning theory of career selection. *Focus on Guidance, 8,* 1–16.

Lent, R. W., & Brown, S. D. (2020). Career development and counseling: An introduction. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (3rd ed., pp. 1–30). Wiley. https://doi.org/10.1002/9781394258994.ch1

Lu, L., Mustakim, S. S., & Muhamad, M. M. (2025). A meta-analysis of the effectiveness of problem-based learning on critical thinking. *European Journal of Educational Research, 14*(3), 789–804. https://doi.org/10.12973/eu-jer.14.3.789

Manuaba, I. B. A. P., -No, Y., & Wu, C. -C. (2022). The effectiveness of problem based learning in improving critical thinking, problem-solving and self-directed learning in first-year medical students: A meta-analysis. *PLOS ONE, 17*(11), e0277339. https://doi.org/10.1371/journal.pone.0277339

Ni, Z. H., Huang, J., Yang, D. P., & Wang, J. (2024). Nursing students' experience of flipped classroom combined with problem-based learning in a paediatric nursing course: A qualitative study. *BMC Nursing, 23*, 88. https://doi.org/10.1186/s12912-024-01744-z

Savery, J. R. (2006). Overview of problem-based learning: Definitions and distinctions. *Interdisciplinary Journal of Problem-Based Learning, 1*(1), 9–20. https://doi.org/10.7771/1541-5015.1002

Savickas, M. L., & Savickas, S. (2019). A history of career counselling. In J. A. Athanasou & H. N. Perera (Eds.), *International handbook of career guidance* (2nd ed., pp. 25–43). Springer. https://doi.org/10.1007/978-3-030-25153-6_2

Smith, A. C., & Peterssen, K. (2024). *An innovative approach to career counseling: Theory and practical application.* Springer Publishing Company.

Waalkes, P. L., Alhiyari, N., Thompson, J., & DeCino, D. A. (2024). Integrating problem-based learning into a school counseling classroom instruction course. *Counselor Education and Supervision, 63*(1), 58–68. https://doi.org/10.1002/ceas.12293

Waalkes, P. L., & DeCino, D. A. (2019). Developing authentic problem solving skills in school counselors-in-training through problem based learning. *Journal of Counselor Preparation and Supervision, 12*(3). https://research.library.kutztown.edu/jcps/vol12/iss3/8

Zunker, V. G. (2016). *Career counseling: A holistic approach* (9th ed.). Cengage Learning.