A modified gap analysis designed to generate research priorities in occupational therapy

Abstract

Where a limited body of evidence exists the traditional mechanisms of a literature or systematic review, which are often used to establish research gaps and priorities, can be problematic. This is especially the case in occupational therapy where evidence to guide future research directions can be sparse. A gap analysis of existing literature is one way to inform future research planning. This paper aims to describe a modified version of gap analysis specifically designed to identify research priorities in occupational therapy. This is illustrated using a small, disparate body of pre-existing, published work that explored practitioner knowledge of drinking alcohol in later life.

Key words: alcohol, older people, person, environment, occupation
There is increased recognition of the need to build research capacity of the allied health professions (AHPs) (Pickstone et al., 2008), in part due to the acknowledgement that AHP research has been considered emergent (Pager, Holden, & Golenko, 2012). This view is supported by Mickan, Wenke, Weir, Bialocerkowski and Noble (2017) who argued that AHPs tend to be less engaged in research compared to medical professionals, therefore a strong evidence base underpinning AHP practice is lacking (Pickstone et al., 2008). Consequently, building the capacity of allied health care professionals to undertake research is considered important (Wenke, Mickan, & Bisset, 2017) and where resources are scarce, the need to set research priorities has been emphasised to maximise the impact of investment (Viergever, Olifson, Ghaffar, & Terry, 2010).

Yet developing research priorities can be problematic. For example, in occupational therapy it has been recognised that established methods of literature review, such as systematic reviews, can become “stunted” due to the lack of homogenous randomised controlled trials to allow for meta-analysis (Unsworth, 2017, p. 144). This presents a challenge as mechanisms of review often help to identify and establish priorities connected to research (Smith & Noble, 2016). In turn, whilst the contribution of occupational therapy may be informally recognised, there can be limited empirical, primary research evidence to underpin and direct practice (Coole, McBean, & Drummond, 2015).

Gap analysis has been used to identify knowledge gaps in a number of health-related disciplines and across business settings. In addition, it is recognised that the identification and prioritisation of research gaps can support rapid generation of research to address those gaps (Carey, Yon, Beadles, & Wines, 2012). However, gap analysis appears to have had little application in occupational therapy. Despite the recognised versatility of this approach and its focus on determining what is known, before identifying gaps, there is little published work illustrating how it could be applied to occupational therapy specific issues. Presenting and critically discussing gap analyses may contribute to its development and validation as a tool for the profession. The paper presented here, emerged from the need to establish research priorities evolving from five disparate papers published by the first author and colleagues, exploring

Insert Table 1 about here.

These papers offer insights into the diverse state of practitioner knowledge and beliefs related to alcohol use and misuse in later life, and its influence on health. A collective analysis of the combined findings can be used to identify current gaps in the evidence base and to generate corresponding research priorities that may influence the shape and nature of future research. Although methods to explore research gaps are emerging, it was challenging to identify a structured approach that would highlight research priorities emerging from small, disparate pockets of work. Therefore, the primary purpose of this paper is to introduce gap analysis by using examples of published work connected to drinking alcohol in older age. A secondary goal is to define the structure of a modified version of gap analysis suitable for use in occupational therapy.

**Literature review**

Gap analysis was defined by Blank (2015) as a technique used to determine the steps that need to be taken to move from the existing state, to a desired future state. The principles of gap analysis emerged from a business model, typically designed to establish and list an organisation’s current state and the desired state, with a comprehensive plan to close the gap between these two states (Blank, 2015). Davoren (2015) suggested gap analysis had value in supporting business growth by differentiating between existing business practices that continue to support organisational growth, as opposed to practices that have become out-dated and require modernisation. Similarly, Friesner (2014) outlined the benefits of gap analysis in helping to define existing marketing strategies and tools, for the purpose of enhancing organisational decision-making when choosing future marketing strategies. Both examples have, at their heart, a focus on where are we now, and where do we want to be in the future.

Applying gap analysis to generate research priorities in occupational therapy has challenges. This is partly due to the broad scope and diversity of methods used in gap analysis and the variable depth of description regarding structure and implementation. For example, Mudumbai,
Ayer and Stefanko (2017) developed a qualitative gap analysis using semi-structured interviews as part of a quality improvement programme in veterans’ healthcare administration. The research goal was to identify “lessons learned” (Mudumbai et al., p.3) (current state), and to understand recommendations (future state) for the development of analytics associated with the diverse needs of stakeholders. Although the study signalled the versatility of gap analysis in utilising and adopting qualitative methods, including themes emerging from data gathering interviews, the work was set within a quality improvement programme that may not be transferable to the development of research priorities.

Alternatively, gap analysis was used in health contexts to clarify the discrepancy between current reality in health care and optimal health care (CEPD, 2009). For example, Fater (2013) used a gap analysis to identify opportunities to develop student competency as part of an undergraduate nursing curriculum. Fater’s (2013) approach to gap analysis used existing core competencies, to establish the extent to which these were achieved in a nursing program. This use of gap analysis supported the identification of strengths and weaknesses in the educational curriculum and in so doing, revealed where there is need of further development. Thus, the value of gap analysis in strengthening practitioner knowledge through education was emphasised. However, this example of gap analysis relied on information that was already known e.g., core competencies were used to identify gaps. This approach to gap analysis could be problematic if outcomes are yet to be developed, or more specifically, when the development of an ‘unknown’ may be one objective of the work.

In another example, Bunse, Vodicka, Schonsleben, Brulhart and Ernst (2011) used gap analysis to compare and contrast the identified industrial needs of energy efficient manufacturing. Using theories proposed in industry relevant literature, the authors explored potential implementation gaps. In the process, they used a gap analysis to map or guide professional understanding towards the development of future practice. This shows the potential to use pre-existing published literature as the data set through which a gap analysis can be undertaken. This approach is further supported by the work of Carey et al. (2012) who mapped and prioritised research gaps connected to clinical and health policy questions as part of patient-centred outcomes research. However, their approach was, in part, based on identifying and prioritising
research gaps informed by data gathered via systematic reviews. They adopted the term ‘research gap’ to highlight a key question identified in a systematic review that has not been answered. While this approach has potential, it poses a challenge for the profession of occupational therapy where the evidence to underpin the process of systematic review may be sparse.

The diversity of approaches used in gap analysis across the literature endorsed Mikoluk’s (2013) stance that it is an organic and flexible tool. That may be why Tsai, Chen, Chan and Lin (2011) suggested it can be modified to suit profession-specific needs by reconciling what is currently known with a potential future state. This occurred in our case when gap analysis was applied as a tool with which to analyse disparate papers. Specifically, it was assumed that pre-existing published research could be used as a starting point from which to understand how a research priority could be developed, connected to practitioner knowledge of older people’s use of alcohol. Critical reflections of this proposed gap analysis are now considered.

**A modified gap analysis for use in occupational therapy**

The gap analysis presented here was developed from the common four quadrant structure which typically frames its use (see Table 2).

Insert Table 2 about here.

In adopting this structure to explore research priorities connected to practitioner knowledge of older people’s use of alcohol and the consequences of drinking in older age, the gap analysis was modified. This configuration was further developed to structure exploration and development of research priorities connected to practitioner knowledge of older people’s alcohol use. This involved the introduction of a theoretical framework set within the four-quadrant structure to guide an interpretative process of analysis. The actual process will be illustrated and discussed in more detail later in the paper but to summarise, the theoretical framing of this interpretative analysis involved the Person-Environment-Occupation Model (PEO Model; Law, Cooper, Strong, Stewart, Rigby, & Letts, 1996) and introspection.
The interpretative process is introduced in Figure 1 where each quadrant retains a specific purpose. Quadrant 1 identifies the purpose of analysis, Quadrant 2 presents known findings from each of the five papers connected to existing professional knowledge are identified, documented and compared using a process of first-person introspection, framed by the PEO Model (Law et al., 1996). Quadrant 3 seeks to identify gaps in professional knowledge from the findings of each paper, using introspection, framed by the PEO Model. Finally, in Quadrant 4, gaps in knowledge and existing knowledge findings are combined to form an introspective transcript that will be analysed using a general inductive approach for qualitative analysis (Thomas, 2006). The analysis supports the generation of themes to underpin and inform the development of future research priorities. Whilst each quadrant in Figure 1 and subsequent discussion of a proposed gap analysis describes a linear process, in reality implementation is iterative.

Insert Figure 1 about here

**Quadrant 1: Purpose of analysis**

The reason for undertaking a gap analysis must be clearly stated. Here Clark and Estes (2008) offered guidance, suggesting there are several factors that can be examined when implementing a gap analysis, including the need to explore people’s knowledge and skills. The articulation between gap analysis and knowledge aligns with our original purpose - to create research priorities connected to practitioner knowledge of older people’s use of alcohol and the consequences of drinking in older age. According to Clark and Estes (2008), understanding a therapist’s knowledge in practice is important, as people can be unaware of their own lack of knowledge. In addition, having a clear understanding of the key characteristics of the current situation is important in this quadrant. Our previous research (Gill et al., 2011, Maclean et al., 2012, Maclean et al., 2014, Maclean & Breckenridge, 2015, Maclean et al., 2015) indicated a current state that was influenced by contextually embedded and valued perspectives of alcohol use, previous educational experiences, immediate practice environments, and perceived preparedness to work with people using alcohol. This understanding of the current context helped to inform the subsequent stages of analysis.
Quadrant 2: Critical introspection of existing knowledge, framed by occupation

Mikoluk (2013) suggested that the initial implementation starts with introspection. Similarly, Gould (1995) suggested this can be seen as a process of tracking, experiencing, and reflecting on one’s own thoughts, mental images, feelings, sensations and behaviours. Despite its origins in psychology, the use of introspection has declined due to concerns that it was conceptually impossible (Hatfield, 2005). Frith and Lau (2006) suggested that we do not have first person access to psychological processes (e.g. problem solving), only the products or outputs of these processes. Alternative interpretations of introspection do exist however, acknowledging that people do not have introspective access to their own cognitive processes but still have experience and interpretation of their own actions (Overgaard, 2006). Consequently, it does not automatically follow that the introspective report is invalid (Overgaard, 2006).

Alternatively, Butler (2013) suggested introspection can develop from a diverse array of mental states and cognitive processes. One such example is that of the internal monologue, where people commonly report an internal stream of words representing their own private thoughts (Butler, 2013). For example, rehearsing a discussion with another person, known as inner speech (Butler, 2013). Similarly, critical reflection of our own language and words may enable greater awareness of our thoughts as they occur, allowing a form of introspective awareness (Butler, 2013). This reasoning shapes the process of critical introspective self-reflection as part of Quadrant 2. It is inevitably undertaken retrospectively, as this process of introspective self-reflection relates to the findings of previously published research; in our case the five published papers (Table 1). In practice, the internal, critically reflective conversations of the primary author, connected to the findings of each paper, were electronically recorded and documented as part of a reflective log, forming the data for the interpretative analysis. Introspective reflection focused on what had been found to be known about practitioner knowledge in acute hospital settings and alcohol misuse, within and across, each of the findings of the published papers. In other words, the process of critical introspective self-reflection is guided by and aligned to, the purpose set as part of Quadrant 1. In adopting this introspective approach, as suggested by Finlay (2003), it is intended that “using introspection is to use personal revelation not as an end in itself, but as a springboard for interpretations and more general insight.” (p. 8)

Occupation-focussed classification of introspection.
The PEO Model (Law et al., 1996) offered a potential framework to shape reflection, as well as to ensure the findings focused on occupation. This is of relevance, as the use of an occupation-focused model to organise and structure key reflections, may enable the data to be organised in an occupation centred manner, which is philosophically crucial to occupational therapists (Hitch, Pepin & Stagnitti, 2014). The PEO Model offers a theoretical perspective and integral to this is a ‘transactive’ element where the person and environment are seen as interdependent. In other words, a person’s behaviour cannot be separated from the context in which it occurs (Turpin & Iwama, 2011).

Environmental context is an important consideration when practitioner knowledge is the purpose of exploration. For example, in the context of acute care, the environment tends to respond immediately to life threatening health conditions (Hirshon et al., 2013), with a focus on safety and perhaps early discharge home. This ethos of health care is likely to influence both the quality and application of therapist knowledge in practice and so the transactional relationship between environment and person is of interest. Therefore, when using gap analysis, consideration should be given to micro-influences, (e.g. therapist knowledge), meso-influences (immediate structural contexts such as team dynamics, organisational infrastructures etc.) and macro-influences (e.g. government driven policy).

In using this first-person process, the outcomes are electronically documented and recorded. As reflections emerge, they are critically interrogated and categorised under person, environment or occupation, highlighting key transactions between person-environment, person-occupation and environment-occupation.

**Quadrant 3: Critical introspection of gaps, framed by occupation**

Quadrant 3 considers what Clark and Estes (2008) described as the known to be unknown in gap analysis. In this case, the identification, critical introspection, and occupational classification of knowledge gaps evident in the findings of the published papers. In understanding the known to be unknown it may be possible, through the focus on professional knowledge, to enhance existing practice. Clark and Estes (2008) emphasised the opportunity to enhance performance and further, through the recognition and acceptance of potential gaps, the process of identifying those gaps marked the frontier of knowledge development.
The attempt to identify gaps is not necessarily new. Parallels can be drawn with the extrapolation method proposed by Mosey (1996) and defined as the process of extrapolating “an unknown from something known” (Ikiugu, 2010, p. 197). The extrapolation method was developed to address clinical problems for which no guidelines were available, or those that were available were perceived to be inadequate (Ikiugu, 2010). Here, the analysis of gaps in Quadrant 3 seeks to identify and document known gaps in practitioner knowledge from the findings of the published papers, including gaps not yet recognised. In so doing, Quadrant 3 adopts the same process of introspective critical reflection, electronically documented over time, to identify gaps in knowledge framed and classified using the PEO Model.

**Quadrant 4: Unification of introspective data emerging from Quadrants 2 and 3.**

The separate qualitative documents, outcomes of Quadrants 2 and 3, record the first-person reflections of known existing knowledge and identified gaps, within and across the findings of the five published papers. These documents are then combined using a general inductive approach for qualitative data analysis (Thomas, 2006), with themes generated to inform the development of future research priorities. Each step of this unification process is outlined below.

Step 1:

The electronic documentation of the introspective critical reflections connected to what is known, arising from Quadrant 2, is selected, copied and pasted under each PEO classification, to create a new electronic document.

Step 2:

The electronic documentation arising from Quadrant 3, is selected, copied and pasted under each of the PEO classifications. This electronic data source is combined with the new electronic document created as part of step 1. The merged data generated from Quadrant 2 and 3 is then categorised under each of the relevant PEO classifications.

Step 3:

The combined qualitative data source of PEO classified introspective data is checked and matched by an independent researcher, for accuracy against the original Quadrant 2 and 3 electronic data documents.
Step 4:
Iterative reading of the introspective transcript is undertaken to pinpoint emerging patterns of thought, creating initial summary themes, developed in the context of the raw data.

Step 5:
The summary of themes are then explored for emerging patterns and initial tentative themes are generated. These preliminary themes are then matched back to the raw data and used to frame the reading of the transcript horizontally, grouping segments of text by theme. This is an iterative process, structuring, sifting, and shaping tentative themes, collapsing one into another, which distils a refined theme.

Step 6:
Presentation of refined theme to the wider research team for discussion, including stakeholder feedback and peer review, leading to the creation of future research priorities. For example, in our case - to enhance practitioner knowledge and awareness of the occupation of drinking alcohol in later life in Western contexts, across education and practice by:

i. Constructing and evaluating learning pathways as part of pre- and post-registration education leading to a deeper student appreciation of the changing pattern, place and position of drinking alcohol in the lives of older people, influenced by the transitions of later life.

ii. Deepen the current state of knowledge and awareness of therapists in an acute hospital practice with regards to the occupation of drinking alcohol, refreshed by the transactional perspective of the PEO Model;

iii. Influence practice in acute hospital settings through the creation of practice guidelines, informed by evidence and framed by the translation of professional reasoning, when working with older people to highlight the occupation of drinking alcohol in later life.

Trustworthiness
To address concerns related to trustworthiness, peer debriefing and stakeholder checks were included as part of this process. Throughout implementation, peer review meetings should be
undertaken and, in our case, this included other members of the research team (authors 2 and 3). This helped to cross-examine in further depth, the introspective thoughts and ideas which emerged, and to review, check and agree on, themes. Stakeholder checks were also included to enhance credibility of the findings. In the development of the example of research priority illustrated above, this was achieved by asking two occupational therapists, one an academic responsible for delivering pre-registration occupational therapy teaching, and one a therapist currently working in acute practice, to comment on the introspective themes underpinning the creation of the research priority.

Critical reflections

The modified gap analysis presented here offers a way to support the development of research priorities, where small, disparate areas of research exist in the profession of occupational therapy. There are advantages to this approach in that, whilst methods of developing research priorities are increasingly under discussion in literature, very often these have a tendency to rely on systematic reviews or a substantial body of work that already exists. This modified gap analysis offers a methodical approach to working with smaller bodies of published research. In practical terms, it requires relatively few resources, such as funding, to undertake the gap analysis presented however, the implementation of the critical introspective reflection can be challenging in terms of time. It also requires the engagement of a wider research team to support the introspective process by ensuring their familiarity with the published work under consideration, to inform the critical interrogation of introspective themes. This claim is supported by Fater (2013) who also noted that their use of gap analysis could be time consuming, and colleague support was needed when additional information was required.

The inclusion of stakeholder feedback is essential to the rigour of the process, and to check the value and relevance to practice of the emerging themes underpinning the proposed research priorities. In this example, two occupational therapists provided feedback in relation to the emerging themes underpinning the example research priority. It is possible that different occupational therapists would potentially offer alternative views and consequently, it may be appropriate to diversify the number of participating stakeholders to capture different perspectives. For example, it may be worthwhile to include occupational therapy students, as well as practitioners and academics. More widely, the stakeholder panel could include people to
whom the research priorities would actually apply, as in our case, the voice of older people. A further step of the analysis process could be to check the proposed research priorities with the identified stakeholders; a point highlighted by Carey et al. (2012) when they suggested that this could ensure research priorities are ranked. Where several research priorities emerge, there is value in knowing the priority of each, according to the stakeholders. This will determine where future research should start and thereby enhance the relevance of occupational therapy research by informing practice to people and their communities. Careful consideration needs to be given to the role stakeholders have as part of a gap analysis team for as Carey et al. (2012) argued, without dissemination of relevance to the stakeholders, gap analysis can have little impact.

In terms of the interpretative nature of the modified gap analysis presented here, the approach outlined essentially represents and proposes a first-person account or one ‘world-view’ perspective of existing knowledge and gaps in the findings of published research. To some extent, this is balanced by the inclusion of the wider research team to check and interrogate the introspective themes and by the inclusion of stakeholder feedback. However, it is possible, that a different researcher undertaking the same process may influence an alternative direction and outcome of analysis. Similarly, the decision to apply and integrate the PEO Model, which provides a specific framework, inevitably influences the epistemological underpinning of the research priorities that emerge. An alternative occupation-focused theoretical framework may direct and influence a different outcome or introspective reflection, re-shaping the nature of the research priority generated. Nevertheless, this modified gap analysis offers a way to establish useful priorities of value to a range of stakeholders.

**Conclusion**

The modified gap analysis presented here has the potential to prompt the development of research priorities from a narrow body of disparate research which can be representative of the underpinning evidence supporting practice in occupational therapy. Using a qualitative, interpretative approach, offers the opportunity to identify and extrapolate gaps as part of existing, published studies, to inform and create research priorities. In considering the methodological implications of this contribution, further refinement could be made in the composition and role of stakeholder involvement. Nevertheless, from a professional point of view, this work emphasised the importance of developing and publishing research priorities to maximise the
creation of evidence. In so doing, the inclusion of profession specific theory, such as the intersection and transactional relationship of person, environment and occupation, may ensure an occupational perspective to the research questions we seek to answer. In this regard, taking time to develop a methodical approach to the generation of research priorities could help to promote evidence of best practice in occupational therapy judiciously, with a focus on people in their environments.

Key points

1. Gap analysis can identify research priorities for occupational therapy.

2. A gap analysis approach can generate research priorities from small, disparate bodies of work.
References


<table>
<thead>
<tr>
<th>Title of paper/authors</th>
<th>Data collection time scale / publication date</th>
<th>Research question(s)/aim</th>
<th>Summary of methods</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>The usefulness of the Person-Environment-Occupation Model in an acute physical health care setting</td>
<td>Maclean, F., Carin-Levy, G., Hunter, H., Malcolmson, L., Locke, E.</td>
<td>January 2006 to June 2006 Published 2012</td>
<td>Aim: To ascertain occupational therapists’ perceptions of the PEO Model in an acute physical health care setting.</td>
<td>Generic qualitative research Focus group (n=7) of convenience sample of occupational therapists in acute physical health setting. Data analysis used Nvivo8, adopting a thematic analysis framework. PEO Model used subconsciously in practice. Conflicting views ranged from the perception of simplicity to a complex model for use in practice. A useful framework to structure thinking. Impinging factors: Challenging to deliver client-centred care as part of the theoretical considerations.</td>
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<tr>
<td>Occupational therapy graduates of 2009: Knowledge and attitudes relating to their role in the area of alcohol misuse</td>
<td>Gill, J., Maclean, F., Renton, L. O’May, F.</td>
<td>Second semester of academic year 2008/09 Published 2011</td>
<td>1. What are the levels of knowledge around current health advice relating to alcohol use among final year occupational therapy students in Scotland? 2. What are the attitudes of these students in relation to their professional role in the field of alcohol misuse? 3. Do graduating students support, in principle, four key policy proposals put forward by the Scottish Government to address the problem of alcohol misuse?</td>
<td>Descriptive study (n=109) offering a questionnaire to students due to graduate from degree courses in occupational therapy. Analysis used Statistical Package for the Social Sciences (SPSS) version 16. Final year occupational therapy students exhibited gaps in knowledge surrounding health guidelines on alcohol. Belief in a professional role was evident, but not identified by other health professional students.</td>
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<td>The topic of alcohol in the Scottish occupational therapy</td>
<td></td>
<td>December 2010 to June 2011</td>
<td>Aim: to document the extent and content of alcohol use/misuse</td>
<td>Survey questionnaire to occupational therapy programme leaders. Analysis was conducted</td>
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<td>curricula Maclean, F., O’May, F., Gill, J.</td>
<td>Published 2014</td>
<td>teaching within occupational therapy programmes in Scotland.</td>
<td>using Excel for Mac 2011, version 14.3.9</td>
<td>Occupational therapists need to understand potential interventions associated with alcohol use, irrespective of practice context.</td>
</tr>
<tr>
<td>Alcohol use amongst older adults: Knowledge and beliefs of occupational therapists working in physical health care settings Maclean, F., Gill, J., O’May, F., Breckenridge, J.</td>
<td>January 2013 to June 2014 Published 2015</td>
<td>To investigate current knowledge, beliefs, underpinning theory and assessments used by occupational therapists working with older adults in physical health care settings in the NHS Scotland, in relation to alcohol use.</td>
<td>A mixed methods survey, recruiting occupational therapists (UK band 5 to 9) (n=121) working with older people (65+ years) in physical health care settings across National Health Service Regional Boards in Scotland. Descriptive statistical analysis was undertaken using Microsoft Excel for Mac 2011, version 14.3.6. Qualitative responses were analysed using enumerative content analysis.</td>
<td>Occupational therapists’ working with older people exhibit gaps in knowledge surrounding alcohol health guidelines. Participants expressed a belief that alcohol is an issue when working with older people. The profession has a role in this area, but the role is not supported by under-graduate education. Occupation-focused theory and assessment were not prioritised when considering alcohol and the older adult.</td>
</tr>
<tr>
<td>Use of occupation-focused language by occupational therapists in physical health care settings when considering older people and alcohol use Maclean, F., Breckenridge, J.</td>
<td>January 2013 to June 2014 Published 2015</td>
<td>To ‘listen’ and explore more generally the relationship between the language of practice, and the language used by current occupational therapy conceptual models when considering older people and alcohol misuse.</td>
<td>Practice language was analysed to explore how conceptual models influence therapists’ word choice by re-analysing a sub-set of qualitative data (n=57), from a survey of occupational therapists’ knowledge and beliefs about alcohol use amongst older people.</td>
<td>Occupation-focused language must be meaningful to be used in practice. Models are altered as therapists mould them to practice contexts. Practice language should inform future theoretical developments.</td>
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Gap analysis to create research priorities

Table 2

*Quadrant stages in conducting a gap analysis* (adapted from Mikoluk, 2013; CEPD, 2009; Schwerzler, 2015)

<table>
<thead>
<tr>
<th>Four Quadrants of Gap Analysis</th>
<th>Interpretation of Stage</th>
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<tbody>
<tr>
<td>Quadrant 1</td>
<td>Identify/describe purpose and state of knowledge/business</td>
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<tr>
<td>Quadrant 2</td>
<td>Identify the future state or where unknown, identify signals that navigate towards a future state</td>
</tr>
<tr>
<td>Quadrant 3</td>
<td>Clarify the gap/discrepancy between quadrant 1 and 2</td>
</tr>
<tr>
<td>Quadrant 4</td>
<td>Gap resolution: discussion how the gaps can be resolved</td>
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GAP ANALYSIS USING INTROSPECTION AND OCCUPATION

Figure 1

Diagrammatic representation of a modified gap analysis