CHCPOL003
Research and apply evidence to practice

Learner Guide

Updated to include National Quality Framework changes

Aspire Learning Resources

CHCPOL003

Research and apply evidence to practice

Release 1

Learner Guide

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CHCPOL003 Research and apply evidence to practice, Release 1

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Aspire Learning Resources
Supporting Vocational Education and Training for 30 years
1991 to 2023

Contents

Before you begin

This Learner Guide is based on the unit of competency *CHCPOL003 Research and apply evidence to practice*, Release 1.

Your trainer or training organisation must give you information about this unit of competency as part of your training program. Information regarding how this Learner Guide relates to this unit of competency is detailed in our mapping guide.

How to work through this Learner Guide

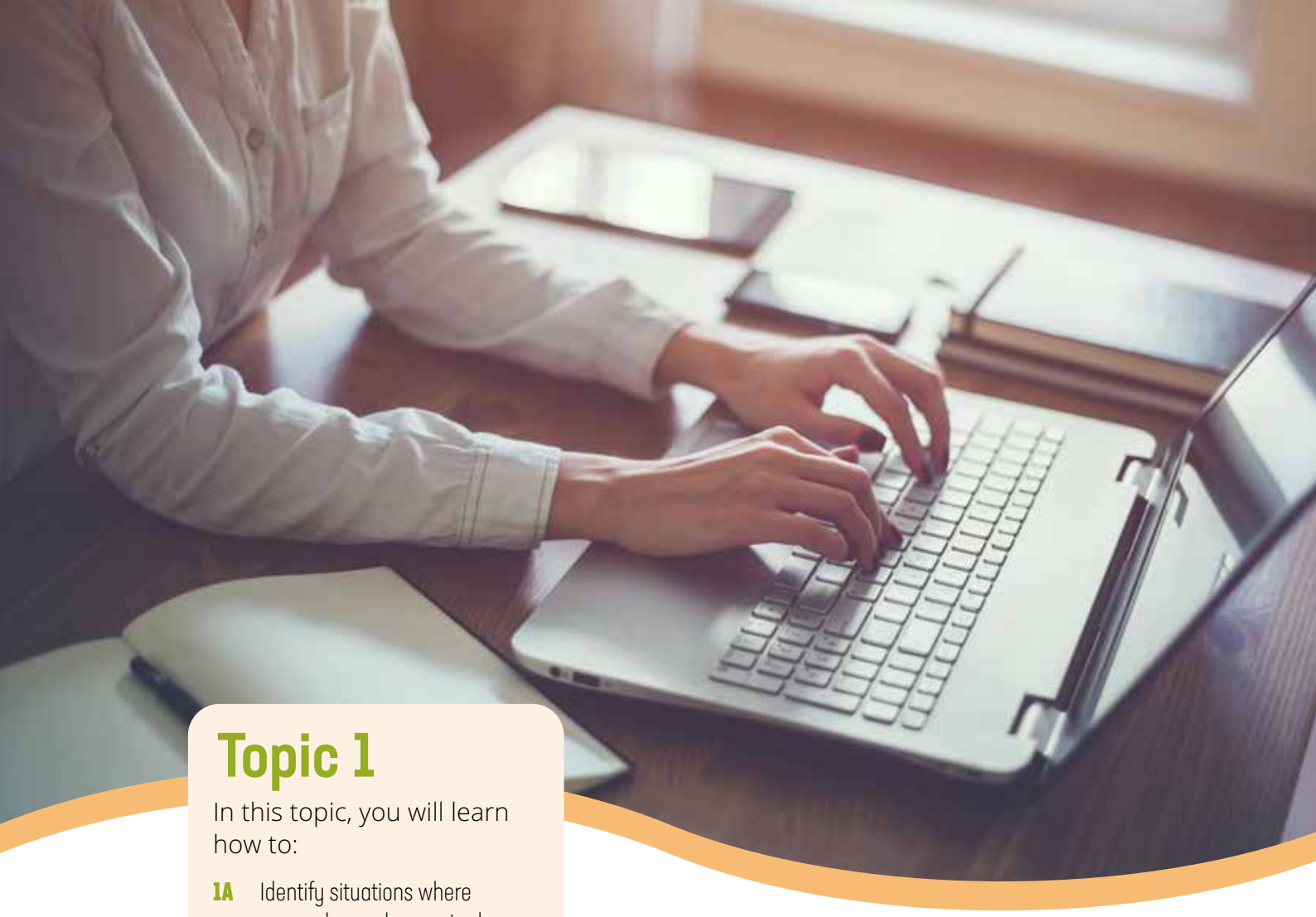
This Learner Guide contains a number of features that will assist you in your learning. Your trainer will advise which parts of the Learner Guide you need to read, and which Practice Tasks and Learning Checkpoints you need to complete.

Feature of the Learner Guide	How you can use each feature
Learning content	➢ Read each topic in this Learner Guide. If you come across content that is confusing, make a note and discuss it with your trainer. Your trainer is in the best position to offer assistance. It is very important that you take on some of the responsibility for the learning you will undertake.
Examples	➢ These highlight learning points and provide realistic examples of workplace situations.
Practice Tasks	➢ Practice Tasks give you the opportunity to put your skills and knowledge into action. Your trainer will tell you which Practice Tasks to complete.
Summaries	➢ Key learning points are provided at the end of each topic.
Learning Checkpoints	➢ There are Learning Checkpoints at the end of each topic. Your trainer will tell you which activities to complete. These activities give you an opportunity to check your progress and apply the skills and knowledge you have learnt.

This table maps each topic in this Learner Guide to the National Quality Standard and national learning framework: Early Years Learning Framework (EYLF).

T = Topic

Topics	National Quality Standard (NQS)
T1–T4	Quality Area 1: Educational program and practice
	Quality Area 2: Children's health and safety
	Quality Area 3: Physical environment
	Quality Area 4: Staffing arrangements
	Quality Area 5: Relationships with children
	Quality Area 6: Collaborative partnerships with families and communities
T1, T2	Quality Area 7: Governance and leadership
	Early Years Learning Framework
	Principles
	Secure, respectful and reciprocal relationships
	Partnerships
	Respect for diversity
	Aboriginal and Torres Strait Islander perspectives
	Equity, inclusion and high expectations
	Sustainability
T1–T4	Critical reflection and ongoing professional learning
T4	Collaborative leadership and teamwork
	Practice
	Holistic, integrated and interconnected approaches
	Responsiveness to children
	Play-based learning and intentionality
	Learning environments
	Cultural responsiveness
	Continuity of learning and transitions
T1–T4	Assessment and evaluation for learning, development and wellbeing
	Learning Outcomes
	1. Children have a strong sense of identity
	2. Children are connected to and contribute to their world
	3. Children have a strong sense of wellbeing
	4. Children are confident and involved learners
	5. Children are effective communicators



Topic 1

In this topic, you will learn how to:

- **1A** Identify situations where research may be required
- **1B** Evaluate current trends
- **1C** Establish and define research objectives
- **1D** Identify and access credible sources of information

Plan information gathering activities

Research is the foundation of evidence-based practice.

The ability to gather and identify credible sources of information, evaluate current trends and define research objectives is key to improving work practice.

1A Identify situations where research may be required

The National Quality Standard (NQS) encourage educators to participate in ongoing critical reflection.

The NQS was created in a way that implements individual pedagogy and developing trends. The NQS aims to provide a basis for quality that all services can use and adapt to include their own philosophies. This means that you should not feel bound by your organisation's direction but be open to new perspectives in the education and care industry. This will open you to professional growth and development through critical reflection.

Once you have a defined objective, it's time to commence the research stage.

Some of the quality areas based on the NQF are outlined in the following table.

Quality area and related areas for reflection and research	How these affect you
Educational program and practice: - Pedagogy - Recording methods - Theories and approaches - Educational leader roles	- How you plan experiences for children - How you view children and their educational needs - How you record and assess children's activities - Career paths
Children's health and safety: - Varied, seasonal and culturally rich menus - Routines that allow flexibility to meet children's individual sleep, rest and hunger needs - Awareness of asthma, allergy and anaphylaxis - Availability of risk-taking activities - Awareness of abuse and neglect	- Implementing healthy and varied cooking experiences for children - Participating in adequate training and completing updates to ensure you can manage asthma, allergy, anaphylaxis, abuse and neglect - Understanding risk-taking and your responsibility - Responsiveness to children
Physical environment: - Simultaneous indoor/outdoor play - Environmentally sustainable practices - Natural materials and learning in the environment	- How you plan experiences for children - How you incorporate sustainability into experiences and activities - How you expose children to a variety of indoor and outdoor activities

Staffing arrangements: - Direct contact requirements/ ratios - Additional qualification requirements - Greater respect for all roles - Educational leader roles – registration in some states - Inclusion of early childhood teachers in centre-based care services	- The educator role becomes more sought after - Increase in respect for all service roles - Educational leader will change the dynamic of the service as the responsibilities become clearer - Additional qualifications or training may be necessary
Relationships with children: - Responsiveness to lifelong learning - View of children as capable - Belonging, being and becoming goals - Development of agency - Recognition of the importance of children's mental health	- How you connect with children - How you establish goals for children and encourage them to work towards goals on their own - How you treat each child individually
Collaborative partnerships with families and communities: - Recognition and implementation of programs that are responsive to Indigenous Australians - Greater involvement of parents in decision-making - Increased relationships with community and support services	- How you interact with other educators and volunteers in the service - How you include parents as often as possible in the education of their children - How you employ services in the community to provide information to the children - How you acknowledge Indigenous Australians in your planning and programming
Governance and leadership: - Continuous improvement requirements within services and in relation to educators and other staff - Efforts towards maintaining continuity of staff	- How you continue to implement change in your service - How you make staff feel welcome and respected - How you continue to encourage staff to improve their practices - How to mentor and support educators

The approved learning framework – *Belonging, being and becoming*: *The early years learning framework for Australia* (EYLF) – encourages educators to reach a higher level of understanding or application of their skills and knowledge.

The EYLF Principle: Critical reflection and ongoing professional learning supports you to regularly think about how you are doing and what skills you could develop. You are encouraged to make changes when needed and set goals for yourself to increase your knowledge.

Performance reviews conducted at your service are a way for you to identify and plan training, professional development, seminars or networking opportunities that extend your expertise.

Element 7.2.3 of the NQS states that a system of regular performance reviews, alongside individual learning and development plans, are essential. While the element suggests that performance reviews should be adapted to meet the needs of each service, it also specifies that performance reviews should:

- develop the educator's professional knowledge, skills and practices
- support creativity, imagination, innovation and continuous quality improvement
- build an understanding of the influence of theories and beliefs
- support educators to stay abreast of current policies, practices and thinking.

Situations for research

There are numerous situations where early education and care educators want to seek further information to support and improve their own work practice. Some examples are provided in the table below:

To compare approaches	➤ Comparing different approaches helps determine which is most effective. ➤ For example, to identify which option (work practice) is most appropriate in a specific setting, (e.g. rural, regional, urban or particular group of children).
To test a hypothesis	➤ An educator may have observed something in during their work practice which suggests a relationship between two things. ➤ They might seek out further information about their hypothesis to determine whether it is correct.
To identify practice trends	➤ Emerging practice trends may have the potential to improve and enhance outcomes for children. ➤ An educator might want to identify practice trends to keep up to date with the latest innovations or investigate a specific practice trend to understand how it may impact on their work.
To extend knowledge	➤ An educator may need or want to extend their knowledge of an issue relating to their work practice. Perhaps they want to learn more about how to develop their understanding of working with a specific group of children.

[1] A hypothesis is a statement which declares a relationship between two factors (e.g. X causes Y, X is related to Y).

It is important to note that seeking out existing information is not the only way to address issues. In some cases, undertaking additional training, or discussing issues with your director or with your colleagues, will be more appropriate and efficient. Seeking information from a peak industry body or industry and professional associations can provide access to specific information.

However, it may be that the questions you have cannot be sufficiently addressed via these methods. For example, you may not have access to the specific type of training you need, or your director or team leader might not know the answer to your question. It would therefore be reasonable to research existing information on an issue or problem related to your work.

Example

Identify situations where information is needed

Elena is a supervisor in a large service located in a regional city. Recently, there has been a large increase in enrolments of children from refugee and asylum seeker families. Elena wants to know how to work effectively with these children and families. She asked her colleagues at a network meeting some questions and sought advice, but they were unable to answer many of her questions and she feels she there is more to learn. She has a few ideas on how to welcome the new families, but her peers aren't aware of any evidence supporting her hypothesis, so Elena decides to seek out existing information on the topic.

Key terminology

To understand the purpose of this unit, it is important to first define some key terms relating to research and evidence-based practice.

Research	The systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions
Evidence-based practice	Practice that is informed and guided by current best quality evidence about what works to improve outcomes
Evaluation	Evaluation is a subset of research – it is the process used to assess and judge the validity of materials and sources investigated in the research process
Continuous quality improvement	A quality management process that involves the continuous collection and analysis of data and practices to determine the effectiveness and efficiency of programs and services

Research and evidence-based practice

The process of systematically searching for existing evidence-based information is commonly referred to as 'secondary research'. Primary research involves the collection of raw data through surveys, interviews, experiments and focus groups; whereas secondary research uses data or research that has already been collected or undertaken by someone else.

This process is surmised below:

- **Identifying a problem or an issue:** relating to your work or work practice.
- **Developing a research objective:** establishing and defining the purpose of your search.
- **Collecting data (information):** using a specific method to gather data (information).
- **Organising the data:** putting the data in a format that facilitates analysis.
- **Analysing the data:** making sense of the data.

- **Interpreting the data:** drawing conclusions, answering the research objective and, for the purposes of this unit, applying the findings to practice.

Although this process is often presented in a linear way, the research process is often less straightforward in practice. For example, a researcher may start to analyse data and realise that it could be organised in a better way, causing them to revisit their initial approach.

Foundation of evidence-based practice

When you undertake secondary research to inform your work practice, it is essential that you look for high quality information and evidence from credible sources. Using the best quality evidence to inform your practice is the foundation of evidence-based practice.

Although the justification for evidence-based practice is rarely disputed, there are differing views among researchers and practitioners about what constitutes 'best quality evidence' or what rules should be applied to determine the quality of evidence collected and analysed. Evidence is traditionally categorised from high to low quality according to a hierarchy, with the highest quality evidence coming from randomised controlled trials (RCTs) – also referred to as the 'gold standard'.

Randomised controlled trials use a random process to allocate individuals to two or more different groups, with each group receiving a different intervention or experience depending on whether they are the 'experimental' group or the 'control' group (the comparison).

Randomised controlled trials can be ethically problematic. Withholding an intervention from a group of people (the control group) to determine whether another group (the experimental group) benefits from the intervention is likely to be ethically problematic. This is because, if the intervention is shown to be effective, the control group have missed out on a beneficial experience. This is particularly relevant when working with vulnerable people such as children.

RCTs can also be expensive and time-consuming. This is why there are often limited studies that use a randomised controlled trial method in relation to early childhood education and care.

In relation to the concept of 'best quality research', there is also debate around the role of practitioner's knowledge and the values of participants in the development of evidence-based practice. Experts argue that both practitioner's knowledge (i.e. their knowledge of practice and what works in practice) and educator's values and are critical aspects of effective practice.

This has led to an alternative understanding of evidence-based practice (sometimes referred to as evidence-*informed* practice), which is the combination of the following three forms of knowledge:

- best quality evidence
- practice wisdom and
- educator's values and preferences

Ethical practices and duty of care

Ethical practice in research means ensuring the safety and wellbeing of others or duty of care to the participants involved.

Ethical research standards ensure that the people who participate in research are protected, respected and not harmed. The potential harms of research include:

- *physical harm*, such as injury and pain
- *psychological harm*, such as distress, guilt and anger
- *social harms*, such as damage to social networks and relationships with others.

Groups especially vulnerable to risks include:

- *children and young people* whose capacity to understand what a research project entails – such as consenting to participate in a research project – may be compromised
- *people with a cognitive impairment, intellectual disability or mental illness* whose capacity to consent to and participate in research projects may be impaired; they may also be more vulnerable to discomfort or stress
- *people in dependent and unequal relationships* with the person or institution undertaking the research, such as the patient of a health care professional who is undertaking a research project; the nature of the dependent or unequal relationship may influence a person's decision to participate in research.

It is important that these groups are not excluded from participating in research – especially when the research findings could benefit them – provided researchers undertake careful consideration of participatory risks.

Families need to be provided with information and give their permission for their child to be involved in any research activity. In the same way you would seek permission from families to share their personal information, take and use photographs of their child, obtain permission to administer medication etc, you need to explain the purpose for your research. This includes outlining what would be required of the child/family and how that information would be used. Depending on the level of involvement with the children, it would be important to provide regular updates to the family as well as your supervisor or director.

For more information, see: aspirelr.link/nhmrc-ethical-conduct-research

For more information about ethical considerations for research involving children and young people, see: aspirelr.link/ethical-considerations-children

Practice Task 1

1. Which of the following are reasons to undertake a project? Select all that apply.

- [ ] To determine whether there is a relationship between children's participation in a music program and decreased levels of anxiety
- [ ] To evaluate whether children want to go on an excursion
- [ ] To examine why there has been a decrease in feedback received from families since it was placed online.
- [ ] To investigate the impact of studying a hypothesis on older parents

2. Which of the following are ways to address problems, issues or questions about your work practice? Select all that apply.

- [ ] Undertake additional training.
- [ ] Discuss issues with your colleagues or director.
- [ ] Discuss issues with your family and friends.
- [ ] Consult with a qualified careers counsellor.

3. According to the definition of research, which of the following statements is correct? Select all that apply.

- [ ] Research is a systematic investigation.
- [ ] Research involves the investigation into and study of materials and sources.
- [ ] Research is a quality management process.
- [ ] Research is undertaken in order to establish facts.
- [ ] Research is a judgmental process.

4. Which of the following statements are correct? Select yes and no for each one.

a.	The process of systematically searching for existing evidence-based information is referred to as 'primary research'.	* Yes	* No
b.	Secondary research involves the collection of raw data.	* Yes	* No
c.	Evidence-based practice involves the continuous collection of data to determine effectiveness and efficiency.	* Yes	* No
d.	Continuous quality improvement is a management process.	* Yes	* No
e.	According to a traditional hierarchy of evidence, the highest quality evidence comes from randomised controlled trials.	* Yes	* No

5. Which of the following statements are correct? Select yes and no for each one.

a.	Randomised controlled trials are often viewed as unethical because if an intervention is effective, the experimental group will miss out on the benefits of that intervention.	* Yes	* No
b.	The National Health and Medical Research Council has produced guidelines relating specifically to undertaking research among Aboriginal and Torres Strait Islander Peoples.	* Yes	* No
c.	Analysing data and interpreting data are the same thing.	* Yes	* No
d.	Research standards must ensure that the people who participate in research are protected, respected and not harmed.	* Yes	* No

1B Evaluate current trends

Practice trends are innovative and emerging practices that may have the potential to improve and enhance outcomes for children and their families.

A practice trend needs to gain traction in the field to be considered a 'trend'; that is, it needs to be acknowledged, discussed, promoted or trialled by multiple educators and services, and promoted by peak bodies and industry organisations and specialists. The development of a new approach alone is not a practice trend.

Collaboration allows multiple people to focus on individual research areas.

There are various ways that you might learn about practice trends relevant to your work practice. These include:

- professional conferences where presenters may discuss new and innovative practices that are becoming popular in their field, sector or setting
- bulletins, newsletters and podcasts produced by peak bodies and experts that may include information about new and innovative practices.
- networking events and communities of practice where educators might share information about new and innovative practices.

The peak body ACECQA has the most reliable and appropriate online information about current trends in the education and care industry. At aspirelr.link/acecqa, you will find a 'Latest News' page, along with links, libraries, fact sheets and details for educators, service providers and families.

The following table provides some examples of other peak body organisations in early childhood education and care.

Early Childhood Australia (ECA)	aspirelr.link/early-childhood-australia
National Outside School Hours Services Alliance (NOSHSA)	aspirelr.link/noshsa
Community Child Care	aspirelr.link/ccc-inc
Family Day Care Australia	aspirelr.link/family-day-care
Department of Education	aspirelr.link/department-of-education
Gowrie Australia	aspirelr.link/gowrie-vic

Here are some network examples:

LinkedIn	Developing a professional status and networking	aspirelr.link/linkedin
Educators engaging with Educators	Support and networking for all educators	aspirelr.link/educators-engage-facebook (Facebook group)

Educational Leaders network and support group	Support and networking for all educators	aspirelr.link/educational-leaders-network (closed Facebook group – ask to join)
Early Childhood Teachers	Support and networking for ECT educators	aspirelr.link/early-childhood-teachers-network (closed Facebook group – ask to join)

Different types of trends

There are several types of trends relevant to educators:

- **Service use trends** relate to the number of families accessing a service and the type of services they are accessing, such as long day care, full-time or part-time care or pre-school or Kindergarten.
- **Prevalence trends** concern the occurrence of specific problems within the population, such as families attending a service.
- **Practice trends**, which include:
  - new approaches to early childhood education or care
  - new concepts and significant shifts in thinking
  - new ways to interact with children for example to encourage positive behaviours.

Each of these trends can affect educators. An increase in the use of a specific type of interaction, for example, can lead to more time needing to be spent with a child. A decrease in the prevalence of a problem can free up resources for other opportunities for children. Practice trends can influence how educators and organisations deliver their services. Seeking out information on practice trends is an important part of your role, because they can help improve and enhance work practice.

Reasons to evaluate practice trends

Evaluation of practice trends are key to improving one's own work practices.

The quality areas of the NQS provide guidelines for implementing a high level of education and care. Element 4.2.2 of the NQS states: 'Professional standards guide practice, interactions and relationships'. This implies that you are demonstrating professional practice standards when you provide care, empathy and respect for children, colleagues and families. It also suggests that your professional practice should be guided not only by the NQF, but also by your service's philosophy, policies and procedures. This means that you should take a proactive role in following new trends, keep up to date with information to improve your methods and practice.

For example, you might want to:

- evaluate the evidence in order to support the effectiveness of an emerging practice
- evaluate the suitability of an emerging practice for a specific population (e.g. families in a rural area)
- investigate whether a new approach to working with families will increase their satisfaction with the service
- compare the effectiveness of an increasingly popular practice with an older, more established one

For the purposes of this unit, evaluating trends in your area of practice involves seeking out and analysing existing information. This process is covered in Topic 2.

Example

Evaluate current trends

Jessica has an interest in physical activity and believes encouraging young children to be active will benefit their long-term health and wellbeing. Jessica mentions this to a colleague who tells her about some emerging practice trends relating to programming opportunities for physical activity in children's programs discussed at an international conference. Jessica approaches her supervisor and asks for permission to spend some time evaluating some of these practice trends to determine which might be most effective.

Practice Task 2

1. Which of the following are reasons to evaluate a practice trend? Select all that apply.

- ☐ To better understand an increase in the prevalence of a specific problem within the community
- ☐ To evaluate the evidence to support the effectiveness of an emerging practice
- ☐ To demonstrate to their colleagues that they are well-informed
- ☐ To evaluate the suitability of an emerging practice for young mothers
- ☐ To compare the effectiveness of an increasingly popular practice with a more established practice

2. Which of the following are places where educators commonly learn about practice trends? Select all that apply.

- [ ] Professional conferences
- [ ] Industry podcasts
- [ ] Communities of practice
- [ ] Networking events
- [ ] Instagram
- [ ] ACECQA website

3. Which of the following statements about practice trends are correct? Select yes or no for each one.

a.	A shift in thinking that influences how services are provided is a type of practice trend	* Yes	* No
b.	A decrease in the proportion of Australian children who wet the bed would be considered a practice trend	* Yes	* No
c.	An increase in the proportion of Australian families seeking financial support from welfare agencies to pay for the childcare fees would be considered a service use trend	* Yes	* No

1C Establish and define research objectives

Establishing and defining the objective of your search at the outset is a critical part of the research process.

Systematically searching for information requires a disciplined and strategic approach which begins with a clearly defined objective. The process of establishing and defining your objective ensures that your search is effective and efficient.

Defining your research objectives will help you refine information.

The process of establishing and defining an objective involves:

- narrowing the focus of the problem or issue you have identified (establishing) and
- clarifying that problem or issue (defining).

'Unpacking' the problem or issue

Perhaps you have observed a problem in the course of your work that you want to investigate further.

Maybe you have identified a practice trend you want to evaluate to determine whether it would help you enhance your own work practice or would benefit children. Or perhaps you have been asked to search for information on a specific topic for the purpose of enhancing your own work practice. Unpacking the problem or issue you have observed involves asking deeper questions about it, such as:

- What are the major concepts related to this problem or issue?
- Is one thing affecting, causing or producing a change in something else? If so, why might this be the case?

The questions you use to unpack your topic will depend upon your starting point. Elena's starting point is that she wants to learn more about an issue. David's starting point is a hypothesis about what he suspects is happening.

The following table demonstrates how a problem or issue can be 'unpacked'.

Scenario	Questions and answers used to 'unpack' the problem or issue
Elena works at an early learning service where several of the children need support communicating with each other. Elena wants to learn more about how to work effectively with the children to encourage their communication skills.	What are the major concepts related to this problem/issue? communication and language cognitive development family literacy and education

David has observed that several of the children who speak a different language other than English at home are more willing to learn about symbols and patterns, such as letters and sounds in books. David wants to understand how linguistic heritage influences children understanding of the relationship between letters and sounds.	Is one thing affecting, causing or producing a change in something else? The linguistic backgrounds of the children seem to be influencing the children's willingness to try to read and understand letters and sounds. If so, why might this be the case? › Are families encouraging children to understand and read English? › Are children more inquisitive of a language that is not spoken or used with their family? › Are the educators making more of an effort with these children due to their linguistic background?

Example

Establish research objectives

Yasin works as an educator with a child who displays characteristics of transgenderism. The family has asked for her advice, but Yasin feels out of her depth and would like to understand more about how to support the child and family. None of the other educators have had any experience supporting a child in a similar situation.

To establish an objective for his search, Yasin lists the major concepts relating to the task and has identified information regarding:

- gender
- young children
- families with a transgender child

Define the search objective

Once you have unpacked your problem or issue, you can start to work on defining the objective of your search.

The objective should be specific, concise and include an appropriately phrased verb that reflects the purpose of your search:

- 'To describe…'
- 'To investigate…'
- 'To examine…'
- 'To determine…'

Based on the examples provided earlier, here is an illustration of good and poor objectives. As described above, the good objectives are specific, concise and include an appropriate verb. The poor objectives are vague and use verbs ('get', 'look') that are inappropriate for the purposes of a research project.

Good objective	Poor objective
To identify current best practices in encouraging effective communication from children.	Get information about ways to encourage children to communicate more effectively.
To investigate the impact of linguistic heritage and willingness of children to understand symbols for reading in English.	Look at some research about the effect of linguistic heritage on the reading of these children.

Sources: https://www.thephdproofreaders.com/structuring-a-thesis/writing-your-research-aims-and-objectives; https://journals.sagepub.com/doi/full/10.1177/2158244014548178

Example

Define research objectives

Yasin develops and refines his research objective to ensure it is specific, concise and includes a verb that is relevant to a research project. His objective is now defined as:

To determine practices to support a child who identifies as bigender.

Yasin will use the findings of his research to enhance his own work practice and provide information to other educators in the service in order to support families in similar situations.

Practice Task 3

1. Why is it important to begin with establishing and defining the search objective? Select all that apply.

- ☐ It makes the process more effective and efficient.
- ☐ So you can show it to your director before you start searching.
- ☐ It will ensure you won't change your mind about the objective once you've started searching.
- ☐ It helps you describe your project to others.
- ☐ It ensures a disciplined and strategic approach to the search.

2. Which of the following questions are helpful when 'unpacking' a topic? Select all that apply.

- [ ] What the major concepts related to this problem/issue?
- [ ] Who is affected by this problem/issue?
- [ ] What might be happening here?
- [ ] Is one thing affecting, causing or producing a change in something else? If so, why might this be the case?
- [ ] What is the history of the problem/issue?

3. Which of the following are important when defining the search objective? Select all that apply.

- [ ] To include a verb that reflects the purpose of the search
- [ ] To be specific
- [ ] To explain how the issue was unpacked
- [ ] To be concise
- [ ] To include all the major concepts relating to the issue

1D Identify and access credible sources of information

Supporting and improving your work practice can help to bring about better outcomes for your colleagues and children and their families.

A library is a good place to commence your research.

When you are gathering information to support and improve your work practice, you are not just looking for *any* information. The claims that are made within an information source (such as a report, journal article, book or website) needs to be supported by credible evidence: this is what makes it a 'credible source.'

Characteristics of credible sources

Assessing the credibility of a source is not necessarily a straightforward exercise.

For example, an otherwise credible source may not have the appearance of a standard research publication. Similarly, even if a source doesn't include a publication date, it may still be credible. However, any source that lacks *multiple* credible characteristics should be assessed carefully and used with caution.

Unbiased	➤ The information is balanced. For example, the author acknowledges opposing ideas, arguments and explanations. ➤ The content does not indicate political or religious bias. ➤ The content has been published to provide information or report upon research – not to sell a product.
Authored by people with relevant credentials	➤ The author (or authors) has qualifications and/or expertise that is relevant to the topic. ➤ The author is associated with a reputable institution or organization.
Current	➤ The evidence is current within the context of the field or topic of interest. (If the resource is too old, it may not incorporate more recent advances in the field).[1] ➤ If it is not clear when a document was published, the evidence within the document may not be credible.

In-depth and comprehensive	➤ The content incorporates what is already known about a topic and this information is properly referenced (i.e. the source of the information is provided in a reference list or bibliography). If there are no references, the source is unlikely to be credible. ➤ The source takes the form of a standard research publication and includes the following sections/ headings: abstract, introduction, methodology, results/ findings, references.
Accurate	➤ The research has been undertaken using a rigorous scientific method. ➤ The conclusions of the research are based upon the evidence provided.

As well as the peak body organisations listed earlier, here are some other organisations that can provide valuable information:

Australian Childcare Alliance (also has state branches)	aspirelr.link/australian-child-care-alliance
Care for Kids	aspirelr.link/care-for-kids-news
Community Child Care (CCC)	aspirelr.link/ccc-inc

Here are some professional associations that maintain up-to-date information on industry trends and issues.

ACT branch of Early Childhood Australia

- Early childhood professional network meetings
- ACT early childhood professionals
- Membership-based organisation
- Email: ecaact@earlychildhood.org. au
- Website: aspirelr.link/eca-act

National Outside School Hours Services Association (NOSHSA)

- Outside school hours care (OSHC) issues
- For OSHC educators
- Membership-based organisation
- Email: noshsa@noshsa.org.au
- Website: aspirelr.link/noshsa

Gowrie Victoria

- Early childhood education specialists
- For educators of all levels
- Email: gowrie@gowrievictoria.org.au
- Website: aspirelr.link/gowrie-vic

It is also useful to also consider the characteristics of non-credible sources. Any author can claim that the information they are providing is based on evidence, but some forms of evidence would not meet 'quality' rules for evidence, notably:

- personal testimonies
- anecdotes and
- the claims of a celebrity.

Any source that is backed *solely* by this type of evidence is *not* credible and should not be used to support or improve your work practice.

Using non-credible sources can result in inefficient and ineffective work practice which, in turn, may at best lead to no improvements and, at worst, cause harm . Using credible sources and evidence-based practice helps to ensure services are fulfilling their 'duty of care' – that is, their legal and moral responsibility to keep children safe.

Tools for assessing the credibility of authors and their method

Numerous tools exist to assess the credibility of an information source.

One useful test is the C.R.A.A.P test, which was designed by Sarah Blakeslee and the librarians at California State University's Meriam Library in 2004.

This test lists the key elements of a credible source (current, relevant, authoritative, accurate and developed for the right purposes) and provides examples of questions that people can ask to assess the credibility of a source – such as an online article or research report. This test can also determine the quality of the information and data as well as how the evidence was collected and evaluated. It can indicate that the authors have applied a systematically search for secondary or primary research.

The C.R.A.A.P test

Currency	➤ When was the information published? ➤ Is there a more recent publication that supports or refutes the original?
Relevance	➤ Is it pitched for a scholarly audience? ➤ Have you looked at a variety of sources before selecting this one?
Authority	➤ What are the author's qualifications? ➤ Has the resource been cited in other research?
Accuracy	➤ Does the research contain sufficient evidence to back it up? ➤ Has the publication been through a peer-review process? ➤ Are there grammatical or spelling errors?
Purpose	➤ Why was the resource developed? Was it developed to inform and provide facts to the audience, or rather to sell something? ➤ Is there evidence of political, religious or personal bias? ➤ Is the information objective and impartial?

Example

Identify credible sources of evidence

Ada loves researching. She often spends hours at home on the internet, reading and researching ideas to use in her role as an educator in a multi-age group environment. She often shares information she has read and instructs her colleagues that they must implement her findings.

Ada believes everything she reads and thinks that she, along with those in her service, should be doing more to change their practices including the interesting topics she has been reading about. This is causing lots of conflict and confusion among staff, as they are not as conversant with the emerging trends Ada is familiar with.

Practice Task 4

1. Read the previous example concerning Ada. What would you do if you were an educator working with her and she informed you about these changes? Select all that apply.

- ☐ Ask Ada where she has sourced her information from.
- ☐ Discuss the information as a team and decide how it applies to your service.
- ☐ Check Ada's sources yourself.
- ☐ Tell Ada that she should only share information that comes from the ACECQA website.
- ☐ Ignore Ada; she obviously reads too much and takes things too seriously.

2. Which of the following are characteristics of a credible source? Select all that apply.

- ☐ The author has relevant credentials.
- ☐ The content is unbiased.
- ☐ The content is endorsed by experts.
- ☐ The content is current.

3. Which of the following are examples of characteristics of an accurate source? Select all that apply.

- [ ] The content incorporates what is already known about a topic.
- [ ] The author acknowledges opposing ideas, arguments and explanations.
- [ ] The research has been undertaken using a rigorous scientific method.
- [ ] The conclusions of the research are based upon the evidence provided.
- [ ] The source takes the form of a standard research publication.

4. Why is the credibility of a source relevant to your duty of care? Select all that apply.

- [ ] Using credible sources demonstrates that an educator cares about children.
- [ ] Using non-credible sources to inform practice may cause harm.
- [ ] Using non-credible sources to inform practice may be a breach of an employment contract.
- [ ] Using non-credible sources could harm the reputation of the service.
- [ ] Using credible sources fulfils an educator's duty of care to her colleagues.

Summary

- Secondary research uses data or research that has already been collected or undertake by someone else for the purposes of analysis.
- The main reasons why educators undertake secondary research is to compare approaches, test a hypothesis, identify practice trends and extend their knowledge.
- Practice trends are innovative and emerging practices that have the potential to improve and enhance outcomes.
- Specific guidelines in Australia have been developed to ensure Aboriginal and Torres Strait Islander peoples and communities' benefit from research that involves them.
- The process of establishing and defining a research objective involves narrowing the focus of a problem or issue and then clarifying the problem or issue.
- A research objective should be specific, concise and include an appropriate research-related verb (e.g. 'investigate', 'examine').
- Credible sources are unbiased, authored by people with relevant credentials, current, in-depth, comprehensive and accurate.
- Using credible sources and evidence-based practices helps to ensure service are fulfilling their duty of care.
- Evidence-based practice is practice that is informed and guided by best quality evidence, however there are differing views about what constitutes 'best quality evidence.'
- Randomised controlled trials generate 'gold standard' evidence however they are difficult to undertake in community services settings.

Learning Checkpoint 1
Plan information gathering activities

Part A

1. Which of the following are examples of an educator improving their own work practice? Select all that apply.

   - ☐ To compare two or more different approaches for working with children.
   - ☐ To test a hypothesis relating to their work practice.
   - ☐ To identify practice trends.
   - ☐ To give a presentation at a conference.
   - ☐ To demonstrate their research skills to their director.

2. According to the NHMRC, ethical research among Aboriginal and Torres Strait Islander peoples and communities should enhance their rights as *what*? Select all that apply.

   - ☐ Research collaborators
   - ☐ Research analysts
   - ☐ Participants in research
   - ☐ Research partners
   - ☐ Research managers

3. Identify each of the steps in the research process.

4. Draw a line and match the research on the left with the type of trend on the right.

* A decrease in the proportion of grandparents taking responsibility for education of their younger grandchildren.	* Prevalence trend
* Increased use among educators of a new technology for storytelling.	* Practice trend
* An increase in the proportion of families moving to regional areas to access places in childcare	* Prevalence trend

5. The CRAAP test is used to assess the credibility of information sources. What does the acronym stand for?

. .....

. .....

. .....

6. Draw a line to match the term on the left with the definition on the right.

* Research	* A quality management process that involves the continuous collection and analysis of data
* Evidence-based practice	* The systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions
* Evaluation	* Using best quality evidence to improve outcomes for children and families
* Continuous quality improvement	* The process used to assess and judge the validity of materials and sources.

Part B

Sabeen is a team leader in the babies and toddlers' room at an early education and care service in a disadvantaged rural area. The service provides parenting courses for families of babies and young children (aged 0–3) outside of their operating hours. Sabeen has noticed that many parents sign up for the parenting sessions but do not complete them, and he would like to know how to increase completion rates.

1. Sabeen is starting by 'unpacking' the problem or issue she has identified. Identify at least two major concepts related to the problem Sabeen has identified.

2. While undertaking her search, Sabeen finds numerous publications that are backed by non-credible evidence and suggest duty of care was not considered. Identify two reasons why Sabeen should not use the information in these publications to inform her own work practice.

3. Sabeen finds that very few studies have used a randomised controlled trial method. What could be the reason for this? Select all that apply.

- [ ] They are time-consuming
- [ ] Very few are undertaken in English speaking countries
- [ ] They are expensive
- [ ] They can be ethically problematic
- [ ] They are of sufficient quality to be included in peer-revised publications

Topic 2

In this topic you will learn how to:

- **2A** Evaluate methods for gathering information
- **2B** Gather information using a systematic approach
- **2C** Establish relevance of information
- **2D** Organise information for analysis and future use

Gather information

There are multiple forms of research you can undertake; defining your research objectives will help you to locate the most relevant information.

When undertaking secondary research, the process of systematically gathering and organising information is critical to an efficient and effective search. A good search strategy will generate useful information that can then be used inform your work practice.

2A Evaluate methods for gathering information

The first step in the process of gathering information is to evaluate and select methods by which the information will be gathered.

A range of methods can be used, each with their own distinct advantages and disadvantages.

Though digital information is easily accessible, hard copies of information are still useful.

Methods for gathering information

There are a range of methods that can be used to gather information. Some of these are outlined below.

Methods that involve online searches

- Search online academic databases.
- Search online grey literature databases (see table below).
- Search online research organisations.
- Search online peak body websites.
- Search online conference paper databases.
- Search online relevant government websites.
- Search online generic research search engines (e.g. Google Scholar).
- Use online library catalogues to identify relevant books and book chapters, including campus library catalogues and community library catalogues.

Other methods

- Identify highly relevant journals and manually search through hard-copy volumes.
- Contact experts in the field and ask them for their advice regarding best publications on your specific topic.

The types of resources you are likely to identify through these methods include:

- peer-reviewed journal articles
- research reports
- research briefs, summaries
- books
- book chapters.

These are the types of resources commonly used to access credible evidence-based information. A detailed description of these resources is provided below:

Type of resource	Description of resource	How to access resource
Peer-reviewed journal articles	➤ Peer-reviewed journals contains scholarly articles that have been assessed by experts (i.e. 'peers') prior to publication. ➤ The experts who review articles for a peer-reviewed journal article are authorities in relevant fields of study.	➤ Online research databases (e.g. Scopus, Web of Science) – commonly accessible to tertiary students through their campus library[1] ➤ Google Scholar ➤ Websites of peer-reviewed journals
Research reports published by authoritative and reputable organizations	➤ Some organizations publish research reports online. ➤ Publications which are not in peer-reviewed journals – such as these types of reports – are often referred to as 'grey literature'. ➤ Grey literature is research that is not published in commercial or academic publications. It is often in the form of a PDF or online report. ➤ Grey literature may be just as credible as peer-reviewed journal articles, however the ability to assess their credibility may be more difficult.	➤ Government websites ➤ Research organizations' and peak bodies' websites, such as ACECQA ➤ Online clearinghouses and knowledge exchange sites (e.g. Analysis and Policy Observatory and CFCA) ➤ Open grey (publications from Europe only) ➤ Google Scholar
Research briefings and research summaries	➤ Summaries of research findings that are designed to make research more accessible. ➤ Research briefings and summaries are usually relatively brief and are often produced by organisations involved in 'knowledge translation' (i.e. the 'translation' of complex information into accessible content).	➤ Government websites ➤ Research organizations' and peak bodies' websites, such as ACECQA ➤ Online clearinghouses and knowledge exchange sites (e.g. Analysis and Policy Observatory and CFCA) ➤ Open grey (publications from Europe only) ➤ Google Scholar
Books and book chapters authored by authoritative and reputable researchers	➤ Some researchers publish the findings of their research in books and book chapters.	➤ University and community libraries

[1] Research databases are used to identify articles, are usually discipline/subject specific and allow you to search for information according to specific categories such as: keywords, subject headings, author and title.

Sources: https://federation.edu.au/library/student-resources/help-with-searching/finding-peer-reviewed-journal-articles; https://uow.libguides.com/literaturereview/how; https://libguides.library.kent.edu/c.php?g=389868&p=2645659

Selecting and evaluating methods

It is good practice to use at least two different search methods for identifying information.

Using an academic database or similar will usually reward you with quality evidence, however, using a second method, such as a grey literature database, will yield a richer 'pool' of evidence.

For example, grey literature often provides a different perspective on issues and topics compared with books and peer-reviewed journals. These sources may consider the practical implications of evidence more readily than resources designed for traditionally academic audiences.

Comparing research methods will allow you to select the best one for your purpose.

When selecting methods for gathering information, it may be useful to consult with colleagues about the methods they recommend. For example, your colleagues may know about a peer-reviewed journal that is highly relevant to the problem or issue you are investigating, which may constitute one of the methods you use to identify information.

Your colleagues may also be able to direct you to reputable and authoritative research organisations related to early childhood. You might then choose 2–3 of those organisations and search their websites for reports relating to your topic.

The methods you use to identify information will most likely be influenced by your ability to access certain resources. For example, accessing full text peer-reviewed journal articles through academic databases can be difficult without a university affiliation (e.g. current university student, university alumni).

When selecting a method for gathering information, it is important to consider the pros and cons of each resource.

Resource	Pros	Cons
Peer-reviewed journal articles	Easier to ensure credibility because of the peer-review process[1]	Can be difficult to access full-text journal articles and content may be overly complex
Research reports published by authoritative and reputable organisations	Often freely available through organizations, clearinghouses and knowledge exchange sites	Can be difficult to assess the credibility of the resource
Research briefings and research summaries	As above and content is typically written in a way that makes it easy to understand and digest	As above and may not accurately reflect the findings of the research

Resource	Pros	Cons
Books and book chapters published by well-known scholarly publishers	The process of publication provides reassurance of credibility	May be difficult to access, e.g. books may not be available through community libraries

1 Some journals that claim to be 'peer-reviewed' have been found to be fraudulent. There are steps you can take to check the legitimacy of a peer-reviewed journal (see https://federation.edu.au/library/student-resources/help-with-searching/finding-peer-reviewed-journal-articles)

Sources: https://libguides.anu.edu.au/c.php?g=906019&p=6594267; https://federation.edu.au/library/student-resources/help-with-searching/finding-peer-reviewed-journal-articles

Example

Evaluate and select methods of gathering information

Gemi is an educator who is undertaking a search to determine the most effective method for helping anxious children get to sleep. Prior to selecting methods for gathering information, Gemi asks two experienced educators at her service for their opinion on which methods are likely to be most useful. One of her colleagues tells her about a research report that she recently read and sent her the details in an email. Gemi realises she needs access to an academic database to read the full article. She reads what she can and then decides to do some more searching including:

- Searching an online grey literature database.
- Using a scholarly search engine.

Practice Task 5

1. Which of the following publications are used by researchers and practitioners to access relevant and credible research? Select all that apply.

- [ ] Peer reviewed journals
- [ ] Generic search engines (e.g. Google)
- [ ] Trade magazines
- [ ] Research reports authored by a government department
- [ ] Online news channels

2. Which of the following statements about peer-reviewed journals are correct? Select all that apply.

- [ ] They contain scholarly articles that have been assessed by experts prior to publication.
- [ ] They can be accessed via online academic databases.
- [ ] Compared to other resources, it is difficult to determine the credibility of the articles contained in peer-reviewed journals.

3. Why it is good practice to use at least two different methods to gather information? Select all that apply.

- [ ] It provides a richer 'pool' of evidence.
- [ ] The practical implications of evidence may not always be addressed in more academic sources, such as peer-reviewed journals.
- [ ] It helps to ensure your findings are not biased.
- [ ] It helps to develop information-gathering skills.
- [ ] It helps to ensure that any information you identify is credible.

4. What are the advantages of using research briefings and summaries for information? Select all that apply.

- [ ] Compared with other resources, their credibility is easy to determine.
- [ ] They're easier to find than other types of resources.
- [ ] They're usually written by experts in the field.
- [ ] Compared with other resources, the information is usually easier to digest and understand.
- [ ] They're usually more in-depth than other types of resources.

2B Gather information using a systematic approach

A systematic approach to gathering information helps ensure your searches generate the most relevant information in the most efficient way.

An organised search strategy prevents you from becoming overwhelmed.

Systematic searches are pre-planned and structured, which helps avoid selection bias. Selection bias is a type of error that results from applying parameters (often unintentionally) to a search. If you have a non-representative sample, you may not get an accurate picture of the approach or issue you're investigating.

Developing a search strategy

The key to undertaking an effective systematic search is to develop a search strategy *before* you start searching for information. This begins with selecting the methods for gathering information (see Section 2A) and then:

- identifying synonyms and alternative words
- defining the scope of your search.

Identifying synonyms for the major concepts outlined in your research objective helps to ensure that your search leads you to the most relevant literature.

Researchers use different terms to refer to the same thing. For example, a major concept in your research objective might be 'sustainability'. There are a number of different types of sustainability. If the only search term you search for is 'sustainability', your search will be too broad .

Research objective	Major concepts	Synonyms and alternative words
To identify best practice programs that offer children opportunities to apply environmental sustainability in their play.	Children	Babies Toddlers Infants Pre-schoolers
	Opportunities	Activities Planning Play
	Sustainability	Environmental Economic Social

Some academic databases automatically use standard terms to refer to concepts. For example, you may find that a database uses 'environmental sustainability' to categorise *all* resources relating to that concept. In this way, the database does some of the work for you by limiting the need to do multiple searches of similar terminology.

Define the scope of your search

When searching for information, you'll often find yourself confronted not by a lack of information but rather an abundance of information.

Finding a lot of information on the issue you have identified is of course a good thing – it means there's a lot for you to draw from. The downside, however, is that the process of searching and analysing the information will be time consuming – you may also find yourself delving through research that isn't relevant to your project.

It's therefore useful to decide upon the scope of your search as part of your strategy. This will ensure that the process of searching and analysis is achievable in relation to the time and resources available to you. The table below indicates some of the ways you can contain the scope of your search.

Ways to contain scope	Example of search scope
Limit time period	Only searching for information published in a specific timeframe, e.g. the past 10 years
Limit sources	Only using 2–3 sources to search for information (e.g. one academic database, one grey literature database and one journal)
Limit context	Only searching for information relating to: › babies or infants › the education and care sector › environmental sustainability.

If, even after applying such limits, you find that you are coming up with too much information, you can repeat this process again and refine your search even further. For example, you may choose to narrow your time frame from the past ten to the past five years. Alternatively, you might narrow the context, so instead of searching for information relating to babies , you only search for information related to one-year olds. For more information about planning a search strategy see: aspirelr.link/planning-search-strategy

Document your search strategy

It is good practice to document your search strategy by outlining:

- the methods you will use to undertake your search
- the synonyms and alternative words for the key concepts outlined in your objective
- the scope of your search.

A documented strategy serves as a guide to ensure you don't lose track during the process of searching.

As well as documenting your search strategy, it is also useful to document the progress of your searches while you are undertaking them. This will help you:

- keep track of the searches you have undertaken and
- describe the results of your searches after they have been completed.

An example of what this may look like is provided in the table below.

Name of resource searched	Be as specific as possible, for example, not just 'Medline' but 'Medline (OVID)'.
Date search was executed	Databases change over time as new information is added, so recording the date the search was undertaken will help.
Search terms	The search terms used and how they were combined (e.g. 'and', 'or'); you can copy and paste your search terms into a Word document to keep track of them, otherwise some databases allow you to save your searches.
Results	The number of resources identified using the above search terms.

Example

Creating a search scope

Samir is investigating the impact of incorporating restful play activities for children who don't sleep. She has decided upon the research methods she will use and has listed synonyms and alternative terms for the key concepts. She then selects a scope for her search and documents her search strategy as follows:

- **Search terms:**
  - children (1-3)
  - children who don't sleep
  - children who don't rest
  - early education services, childcare, children's care services
- **Search methods:**
  - online academic database
  - grey literature database
  - contact experts and ask for most significant publications on the topic
- **Search scope:**
  - time period: 2002-2021
  - context: children 1-3 years of age, early education services, developed countries
  - sources: 1 online academic database, 2 grey literature databases, 2–3 experts

Practice Task 6

1. What are the possible consequences of selection bias in a literature search? Select all that apply.

- [ ] The results will reflect a biased point of view (e.g. political bias, religious bias).
- [ ] The results of the search may not provide a complete understanding of the approach or issue under investigation.
- [ ] The results won't accurately represent the body of knowledge relating to that approach, or issue.
- [ ] The results will not reflect the diversity of the population.
- [ ] The results cannot be published in a peer-reviewed journal.

2. Which of the following can be used to limit the scope of a search? Select all that apply.

- [ ] Time period and context
- [ ] Author(s) qualifications
- [ ] Institutional affiliation of author(s)

3. When documenting searches, what is the minimum information that should be recorded? Select all that apply.

- [ ] Name of resource
- [ ] Description of resource
- [ ] Date search was undertaken
- [ ] Search terms
- [ ] Access method

2C Establish relevance of information

Only some of the resources you identify in your search will be relevant to your needs – these are ones that align with your research objective and your work requirements.

As the table below outlines, you can do some of the work of establishing the relevance of information while you're undertaking your search and the rest when your searches are complete.

Not all information is equal; categorise your findings from least to most relevant.

During the search		
Steps	**Method**	**Description**
1	**Quickly review the title and/or abstract**	➤ As you read through the list of publications that you identify, quickly review the titles and abstracts of each. ➤ In some circumstances, it will be immediately clear that the publication is not relevant. If the article looks potentially relevant, save it and continue searching.
After the searches are completed		
2	**Read the abstracts carefully**	➤ Once you complete your searches and have a list of potentially relevant publications, read the abstract of each publication carefully. ➤ Upon closer inspection, you may realise that the publication is not relevant. Delete irrelevant publications from your list and keep all the others.
3	**Read the publications in full**	➤ You should now have a few less publications than what you started with (i.e. having discarded those that are definitely not relevant). It's now time to read the publications in full. ➤ During this process, you may find that some publications are not relevant. Delete these from your list and keep all the others. (Ideally, you want to end up with a maximum of about 20 relevant publications)

As outlined above, initially you establish relevance by identifying publications that are *not* relevant, such as publications that:

- are not relevant to the objective of your search
- are much older than most of the other publications you have identified (e.g. the publication is 25 years old, when most of the other publications you've identified were published in the previous 10 years)
- refer to the implementation of a practice in a context that is very different from where you are working (e.g. an area of extreme poverty in a developing country)

- describe approaches that are unfeasible within the context of your workplace setting (e.g. extremely expensive, requires extensive specialist training).

Identify relevant publications first is more efficient than identifying irrelevant ones, because determining potential relevance is difficult at first glance compared to determining definite irrelevance. During the complex and demanding searching process, you wish to avoid accidentally discarding a relevant publication.

For the purposes of a work-based exercise conducted by somebody with limited experience of systematic searching, you should aim to end up with no more than 20 relevant publications. In general, the more publications you must analyse, the longer the analysis will take.

Prioritising information according to need

During your search, you may find that you are identifying hundreds of relevant publications. If this is the case, you may need to limit the scope of your search. Alternatively, you could organise the publications into groups according to their relevance, and then use the most relevant group of publications for your analysis.

The process of grouping publications according to relevance may be challenging, because it can be difficult to determine what makes one publication more relevant than another. One way you can do this is to determine which subgroup or issue related to your objective has the greatest need: known as 'prioritising information according to need'.

For example, an educator who provides care to children from families who have experienced trauma undertakes a search for information relating to effective practices for this group of children: she identifies 150 relevant publications. It is not possible for her to review the title and abstracts of all 150 publications.

However, she knows that most of the families she works with come from West African countries. She then prioritises this information and picks out those publications that relate specifically to refugee families from West Africa, which means she now has 17 publications to analyse.

This approach is not standard practice for the purposes of secondary research, because the information you end up analysing does not match your original objective. However, it is one way of adapting the process of secondary research to make it more feasible for people whose primary role is not research and staff who have a range of other time constraints.

Example

Establish relevance of information according to objectives, work requirements and needs

Rohinton works as a childcare worker in an early learning centre. He undertakes a search to identify information describing the most effective ways of ensuring children transition smoothly from early childhood to school settings.

Rohinton has identified a total of 70 potentially relevant publications and reviews the titles and abstracts of each. He discards three publications that were published prior to 1990 as well as two publications that refer exclusively to developing countries. Upon reviewing the abstracts, he discards a further two that describe practices used only by specialists. This leaves him with 63 potentially relevant publications, which is an unfeasible number to review

He has noticed that the children at his centre who struggle most with transitioning to school are those from economically disadvantaged backgrounds and discovers that 12 publications relate specifically to that population. Rohinton saves those 12 publications to Endnote in order to undertake his analysis.

Practice Task 7

1. Which of the following options help you quickly determine whether a publication is not relevant? Select all that apply.

- [ ] The description of the context where the approach was being tested or trialled
- [ ] The description of the necessary qualifications required to implement an approach
- [ ] The description of the ethnic background of the participants in the study
- [ ] The age of the publication
- [ ] The institutional affiliation of the publication's author(s)

2. Why is it more efficient to start a search by determining which publications are not relevant? Select all that apply.

- [ ] You don't want to accidentally discard a relevant publication.
- [ ] It provides you with a structure for undertaking your search.
- [ ] Irrelevant publications will most likely be the first to appear on the list of results.
- [ ] It can be difficult to initially determine publications that are potentially relevant.
- [ ] Irrelevant publications are often authored by the same people and are easier to spot.

3. Which of the following are ways to reduce the number of publications you have at the end of your search? Select all that apply.

- [ ] Discard publications published prior to three years ago.
- [ ] Discard publications that don't relate specifically to Australia.
- [ ] Organise the publications into three groups according to their relevance.
- [ ] Prioritise the information according to need.
- [ ] Organise the publications in alphabetical order according to the first author's surname.

2D Organise information for analysis and future use

Having identified relevant publications, the next step is to organise the information.

When you analyse the information you have identified, you will need to consider the findings within each individual publication and the overall findings from all the publications combined. Organising the information makes this process easier.

For the purposes of this unit, one of the best ways of organising the information is to use a basic table, spreadsheet or template to record the relevant details of each publication. An example is provided in the table below.

A targeted analysis of research will help you stay on track and achieve your aims.

Information	Description
Author, year	The author and year of publication
Topic	1 sentence on the topic of the publication
Key points	4-5 (maximum) dot points on major findings and conclusions
Relevance	See section 3B Assess information and associated risks
Strengths	See section 3B Assess information and associated risks
Risks	See section 3B Assess information and associated risks
Notes	Any of your own thoughts and ideas, such as: › the feasibility of an approach in your work setting › relevant findings to your work setting › additional information within the publication to follow up on (e.g. an important research study cited within the publication).

Organising information in this way makes it easier for you – and your colleagues – to access relevant information in the future. For example, there may be a time in the future when a colleague wants to use the information you have collected to enhance an aspect of their practice. It will be easier for them to ascertain an overall understanding of the key issues if they have a summary table or spreadsheet, as opposed to only having a collection of full text publications.

You can also use reference management software, such as Endnote, to organise, curate and store the information you find. Software provides ready-made templates to record and share information about individual publications.

If you don't have reference management software, spreadsheet programs such as Microsoft Excel can be useful for organising information, as they provide a format to record and save information.

Example

Facilitate analysis by organising information in a way that supports future use

Rohinton has completed his search and identified 18 relevant publications. He uses Microsoft Excel to set up a template for recording relevant information from each publication. Each column of the spreadsheet is labelled with the information to include (e.g. Author/year, topic, key points, etc.) and there are 18 rows in total (one for each relevant publication).

Practice Task 8

1. Which of the following types of information should be included when organising information? Select all that apply.

- [ ] Key points
- [ ] Institutional affiliation of author(s)
- [ ] Strengths
- [ ] Relevance
- [ ] Length of publication

2. What information should be recorded about the relevance of a publication? Select all that apply.

- [ ] Geographical context
- [ ] Author(s) qualifications
- [ ] Time period
- [ ] Population
- [ ] Author(s) conflicts of interest statement

3. What are the benefits of using reference management software for organising information? Select all that apply.

- [ ] Assists with the process of searching for information
- [ ] Automatically evaluates the credibility of sources
- [ ] Assists with the process of curating information
- [ ] Interprets complex information
- [ ] Used to share information with colleagues

Summary

- Credible evidence includes peer-reviewed journal articles, research reports, research briefings and summaries, books and book chapters.
- Online resources are a common way to access credible evidence, however libraries are also a useful source.
- To ensure a 'rich pool' of evidence, it is good practice to use at least two different methods for identifying information.
- Grey literature often provides a more 'practice relevant' perspective on evidence compared to peer-reviewed journals.
- Systematic searches are pre-planned and structured.
- Search strategies should be developed before a search has begun.
- Defining the scope of your search helps manage the number of useful publications.
- Sometimes a quick review of the title or abstract may be all that is needed to determine the relevance of a publication; others may need to be read more dutifully.
- The best way of organising information is to use a basic table, spreadsheet or template.
- Reference management software, such as Endnote, can be useful when organising information for the purpose of analysis or future use.

Learning Checkpoint 2
Gather information

Part A

1. Identify three online resources that could be used to search for credible information.

2. Identify three steps to establish the relevance of publications during a systematic search.

3. What does 'prioritising information by need' mean? Select the correct answer.

- ☐ Selecting publications for analysis that address an educator's key area of interest
- ☐ Selecting publications for analysis that incorporate practice matching an educator's skills and abilities
- ☐ Selecting publications for analysis that match the vision and mission of the educator's service
- ☐ Selecting publications for analysis that relate to a specific sub-group that has the greatest need
- ☐ Selecting publications for analysis that match the research priorities of the sector

4. Which of the following tools and resources can assist with organising information? Select all that apply.

- [ ] Spreadsheet
- [ ] Photocopier
- [ ] Template
- [ ] Filing cabinet
- [ ] Reference management software

Part B

Bridget is the manager of a childcare service where some of the mothers have experienced family violence. She wants to learn more about the impact of trauma on the relationship between mothers and young children. She decides to undertake a search for evidence on the topic and hopes to use that information to enhance her own work practice.

1. Bridget is documenting her search strategy. Identify two pieces of information that would be useful for her to include.

2. Bridget decides to search for peer-reviewed journal articles and research reports. Identify three different ways Bridget can access these types of resources.

3. Bridget undertakes a search of one database and identifies 14 potentially relevant publications. Most of the resources she has identified so far were published in the last five years. Identify two ways Bridget can determine whether they are relevant?

Topic 3

In this topic you will learn how to:

- **3A** Develop processes for analysing information
- **3B** Assess information and associated risks
- **3C** Make and document conclusions based on findings

Analyse information

The process of analysing data is one of the most important and challenging steps in any research project.

Analysis requires you to think critically about the information you have found and reflect upon how that information relates to your work environment.

The conclusion to a research project is a summation of what has been learned. It should focus on the findings of your analysis and reflect upon your original objective.

3A Develop processes for analysing information

Once you have completed your search and compiled a list of relevant publications, it's time to analyse the information as a whole.

Your main focus should centre on the findings (or results) and conclusions of each publication you have identified. This will provide you with the most useful information for informing your own work practice.

When you analyse data, you are seeking to make sense of it; this process helps you dissect a mass of information until only meaningful insights remain.

There are numerous processes that facilitate the analysis of data, including:

- comparing and contrasting
- challenging and reflecting and
- drawing interdisciplinary connections.

Each of these processes are described in greater detail below.

Analysis without a plan may lead to frustration and confusion.

Comparing and contrasting

The process of comparing (finding the similarities) and contrasting (finding the differences) involves looking for commonalities and differences among *all* the publications you have identified.

Examples of common findings you could identify across multiple publications

- A specific practice is effective/ineffective.
- A specific practice is harmful.
- A specific approach brings about improved outcomes.
- A specific emerging approach (e.g. a practice trend) shows promise.
- A specific subgroup such as a group of children, responds positively or negatively to a specific practice.
- There is a common cause for a specific problem or issue affecting families (e.g. increased financial stress, decreased communication and interaction with the service etc.).

What you are looking for is a consensus among the findings. Do most of the publications agree on the effectiveness or ineffectiveness of a practice? Do most of them agree upon the cause of a specific problem? There is no steadfast rule about how many publications are required to indicate a consensus, however, if roughly two-thirds or more of the publications you identified agree about one of the aspects listed above, that would typically be considered a consensus.

If there is no consensus, you might be able to note patterns within the data. For example, perhaps you identify 19 useful publications and group them according to the following patterns:

- 9 publications conclude that a specific practice is highly effective.
- 8 publications conclude that a specific practice is only slightly effective.
- 2 publications conclude that there is not enough evidence to indicate whether that specific practice is effective or not.

If you compare these three groups of publications, can you identify any patterns? For example, perhaps the first group of 9 publications were undertaken with children in remote setting, whereas the second group of 8 were undertaken within major cities. Furthermore, perhaps the final group of 2 publications were published 5 years prior to the other publications. These findings would be highly relevant to your conclusions.

It doesn't matter if there is a consensus or not: what matters is that you are able to *identify* whether any consensus exists by comparing your findings.

You may also consider the arguments and theories the authors put forward about *why* they got the results they did and their *implications*. These arguments and theories are usually included in the 'Discussion' and 'Conclusion' sections of a research publication.

When you compare the arguments and theories asserted, you're looking for agreements or disagreements among all the publications. Here are some of the arguments and theories the authors put to explain their findings:

Findings	Arguments and theories
A practice or approach is: - effective - brings about positive outcomes or - shows promise	The practice shows promise because: - it aligns with the services values - it is appropriate and relevant to needs and circumstances of the families and their children - it enhances a relationship of trust between the child and the educator.
A practice is ineffective	The approach is ineffective because: - it's not appropriate for a specific subgroup of children, such as toddlers or children with special needs. - it doesn't work in specific circumstances (e.g. in the afternoons or with the equipment in the service).
A practice is harmful	The approach is harmful because: - it exposes children to safety risks. - it undermines the cultural safety of children.
What needs to be done to address a problem or issue	- More resources are required (e.g. funding, purchasing new equipment, training, more educators or support workers, etc.). - A change in practice is required. - More research is required to better understand the problem/issue.

Example

Processes for analysing information

Niamh wants to be able to better understand how to best support the children in her care who have experienced significant trauma. She is searching for information about the impacts of early childhood trauma on the developing brain.

When Niamh compares her findings, she notes that most of the authors agree upon the consequences of early childhood trauma on a child's cognitive, behavioural and socio-emotional development. However, she also notes that the authors have differing views about *how* early childhood trauma impacts upon development and *how* it can be prevented.

Challenging and reflecting

Once you have read all the relevant publications identified in your search, you then must reflect on the results, theories and arguments within those resources. For example, you may note a specific theme emerging or identify an important issue that has been ignored. This is the process of challenging and reflecting.

The challenge and reflection process require critical thinking. The NQS encourage educators to participate in ongoing critical reflection. *Critical* thinking does not mean *negative* thinking. Rather, Monash University defines it as "a deeper kind of thinking in which we do not take things for granted but question, analyse and evaluate what we read, hear, say or write".

Challenging information involves exploring its validity – whether any points have been missed or whether any bias or other factors may have impacted the results. Reflecting upon information involves evaluating what you have found to assign meaning to it.

Here are some questions that may help you challenge and reflect upon the body of information identified:

- Did you find what you were looking for in your search?
  - If not, why do you think that might be the case? For example, perhaps an issue is being overlooked by researchers? Or perhaps you set out to examine an issue that has only just emerged and is yet to receive the attention it deserves?
- Do the overall findings surprise you?
  - Are you surprised that a specific activity for children is not supported by evidence? Are you surprised that an important issue has been overlooked? Do the findings confirm what you already suspected?
- Is there anything missing from the body of information?
  - Perhaps a specific group (e.g. Aboriginal and Torres Strait Islander children, children with special needs, etc.) has not been considered.

Discussing the findings with your colleagues and asking these questions may help you reflect upon and challenge the information you've identified.

Characteristics of a critical thinker

- Open mindedness and a willingness to have their beliefs challenged
- The ability to formulate judgements with evidence and reason
- Inquisitiveness and curiosity
- Perceptiveness
- An ability to make connections between ideas

Drawing interdisciplinary connections

Drawing interdisciplinary connections also supports the information analysis process. A discipline is a branch of knowledge and research which is commonly defined by one's area of study, qualifications or profession. Disciplines include:

- health
- education
- psychology
- law
- social work
- the arts (e.g. visual arts, performing arts, etc.)
- history.

Drawing an interdisciplinary connection means drawing lessons from one discipline and applying them to another.

Your search may identify relevant publications from different disciplines. For example, if your objective related to reducing children's anxiety about going to school, you may find one article about supporting the mental health and wellbeing of young children (health) and another about preparing children for school (education).

Drawing interdisciplinary connections involves examining the commonalities between these two publications. Are there common arguments, conclusions, theories or ideas? This type of interdisciplinary work can lead to new insights into problems and issues prevalent in different disciplines. One of the primary justifications for interdisciplinary work is that some problems are beyond the scope of a single discipline of research practice.

In some cases, the discipline a publication relates to will be unclear. A publication itself can be interdisciplinary, such as a report that examines how early childhood educators and teachers work together to support the transition for children who become anxious about school. However, when two or more publications appear to relate primarily to one discipline, drawing interdisciplinary conclusions can be a valuable way of generating new knowledge and new practice.

Practice Task 9

1. When comparing research findings about a practice, which of the following commonalities are relevant? Select all that apply.

- [ ] The practice effectively brings about improved outcomes for 3–5-year-old children from socioeconomically disadvantaged backgrounds.
- [ ] The practice is effective among newly arrived Arabic-speaking migrant families living in West Auckland, New Zealand
- [ ] The practice has only been trialled in New Zealand and the United Kingdom
- [ ] The practice is less effective when it does not involve the active participation of parents and families
- [ ] The practice has only been delivered in early childhood education and care settings and not families' homes

2. Which of the following questions are helpful when challenging and reflecting upon a body of information? Select all that apply

- [ ] Did you find what you were looking for?
- [ ] Is the author old enough to know about this topic?
- [ ] Do the findings surprise you?
- [ ] Are their enough pages in this research paper?
- [ ] Are the authors qualified to comment upon an issue?

3. Which of the following statements are correct? Select all that apply.

- [ ] When comparing research, you must analyse the information to determine if a consensus exists.
- [ ] An author's summary of their findings is found in the results section of a publication.
- [ ] A lack of consensus among the publications indicates that a search is flawed.
- [ ] The commonalities and differences among findings may implicate an educator's individual practice.
- [ ] Making interdisciplinary connections involves examining the commonalities between different areas of study.

4. Which of the following statements are correct? Select all that apply.

- [ ] Challenging information involves exploring its validity
- [ ] Reflecting upon research findings requires negative thinking.
- [ ] Drawing interdisciplinary connections involves examining the commonalities between multiple disciplines.
- [ ] The discipline that a staff member belongs to is determined solely by their qualifications.

3B Assess information and associated risks

In order to determine the quality of your information, you need to assess elements that may affect the strength of its credibility.

A good rule of thumb is to determine if your research is relevant, reliable, feasible, beneficial and current. If the information violates any of these principles, then you may risk implementing research that may harm the objectives of your work practice.

Poor quality research carries increased risks; evaluate your information to mitigate negative consequences.

The assessment process

Assessing information involves an examination of the following.

Strengths	The factors that determine the quality of the information
Relevance	The relevance of the information to your own: › workplace setting (e.g. Not-for profit or community run childcare, etc.) › location (e.g. urban, rural, etc.) › profile of families (e.g. diverse cultural backgrounds, etc.) › service philosophies and goals
Reliability	The extent to which the information can be relied upon to provide a reasonable and balanced perspective on a problem or issue
Feasibility	The viability of the strategies or recommendations outlined in the publications, such as the costs of implementing a new practice or the level of training required to implement a strategy.
Benefits	The value of the information to service uses, educators and the early childhood education and care industry, such as giving voice to the experiences of families and highlighting new approaches to address obstacles in programs
Currency	The extent to which the information reflects the current environment, such as the realities of a business (e.g. funding), underlying philosophies influencing service provision, and policy settings

When undertaking this aspect of the analysis, the focus is the body of information *overall*. For example, if you have identified 14 publications, you will consider the strengths of those 14 publications combined.

The following table summarises the potential strengths, relevance, reliability, feasibility, benefits and currency of a body of information:

Strengths
The research has been undertaken in a range of different settings with different populations.
The research has been undertaken by highly respected researchers.
The research has been undertaken by researchers within highly respected institutions.
The authors agree upon key issues relating to the topic.
The authors provide reasonable and practical strategies for addressing the problem or issue.
Relevance
The information is relevant to your sector/field.
The information is relevant to the specific setting where you work.
The information is relevant to the specific location where you work.
The information concerns people and populations similar to families using the service.
You could feasibly implement the strategies proposed by the authors.
Any additional training you need to implement the strategies proposed by the authors is feasible (e.g. your organisation can afford to cover the costs of the training)
Other costs associated with the strategies proposed by the authors (e.g. purchasing manuals) could be covered by your organisation.
The strategies proposed by the authors are feasible within the current policy context (e.g. they align with current policy frameworks)
Reliability
The body of research is methodologically sound.
A large body of high-quality research has been undertaken on the problem or issue.
The research has been published in highly respected peer-reviewed journal.
The research has been undertaken by highly respected, experienced and qualified researchers.
The authors' claims, arguments and theories are reasonable and balanced.
Feasibility
The approach recommended by the authors are achievable within the context of your work environment.
The approaches recommended by the authors align with the financial resources available to you and your organisation.
The approaches recommended by the authors do not require extensive training to implement.
Benefits
The research findings provide a new and unique perspective on a common issue experienced by families and other educators in your field.
The research gives children a voice and indicates their wants and needs from services.
The research findings indicate that improved outcomes are possible, despite the obstacles they face.

Potential currency
The information is relevant to the types of problems families are currently facing (e.g. lack of affordable housing, etc.).
The information is relevant to the current service delivery environment (e.g. levels of funding, etc.).
The information aligns with dominant theories and philosophies currently influencing the industry.

Example

Assess the information in the context of your own work

Alanna is an educator who has been thinking about the relationship between scaffolding a child's learning to foster their emotional development. She has conducted a search and now has a body of information relevant to her original objective.

Alanna notes the numerous strengths of her body of information: it has mostly been undertaken at highly respected academic institutions; the authors' arguments are reasonable and accurately reflect the research findings; the research information aligns with the current policy context.

Assessing risks associated with information

It is important to consider the risks of applying the findings of poor-quality information to practice. Some of the most significant risks are outlined below.

Limitations	Potential risks
The information is not relevant to your families.	Families and educators don't engage with the recommended practice because it does not align with their values, needs or circumstances.
The information lacks methodological rigour.	The strategies or approaches do not bring about the intended outcomes for children n because the information is unreliable.
The research has been undertaken by people lacking the relevant experience and/or qualifications.	
The information is not balanced and/or reasonable.	
There is a lack of research on the topic or issue.	Educators don't have enough information to determine what works.
The information is not current.	Families and educators don't engage with the recommended practices because they are not aligned with contemporary values and beliefs.

All the outcomes outlined in the right-hand column can lead to the ultimate risk: ineffective or harmful practice. For example, if educators fail to engage with an approach, it is likely ineffective. Similarly, if a recommended strategy is based on unreliable evidence, it may lead to harming children.

Example

Potential risks of irrelevant research

Having assessed the strengths of the body of information, Alanna considers the limitations and potential risks of the research. Most of the research involved older children from Central and South America. The discrepancy between these research subjects and the children who attend the service where Alanna works leads her to identify a potential risk of applying the research findings to her workplace: the strategies are likely not to be useful.

Practice Task 10

1. Which of the following factors suggest that a body of information reflects current practice? Select all that apply.

- ☐ The body of information addresses the types of problems educators are currently facing.
- ☐ The body of information aligns with dominant theories and philosophies currently influencing the field.
- ☐ The publications use technical terms and jargon common to current service settings.
- ☐ The body of information acknowledges the challenges of the work.
- ☐ Most of the information was published in the last 6–12 months.

2. Which of the following statements are correct? Select all that apply.

- ☐ The costs associated with a specific strategy need to be considered when it comes to its feasibility.
- ☐ The policy context is relevant when considering the feasibility of a specific strategy.
- ☐ A strategy is only feasible if it the staff implementing the strategy have the correct training to deliver it.
- ☐ Agreement among authors about a key issue is irrelevant when considering the strengths of a body of information.

3. Which of the following limitations concerning a body of information pose a risk to children, colleagues and/or organisations? Select all that apply.

- ☐ The information is not current.
- ☐ The information is primarily written in languages other than English.
- ☐ The information comes from research which lacks methodological rigour.
- ☐ The information is too theoretical.
- ☐ The information primarily comes from sources other than peer-reviewed journals.

4. Draw a line to match the limitation on the left with the potential risk on the right.

* Inexperienced and unqualified people conducted the research.	* Educators don't engage with the recommended approach/practice.
* The research recommends strategies that do not align with the current policy context	* The research findings cannot be used to support or improve practice.
* The research findings are irrelevant families	* The strategies cannot be implemented by your organisation.
* The research findings are overly complex and theoretical.	* The application of the findings leads to ineffective or harmful practice.

3C Make and document conclusions

A conclusion should be based on a thorough analysis of the information gathered; it must also demonstrate that the analysis undertaken reflects upon the original objective.

Your conclusion should provide answers to the following four questions:

1	**What was the objective?**	Restate the objective of the search.
2	**How did you search for information?**	Provide a brief description of the methodology you used to find information and elaborate on the: › resources you used to identify information › strategies you used to identify information (e.g. search terms, scope, etc.) › method information was organised for the purposes of analysis (e.g. table, spreadsheet, etc.).
3	**What information did you find?**	Provide a brief description of your search findings, such as: › The number of resources you identified › the type of resources you identified (e.g. peer-reviewed journal articles, etc.) › the contexts that the information relates to, such as: – the countries where the research was undertaken – the settings where the research was undertaken (e.g. residential settings, community-based settings, day care, schools, etc.).
4	**What were the findings of your analysis?**	Provide a description your analysis findings, such as: › common and opposing findings, arguments and theories among the body of information › quality and risks of the information

The bulk of your conclusion should address the final two questions. For example, if you are documenting your conclusions in a two-page report, half a page could be used to answer questions 1 and 2, with the remaining one-and-a-half pages dedicated to answering questions 3 and 4.

Tips for writing a conclusion:

- Be clear and concise.
- Avoid the use of jargon and technical language.
- Avoid repetition.
- If the results of your search are unclear, state this in your conclusion.
- If you're having difficulty writing your conclusion, use subheadings to arrange it by theme (for example, you could arrange the conclusion in four sections, addressing each of the four questions outlined above).

Source: https://libguides.usc.edu/writingguide/discussion; Bouma, G, Carland S, 2016, ***The Research Process***, Oxford University Press, South Melbourne, Victoria

Example

Make and document conclusions based on findings

Although some of the information Alanna collected may not be relevant her service , she believes some of these findings are relevant to her own work practice. For example, the evidence indicates that children benefit from activities that are adapted to suit their developmental needs. This suggests it would be useful for Alanna to adapt her approach when working with these families. This might result in her discussing changes to individual programs to better focus on the development needs of each child.

Practice Task 11

1. The bulk of a conclusion should be dedicated to answering which of the following questions? Select all that apply.

   - ☐ What was your objective?
   - ☐ How did you search for information?
   - ☐ What were the findings of your analysis?

2. Which of the following statements are correct? Select all that apply.

   - ☐ A good conclusion is based on a thorough analysis of the information gathered.
   - ☐ It is good practice to describe in a conclusion how you searched for information.
   - ☐ There is no need to comment on the quality of the information sourced.

3. When reporting upon the findings of your analysis, which of the following could be considered? Select all that apply.

- [ ] Common findings among the body of information
- [ ] Common arguments and theories
- [ ] The total number of publications identified
- [ ] Opposing arguments and theories
- [ ] Risks of the information

Summary

- Analysing data means *making sense* of data.
- Data analysis involves distilling identifying insights from a mass of information.
- Three processes that can assist with data analysis with secondary research include:
  - comparing and contrasting
  - challenging and reflecting
  - drawing interdisciplinary connections.
- Comparing and contrasting involves identifying commonalities and differences among the data.
- Challenging and reflecting involves the researcher asking questions about the information collected – for example, 'Did you find what you were looking for?'
- Drawing interdisciplinary connections involves using the lessons from one discipline and applying them to another.
- Assessing information involves an examination of the strengths, relevance, reliability, feasibility, benefits and currency of the information
- Assessing risks is important because poor-quality information may lead to ineffective or harmful practice.
- Risks that can be taken into account include: the information is not relevant, the information lacks methodological rigour and the research has been undertaken by people lacking the relevant experience or qualifications.
- A research report's conclusion should discuss the identified information identified and the findings from the analysis of that information.

Learning Checkpoint 3
Analyse information

Part A

1. When comparing and contrasting findings, arguments and theories, which of the following should you look for? Select all that apply.

   - ☐ An overall consensus
   - ☐ Flaws in the author's arguments and theories
   - ☐ Groups of similar findings, arguments and theories
   - ☐ An overall lack of consensus
   - ☐ Biased perspectives

2. What type of thinking is required in order to challenge and reflect upon data? Select the correct answer.

   - ☐ Comprehensive thinking
   - ☐ Lateral thinking
   - ☐ Convergent thinking
   - ☐ Critical thinking
   - ☐ Concrete thinking

3. Identify two potential risks associated with applying research findings to practices with children or their families.

Part B

Valerie works in a long day car service for a community-based organisation. She has undertaken a search and is ready to analyse information concerning social and cultural bias of staff and the potential effects on children.

1. Which of the following activities would *not* help Valerie analyse the publications/data she has found? Select the correct answer.

   - ☐ Looking for common findings among the publications
   - ☐ Looking for differences in the findings
   - ☐ Investigating the ages of the publications' authors
   - ☐ Discussing the findings with colleagues for the purpose of challenging and reflecting upon the data
   - ☐ Employing a critical thinking mindset

2. Identify three things Valerie can examine to assess the relevance of these resources to her own work practice.

3. Identify three things that might indicate the feasibility and/or benefit of the body of information for Valeri's own work practice.

4. Which of the following options should Valerie undertake when she is writing up her conclusion? Select all that apply.

- [ ] Be clear and concise.
- [ ] Add her own opinions
- [ ] Avoid the use of jargon and technical language.
- [ ] Avoid repetition.
- [ ] Acknowledge any help received when conducting research.

Topic 4

In this topic you will learn how to:

- **4A** Assess how information can be applied in practice
- **4B** Identify issues that require further research
- **4C** Develop actions to address outcomes of research

Use information in practice

Using the information you have gathered and analysed is the final step in the research process. Different aspects of the information can be used in different ways.

When you implement your research findings, you will draw upon your own practice knowledge to identify potential areas for change and develop actions. Your knowledge will help to ensure any changes or actions you implement are feasible and appropriate to your workplace setting.

4A Assess how information can be applied in practice

When you're applying research findings, it is important to consider the way that different aspects of the information can be used.

The publications you identify will most likely contain a range of information that may benefit different aspects of your practice. Examples are provided in the table below:

It can be intimidating implementing new approaches; this is why careful analysis is so important to ensure best practice.

Information	Use	Example
How to implement a practice or an approach	Direct service delivery	An educator uses a description of best practice to adapt their own approach when working with children and their families.
Theories and concepts	To reflect upon your practice	An educator discusses a theory with a colleague, asking them for their thoughts on the relevance of the theory to their everyday work with children.
How to change service systems	To advocate for system change	An educator presents information about a new way of planning programs or a new approach they use with children at a conference and explains its benefits.
Descriptions of problems and challenges that impact upon children	To reflect upon and adapt how you work with children	An educator learns about the importance of making cultural connections with children and adapts their approach to discussing values and beliefs.

Linking findings to areas for change

The table below provides examples of analysis; it also elaborates on potential areas for change in their current work practice.

Example	Potential areas for change
An approach or strategy is effective.	The educator could adopt the intervention, approach or strategy into their current work practice.
One approach or strategy is more effective than another.	The educator could adopt the most effective approach or strategy into their current work practice.
The findings about the effectiveness of an approach or strategy are mixed.	The educator could trial the use of the approach or strategy to determine whether it is effective in their service. The worker may refrain from making changes until there is more evidence to indicate that the approach or strategy is effective.
An approach or strategy is ineffective.	Changes to practices are unnecessary because the approach or strategy is ineffective.
An approach or strategy is harmful.	Changes to practices are unnecessary because the approach or strategy that was investigated was found to be harmful.
Best practice involves four key aspects.	The worker could embed the four key aspects of best practice into their current work practice.
A problem or issue requires an organisation or systems change (e.g. changes to organisational policies).	The educator could advocate for changes to practice at the organisational or system level.
There is limited research on the topic to determine whether changes to existing practice are warranted.	Changes to practices are unnecessary because there is not enough research to demonstrate that changes are required.

Applying research to practice is often referred to as 'knowledge translation', because it involves the 'translation' of research evidence into practice. Common challenges faced by educators during the knowledge translation process include:

- a lack of confidence when deciding which aspects of research findings are relevant to their practice
- determining how to address a problem in their practice if researchers disagree about a problem or issue.

It is important to think critically when identifying potential areas for change (the previous table is a guide only). When deciding on potential areas for change, you can draw upon your knowledge of the people you interact with such as colleagues, supervisors, families and children, and the other people you interact with as a part of your job. According to the definition of evidence-informed practice, this knowledge ('practice knowledge') is critical for determining 'what works'.

Your focus on areas for change should concern your own work practice; after all, improving *your own* work practice was the ultimate goal of your search. However, you might decide that there are also broader issues to address – such as organisational practices.

It is important to remember that at this stage you are proposing *potential* areas for change. Don't stress over what might be required to implement these changes; this is covered in the next section.

Example

Apply the findings of research to current work practice

Brett is the director of a large early childhood service. He has undertaken a search to identify information that will help him understand the impact of diversity practices and experiences on the personal behaviour and interpersonal relationships amongst his staff. He finds that there are four main factors that influence an educator's relationship with others at work:

- staff don't feel they are treated fairly and equally
- inappropriate behaviour and discrimination go on without being acted upon
- there is little understanding of the contributions each person can make in terms of their individual talents and skills.
- there is little respect for, and promotion of, individual differences and diversity in the workplace.

Based on these findings, Brett identifies two potential areas for change in his work practice as a director. This includes:

- He will review recruitment practices to make sure they do not present barriers to diversity and new staff will be attracted to a workplace that promotes diversity and welcomes others.
- He will use team meetings to:
  - encourage open, innovative approaches and new ideas for programs and practices.
  - ensure all staff are given the opportunity to share a variety of ideas, skills, knowledge and talents.
  - acknowledge staff when they share their life experiences, values and perspectives

Practice Task 12

1. Draw a line to match the finding on the left with the most appropriate practice change on the right.

* The practice is effective.	* The educator could advocate for changes to practice at the organisational or system level.
* The effectiveness of a strategy is mixed.	* No changes to current practice are required
* A practice is harmful.	* The educator could adopt the practice into their current work practice.
* A problem or issue requires an organizational or system change (e.g. changes to the service's policies).	* The educator could trial the use of the strategy to determine whether it is effective in the setting where they work.

2. Which of the following options are common reasons why translating research into work practice can be challenging? Select all that apply.

- ☐ Educators may lack confidence when determining which aspects of research findings are relevant to their practice.
- ☐ Educators may be discouraged from using research in their work practice.
- ☐ If researchers disagree about a problem or issue, it can be difficult for educators to decide how to address that problem or issue in their practice.
- ☐ The process takes too much time.
- ☐ Educators do not have the qualifications to undertake the task of knowledge translation.

3. What knowledge can educators draw upon to apply research findings to their work practice? Select all that apply.

- ☐ Knowledge of the children they work with
- ☐ Knowledge of the setting where they work
- ☐ Knowledge of their colleagues' professional backgrounds
- ☐ Knowledge of the organisation where they work
- ☐ Knowledge of areas for support and specialist advice

4B Identify issues that require further research

Once you have analysed a body of information, you will likely identify issues that require further research.

Typically, you may identify that there is a lack of overall research on the topic outlined in your objective. However, there are other types of gaps you might identify.

The table below provides some prompts for identifying these:

Rigorous research often undergoes multiple stages of trial and error.

Are there groups that are not included or considered in the current research?
Perhaps you were unable to find information about the use of a practice among highly vulnerable children or remote or Indigenous Australian families.
Have some settings been omitted from the current research?
Perhaps you were able to find information about the use of a practice in schools but not applied to early childhood education and care.
Has the practice been trialed in Australia?
If not, this is a gap in the research – if the practice has not been trialed and evaluated in Australia, you can't confirm that it will work in an Australian context.
Is there a methodological gap?
Consider the types of methodologies used in the research you have identified, such as randomised controlled trials, qualitative methodologies, quantitative methodologies and case studies. Perhaps there are a lot of case studies but not a lot of RCTs? Perhaps there is an abundance of quantitative research but a lack of qualitative research?
Do you still have unanswered questions about the topic or the issue?
Perhaps you have found enough information to address your original objective, but this has led you to other questions. There may be an additional question that you would like to explore in the future, but it might also be a question for other researchers.

Quantitative v Qualitative Data	
Quantitative data is expressed numerically. For example: › How many square metres is a house? › How much does he earn? › How tall is she? › How many litres of water in a swimming pool?	Qualitative data represents 'types'. For example: › What cities do a group of people come from? › Do you prefer oranges or apples? › What colour are the flowers? › Which university did you attend?

Example

Identify issues that require further research and evaluation

Richard is the owner of a busy community-based childcare centre that provides care for several children with physical disabilities. He is searching for information to determine current best practice for enhancing interactions with the natural environment including use of natural and recycled materials.

Having completed his analysis, he notes that most of the research has been undertaken in the United States and none in Australia. Furthermore, only one of the publications he identified considers issues for older children. These are two gaps that require further research and evaluation.

Practice Task 13

1. Which of the following are useful prompts when considering issues that require further research and evaluation? Select all that apply.

- ☐ Are there population groups that are not included or considered in the current research?
- ☐ Are there relevant institutions that have not examined the issue?
- ☐ Are there settings omitted in the current research?
- ☐ Are there people within the community who should be undertaking the research?
- ☐ Do you have any unanswered questions about the topic?

2. Why is a lack of research on the effectiveness of a practice in an Australian setting significant when considering research gaps? Select all that apply.

- [ ] It indicates the limited perspectives of the researchers.
- [ ] It undermines the quality of the research.
- [ ] Australia is a critical testing ground for new practice.
- [ ] It indicates that the authors of the research publication are biased.
- [ ] If it has not been trialled in Australia, it may not be effective among Australian populations.

4C Develop actions to address outcomes of research

The final task in this process involves deciding what to do with your findings. This requires you to develop actions based on the outcomes of your research.

An action plan helps you assess research outcomes.

Any actions you propose must be based on both your findings and the areas of change you have identified.

The table below provides examples of how to navigate this:

Examples	Potential areas for change	Actions
The approach or strategy is effective.	The educator could adopt the approach or strategy into their current work practice.	➢ Request a meeting with a supervisor or director to discuss adopting a new approach or strategy. ➢ Set up a brainstorm meeting with a supervisor or director to develop a plan for embedding a new approach or strategy into my practice. ➢ Write an outline justifying the adoption of a new approach, strategy and present it to a supervisor or director.
One specific approach or strategy is more effective than another.	The educator could adopt the most effective approach or strategy into their current work practice.	
The effectiveness of an approach or strategy are mixed.	The educator could trial the use of the approach or strategy to determine whether it is effective in their service. The educator could avoid making changes until there is more evidence to indicate whether the approach or strategy is effective with children.	➢ Contact 2–3 experts or senior staff and ask for their assistance to develop a plan for trailing an approach or strategy ➢ Undertake a search of two academic databases every 6 months to identify new evidence. ➢ Sign up to two academic databases to receive automatic updates on new relevant research publications.
An approach or strategy is ineffective.	No changes to current practice are required because the approach or strategy is ineffective.	➢ Present the findings at a staff meeting or sector networking activity. ➢ Write up the research findings for a blog or newsletter that targets workers in the field.
The approach or strategy is harmful.	No changes to current practice are required because the approach or strategy that was investigated is harmful.	

Examples	Potential areas for change	Actions
Best practice involves four key aspects	The worker could embed the four key aspects of best practice into their current work practice.	➢ Set up a meeting with your supervisor or director to discuss how to embed the four key aspects of best practice into daily practices with children. ➢ Develop a plan for embedding the four key aspects into practice and present this to your supervisor or director. ➢ Amend performance plan to incorporate the new key aspects of best practice and seek approval from your supervisor or director.
A problem or issue requires organisational or systems change.	The worker could advocate for changes to practice at the organisational or system level.	➢ Present the findings of research search at the all-staff meeting, which outlines why there is a case for organisational change. ➢ Set up a meeting with 4–5 colleagues to discuss the formation of a working party which aims to draw attention to the need for organisational or systems change. ➢ Send an email to people in your professional network to outline the findings of research and ask for ideas on how to address the issue at the systems level.
There is limited research on the topic.	Changes to current practice are unnecessary because there is not enough research to justify changes.	➢ Undertake a search of two academic databases every six months to identify new evidence. ➢ Sign up to two academic databases to receive automatic updates on new relevant research publications. ➢ Set up a meeting with 4-5 colleagues and other workers in your network to discuss a plan to advocate for more research in the area.

Even if you identify that no changes are required to your work practice, there may be actions you can take to share your findings. For example, if you find that a practice is ineffective, it may be worthwhile sharing that information with other staff. Similarly, if you find that not enough research has been undertaken on a specific topic, it is worthwhile to share this information with others. It may encourage others to undertake research to fill that gap or start a conversation that may lead to research being undertaken sometime in the future.

Furthermore, actions require you to draw upon your practice knowledge and your understanding of how your service and your sector operate. Issues you may need to consider when developing actions include:

- The level of **autonomy and authority** you have in your role: How are changes to practice authorised within the service? Do you need to discuss potential practice changes with a Director or owner?
- The **culture of your organisation**: How does change happen in your organisation? What forums are available for team members to share their ideas about their practice?
- The **time** you have available to pursue actions: What actions are feasible given your job role and responsibilities? Will this action mean you are overstretching yourself?
- Your **skills and interests**: Would you prefer to write an email or present at a staff or team meeting? Which type of task will allow you to have the most impact?
- The **resources** you have available to you: Does your service have a budget for education and training? Do you have a wide professional network you can draw upon to ask for help or assistance?

One tool that may help you when developing actions is the SMART acronym. This tool is commonly used by evaluators and within project management to develop goals and objectives:

- **S**pecific: Make sure your actions provide an indication of a specific step you are going to take (e.g. set up, write, contact, present).
- **M**easurable: Provide an indication of how many or how much of something there is. How many people do you plan on contacting? How many people will you invite to your brainstorming session? How many academic databases will you subscribe to?
- **A**chievable: You need to develop actions that you can achieve given the time and resources available to you.
- **R**ealistic: Your actions must be realistically achievable. How much authority do you have in your role? Which changes is your organisation likely to consider? How many actions can you realistically achieve?
- **T**ime-related: Assign each action a deadline to encourage successful implementation.

Example

Adapting a research approach

Brett finds evidence to indicate that the main impact of the service's diversity practices and experiences on his staff's interpersonal relationships is that inappropriate behaviour and discrimination is not acted upon. This affects the trust the staff have with the service and with each other.

Based on these findings, Brett concludes that:

- he will set up a meeting in the next fortnight with each staff member to discuss the changes that he will be making including:
  - reassuring them of his respect and value to the service
  - explaining the specific changes he will be implementing to encourage harmony within the team and changes to the way meetings are being run.
  - workplace support his organisation can provide

Practice Task 14

1. Which of the following issues does a worker need to consider when developing actions in response to their research? Select all that apply.

- [ ] The culture of their organisation
- [ ] Their level of autonomy and authority
- [ ] Their director's personality
- [ ] Their skills and interests
- [ ] Their rate of pay

2. Which of the following statements are correct? Select all that apply.

- [ ] Actions are only required when a practice has been shown to be effective.
- [ ] Resources need to be considered when a worker is developing actions.
- [ ] In the acronym SMART, 'M' stands for malleability.
- [ ] When developing actions, it is good practice to give each action a deadline.

3. An action to address the outcomes of research needs to be which of the following? Select all that apply.

- [ ] Specific
- [ ] Relatable
- [ ] Timely
- [ ] Achievable
- [ ] Relevant

Summary

- Information contained in a body of information can be used in different ways.
- Potential areas for change and actions must be based on the findings of the analysis.
- When deciding upon potential areas for change and actions, it is important for a worker to draw upon their own practice knowledge to ensure decisions are feasible and appropriate within their current work environment.
- Actions must be concrete. They should focus on what the educator can and will do.
- It is useful for actions to have a deadline; this encourages the completion of tasks.
- Most researchers find that further research or evaluation is often beneficial.
- Even if no changes to practice are required, there may be actions to undertake, such as presenting the findings of the research to other staff.
- The SMART acronym is a useful tool when developing actions based upon the outcomes of research.

Learning Checkpoint 4
Use information in practice

Part A

1. Identify two research findings that might lead an educator to conclude that no changes are required to their own work practice.

2. Identify two things to consider when developing actions to address the outcomes of research.

Part B

Ursula is an educator with an interest in levels of stress in educators resulting from the increased responsibilities of their role. She is searching for information that aligns with her objective. She is now ready to apply the findings to her work practice.

1. Which of the following characteristics represent gaps that may require Ursula to undertake further research and evaluation? Select all that apply.

- ☐ Most of the research has been undertaken by men.
- ☐ None of the research has been undertaken in Australia.
- ☐ Most of the research is qualitative.
- ☐ Many of the research publications are available on Google Scholar.
- ☐ All the research has been undertaken with people living in urban settings.

2. Some information she reads notes that younger graduates experience higher rates of stress and mental health difficulties. How could Ursula use that information in her own work practice? Select the correct answer.

- ☐ To source additional funding
- ☐ To reflect upon how she works with younger graduates
- ☐ To advocate for changes to organisational policy
- ☐ To advocate for changes to the service system
- ☐ To write up a research publication