

# Don't be abstract: Crafting an impactful abstract for educational technology research

## Linda Corrin

Deakin University

#### Henk Huijser

Queensland University of Technology

#### Feifei Han

Australian Catholic University

#### Jason Lodge

The University of Queensland

The abstract is a key element of a research article that can enhance the utility, discoverability and impact of the work presented. However, the quality and consistency of abstracts can vary, and the state of abstracts in the educational technology field has received little attention to date. In this editorial, we examine the purpose, structure and future of the abstract in educational technology research to provide advice on how to write a good and impactful abstract. A list of 14 elements derived from the literature was used to analyse the abstracts of the first 10 articles published in 2024 from each of the top 10 educational technology journals ranked by Google Scholar (n = 100). Elements such as background, aim, methods, results and implications were found to be present in most abstracts, although there is room for improvement in clarity in some cases. Other elements, including research questions, hypotheses and future directions, are not often incorporated, indicating these elements may not be necessary in this context. These findings can be used by authors to structure an impactful abstract and also highlight elements (e.g., theoretical framework, sample size and context) that should be included to improve discoverability of published work.

Keywords: abstract, educational technology, academic publishing, impact, editorial

#### Introduction

The abstract of a journal article is often the first, and sometimes only, part of a research publication a reader engages with when looking for work related to their context and needs. Consequently, ensuring quality and clarity in how an abstract is written is vital to enable publications to be both discoverable and understandable. In the field of educational technology, this is especially important due to the wide range of stakeholders (including educators, learning designers, academic developers, learning technologists, institutional leaders, technology vendors and researchers) who engage with work of this kind published in academic journals, book chapters and conference papers to inform research and practice. As the sophistication and variety of educational technology research continue to increase (Bond et al., 2020), a core challenge is to capture the range of elements central to research and practice in this space within an abstract in a clear and concise manner.

At the same time, discussion of how abstracts are written and used in academic publishing more broadly have identified a number of key issues that limit the impact of abstracts. This includes concern over the inconsistencies and/or errors between the content of the manuscript and what is included in the abstract (Kamal & El-Sobky, 2023), weaknesses in how the abstract is structured (Alspach, 2017) and a lack of focus on the key information that will make the abstract understandable to a broad range of audiences (Pique-Noguera, 2012). As observed by one journal editor, "the most common mistake in writing an abstract is to not pay much attention to it" (Mack, 2012, p. 020101-1). It is therefore our objective in this editorial to



pay attention to what makes a good abstract, particularly in the field of educational technology. In doing so, we will consider the purpose of an abstract and what should and should not be included in an abstract, and look at what is common to include in abstracts across the top 10 educational technology journals as listed by Google Scholar. We conclude with a discussion of how we encourage authors to write abstracts for the *Australasian Journal of Educational Technology* (AJET) and what the future might hold for the abstract in this field.

## The purpose of an abstract

The abstract of a manuscript can serve a variety of purposes. According to the American Psychological Association (APA) style guidelines available online, the purpose of an abstract is "to provide a brief but comprehensive summary of the contents of your paper" (APA, 2020, p. 1). Along with the title, it can help shape the first impression someone has of the published work. Consequently, it has been compared to a movie trailer, but with spoilers (Alspach, 2017). The way an abstract is written can encourage, or discourage, a potential reader to engage with a manuscript by tapping into their interest. In order to do this an abstract must "provide sufficient information to convince the reader to read the paper" (Pique-Noguera, 2012, p. 229). The amount of information in an abstract is important to its utility. Word limits often imposed by journals require authors to choose their words carefully to make sure they include all the necessary information. The language that is contained in the abstract also prepares readers for the concepts and terms they will engage with in the article.

When indexing articles to include in databases of academic publications, database systems use abstracts to generate results in response to search queries (Schilhan et al., 2021). The number of times that keywords related to the article appear in the abstract will be taken into account when a relevance score is calculated in relation to a search query, thereby influencing the discoverability of the work. It is recommended that authors try to ensure that keywords are included in the first few sentences of the abstract to optimise the chances their work will be found and presented towards the top of the results (Corrin et al., 2022; Schilhan et al., 2021). The use of synonyms for key concepts should also be included in the abstract, as this can increase the chances of an article being discovered by readers who may use different terms to search for the work (Schilhan et al., 2021). With a growing number of systematic reviews and meta-reviews in research (Tamim et al., 2021), including in the field of educational technology research (Martin et al., 2020), tactics to help strengthen the discoverability of your article can increase the likelihood that it will be included in these studies.

Another key use for abstracts is as part of several stages of the article review process utilised by academic publishers. The abstract will often be read by the editorial team in the first stage of the review process to determine whether an article meets the criteria for inclusion in their particular publication and whether it will be sent through to peer review. It is then also used to identify, assign and invite reviewers for the article. For these reasons, it is important that key information that can help editorial teams to make these decisions are included in the abstract, especially around context, aims, methods and outcomes. More information about this process and how this occurs in the context of AJET is provided below.

#### What should be included in an abstract

There has been much written about what should be included in an abstract. Although these recommendations vary depending on the discipline being addressed, the publication requirements and the methodology applied, there are many common elements among most of these suggestions. The APA style guide sets out six elements of an abstract that should be addressed:

- "key aspects of the literature review
- problem under investigation or research question(s)
- clearly stated hypothesis or hypotheses
- methods used (including brief descriptions of the study design, sample, and sample size)



- study results
- implications (i.e., why this study is important, applications of the results of findings)" (APA, 2020, p. 1).

Not surprisingly, the APA suggestions are more appropriate to articles that are quantitative in nature, as that would be the most common approach in psychology research. For example, not all educational technology research will test a hypothesis, and it is not as common to include research questions in the abstract as educational technology studies can include multiple questions that would take up too much of the work limit to list in full. Slight changes to the requirements of an abstract are also required for different article types such as systematic reviews, conceptual work and commentary pieces where not all elements are applicable.

Often guidance for writing abstracts is distilled into a series of questions, the answers of which should appear in the abstract. For example, in a library resource from Charles Darwin University (n.d.), the following questions were suggested:

- "What is your research about?
- Why is it important?
- How did you do it?
- What did you find?
- Why are your findings important?"

Some journals are starting to introduce a structured abstract format that prescribes the elements that should be included. An example of this in the educational technology research field is the *Journal of Computer Assisted Learning*, which requires the abstract to contain details on (a) background, (b) objectives, (c) methods and (d) results and conclusions (John Wiley & Sons, 2023). Structured abstracts are designed to ensure that authors stick to the most relevant information and provide consistency across the articles in the publication. It has been suggested that structured abstracts can improve writing quality as "the structured method of abstract writing also helps to avoid useless but all-too-common phrases like "in this paper" and "we report" or "will be discussed" (Mack, 2012, p. 020101-2). Even when a structured abstract is not required by the publisher, for example, AJET does not currently prescribe a format for abstracts, following a structure such as the one proposed by the APA can be useful in ensuring that all necessary information is included.

## What should not be included in an abstract

Although it is important to ensure that an abstract contains all the relevant information within a concise and clear paragraph, it is also important to note the things that should not be included in an abstract. Providing a definitive list of what not to include is difficult as disagreement sometimes exists between experts about whether certain elements should or should not be included. For example, some guides suggest the use of a "hook" at the start of an abstract to entice the reader to read on, whereas others caution against such an approach as it can lead to an over exaggeration of the research impact or outcomes. Table 1 outlines a number of generally accepted elements that should be avoided when writing an abstract for your manuscript, based on the work of Alspach (2017).



Element	Description
Excessive detail	Inclusion of too much detail about any one element of the abstract can result in lack of space for other necessary elements and create a lack of focus.
Too many words	Abstracts should be written to comply with the word limits set by the publisher.
Extraneous content	Do not include material that is not directly relevant to the topic.
Reference citations	Do not include citations to other literature, unless it is central to the study (e.g., a theory or analysis framework).
Repeated text from the introduction	It is recommended that you do not use text from the article introduction verbatim.
Information not in the article	Do not introduce new information in the abstract that is not addressed elsewhere in the article.
Overstatement of data or findings	Ensure that the data or findings are presented in a true and accurate manner and avoid sensationalising the study.
Mismatched results and conclusions	The conclusions that are included in your abstract should correlate with the results of the study.
Grammar, spelling or punctuation errors	Thoroughly proofread your abstract prior to submission to ensure that the expression is clear and there are no grammar, spelling or punctuation errors.

Table 1

*Elements that should not be included in an abstract (adapted from Alspach, 2017, p. 13)* 

An abstract should be self-contained (Mack, 2012). For example, the use of abbreviations or acronyms should be avoided. Instead, these should be written using the full title and the abbreviation or acronym included in brackets afterward. Mack also recommended that references to figures or tables in the paper not be included. If the study uses words that may not make sense to the reader if they have not read the whole article, then these should be defined or left out of the abstract (Mack, 2012).

#### The state of abstracts in educational technology research

Studies of abstract structure and quality are very rare in the field of educational technology research. To better understand the current ways that abstracts for this field of research and practice are presented, we looked at the first 10 articles published in 2024 for each of the top 10 ranked educational technology journals as listed by Google Scholar. This gave us a sample of 100 abstracts. For context, Table 2 provides a list of the 10 journals included in the study and any guidance given on their websites as to the required structure of abstracts for their journal. Similarity in abstract instructions can be seen among journals owned by the same academic publishing groups.

The analysis of the sample of 100 articles was based on a list of elements derived from studies of abstract structure and quality, including Mack (2012), Kamel and El-Sobky (2023) and Pique-Noguera (2012), as well as the above-mentioned abstract structure recommended in the APA (2020) style guidelines. For each of the resulting 14 elements, we noted whether the abstract explicitly addressed the element ("yes"), included at least some information about the element or it could be implied from the text ("partially") or did not address the element at all ("no"). The overall results of this analysis are presented in Figure 1.



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The sample journals and the guidance they provide for authors

Journal	Abstract guidance	Source
British Journal of Educational	"About 100-200 words"	British Educational
Technology		Research
		Association (2024)
Computer Assisted Language	"Should contain an unstructured abstract of 250	Taylor & Francis
Learning	words"	(2022)
Computers & Education	"You are required to provide a concise and	Elsevier B.V.
	factual abstract. The abstract should briefly	(2024)
	state the purpose of your research, principal	
	results and major conclusions. Some guidelines:	
	Abstracts must be able to stand alone as	
	abstracts are often presented separately from	
	the article.	
	Avoid references. If any are essential to include,	
	ensure that you cite the author(s) and year(s).	
	Avoid non-standard or uncommon	
	abbreviations. If any are essential to include,	
	ensure they are defined within your abstract at	
	first mention."	
Education and Information	"Please provide an abstract of 150 to 250	Springer Nature
Technologies	words. The abstract should not contain any	(2024a)
	undefined abbreviations or unspecified	
	references."	
Educational Technology	"Please provide an abstract 150 to 250 of	Springer Nature
Research and Development	words. The abstract should not contain any	(2024b)
	undefined abbreviations or unspecified	
	references."	
Interactive Learning	"Should contain an unstructured abstract of 200	Taylor & Francis
Environment	words"	(2024)
International Journal of	"The abstract should briefly summarize the aim,	SpringerOpen
Educational Technology in	findings or purpose of the article. Please	(2024)
Higher Education	minimize the use of abbreviations and do not	
	cite references in the abstract."	
International Journal of	"It should not exceed 15-20 lines"	Online-
Emerging Technologies in		Journals.Org (n.d.)
Learning		
International Journal of	"The abstract must be brief, informative and	Gate Association
Instruction	self-explanatory and should be written in past	for Teaching and
	tense. It must not exceed 150-200 words in	Education (n.d.)
	length and should concisely summarize all	
	important results of the paper without	
	excessive methodical and experimental details.	
	Standard nomenclature should be used and	
	appreviations should be avoided."	
Journal of Computer Assisted	JCAL requires that authors submit a structured	John Wiley & Sons
Learning	abstract of 200-250 words: This should be	(2023)
	arranged under the following headings:	
	Background: what motivated the research?	
	what problem was it meant to solve? What are	
	the limitations to existing knowledge or ways of	
	addressing the problem? Phrase this so that it	



Journal	Abstract guidance	Source
	communicates the importance of the study.	
	(maximum: 2-3 sentences)	
	Objectives: Concisely explain the goal/goals of	
	the research or what primary aim of the article	
	(1 sentence)	
	Methods: Describe the sample population (if	
	applicable), research design, conceptual	
	framework, and/or analytic approach. Please be	
	concise stating the specific method or	
	approach. (2-3 sentences)	
	Results and Conclusions: Give a high level	
	overview of the most important findings and	
	conclusions. Please do this in 'normal' language	
	rather than in numeric form unless absolutely	
	necessary. (2-3 sentences)"	



Figure 1. Analysis of 100 abstracts from the top 10 educational technology journals



From these results, it can be seen that the only element that was found across all 100 abstracts was the aim of the study (although in one abstract it was not very clearly stated). In relation to the context of the study (i.e., the educational setting in which the research took place), this was present in 85% of the abstracts. As an important consideration for editorial teams when determining if a manuscript is within the scope of a journal, it was surprising to see that this was not present in 15% of abstracts and only partially addressed in a further 8%. In most cases, the context was given in a very broad sense, for example, saying the study involved university students or was undertaken at an elementary school. It was rare that the specific school or university was mentioned, which may be a result of the fact that the text is initially blinded for peer review and not subsequently updated. To ensure that a manuscript has a better chance of getting to peer review, we strongly recommend that an indication of the context be included in the abstract.

Due to the limited space allowed in an abstract, the inclusion of background and problem definition is necessary but needs to be concise. Alspach (2017) has recommended that the background should be the shortest part of the abstract. In some of the abstracts we saw, the background and problem statement comprised a single sentence. Similarly, the definition of the problem is sometimes rolled into the aim of the study. However, there were several examples where no background or problem definition was present (15%), and the authors went straight into the aim of the research. Setting the scene with at least a sentence (or two) about the background and problem space helps to situate the research and demonstrate the need for this particular study, which can help in making the case for the significance of the research. It is important not to spend too much time on the background, so that there is room left to adequately outline the aim, methods, results and implications. But it is often worth introducing key concepts in this section of the abstract, which can also enhance the findability of the article in academic databases.

Very few of the abstracts reviewed included the full wording of the research questions (5% "yes" and 4% "partially") or hypotheses (1% "yes" and 2% "partially"). This is not unexpected as the inclusion of these elements can take up a lot of word count, which may be needed for other elements. The mention of the theory that informed the study was observed in 60% of the abstracts, which is encouraging in a field that is sometimes criticised for a lack of acknowledgement of the role of theory (Hew et al., 2019). Explicitly stating the theoretical framework for the study is useful for the inclusion of articles in systematic reviews that focus on how particular theories have been used in the educational technology field (e.g., Eggers et al.'s [2021] study of self-regulated learning in blended learning environments).

Inclusion of the research method was observed in 86% of the abstracts, and description of the sample participants was included in 81%. Fewer abstracts included the size of the sample (60%), which is a useful element for researchers planning to use articles for systematic reviews and meta-analyses. Only 35% of abstracts addressed the approach taken to analyse the data. The majority (97%) of abstracts included details of some of the key findings of the research, which is an important element for readers to gauge the relevance of the study to their purpose. A total of 77% of the abstracts also included a sentence or two on the implications that the research has to the field. In contrast, only 5% provided details of future directions for the research. Guidelines on abstract structure often recommend that implications of the research should be included to help highlight the significance of the study, but few recommend mentioning future research directions. This is an element that the reader will need to read to the end of the article to find.

## Writing an abstract for AJET

At AJET, we encourage authors to write an abstract that is clear, concise and informative to give their article the best opportunity to be discovered and utilised by researchers and practitioners in the field. The word limit for an AJET abstract is 200 words, which allows room for all the important elements of a good abstract, but also forces authors to be concise in how they describe their study and its outcomes. The abstract is the main reference point for the first round of editorial review where an initial decision is made as to whether a submission is sent to peer review or not. At this stage, the editor is assessing the work on



the basis of a set of criteria (see <a href="https://ajet.org.au/index.php/AJET/about">https://ajet.org.au/index.php/AJET/about</a>), including whether or not the study is situated in tertiary education, whether it involves technology and whether it meets certain key formatting requirements. If evidence of these elements is clearly visible in the abstract, this makes the process easier and means that the submission is likely to get through to peer review faster.

The abstract and keywords of a submission are also important for AJET Associate Editors to work out who to invite to review the submission. At AJET, we attempt to align reviewers with the type of study presented in the submission, so being able to identify elements like educational context, theory and methodology is important to help with finding reviewers who can give informed feedback and decisions. When a reviewer is invited to review a paper, they are sent a copy of the submission title and abstract, which they can then use to decide whether they will accept the review. If the abstract is written in a way that the purpose and implications of the study are not clear, then the reviewers are less likely to take on the review assignment. As discussed in our editorial on peer review last year (Corrin et al., 2023), getting reviewers to agree to do peer reviews is becoming harder in an environment where there are more and more educational technology journals and submissions all vying for review. Therefore, making sure that your abstract is appealing to reviewers will increase the chances that reviewers will accept it for review.

AJET also requires that articles by accompanied by a list of implications for practice or policy, where further detail can be included about the implications of the research that can be put into practice or inform policy conversations. It is tempting for authors to simply repeat what is in the abstract in this section. However, we strongly encourage that authors take the time to focus on the key takeaways from the study, rather than structuring this in a similar way to the abstract. Going into the detail of this section is beyond the scope of this editorial, but is something that the AJET Editors will no doubt address in a future issue of the journal.

#### The future of the abstract in educational technology research

There is little doubt that the abstract is here to stay. However, over the last few years, there has been an evolution in how some journals allow abstracts to be presented. The text version of an abstract is still universally required, but several journals now give authors an option to also present their abstract in either graphical or video format. This allows the information to be presented in a way that may be more accessible to a wider audience, and visual elements can be utilised to show relationships and outcomes in a clear and informative way.

The graphical abstract has been growing in prevalence in fields such as medical science and engineering over the past few years (Lee & Yoo, 2023; Yoon & Chung, 2017). Graphical abstracts present the main elements of the article in the form of a conceptual diagram, flowchart, infographic, iconographic or photograph-like illustration (Yoon & Chung, 2017). Of the 10 journals included in the sample for this discussion, five now allow the submission of graphical abstracts and provide quite detailed instructions as to the design and required format.

Some journals are also giving their authors an opportunity to present their abstract in video form. Authors have the opportunity to use images, text, audio and video elements to express the contents of the abstract that can be shared on and beyond the journal website. Several studies have found that articles that have an associated video abstract tend to be cited slightly more than articles without a video abstract (e.g., Bonnevie et al., 2023; Zong et al., 2019). The length of the videos vary, but journal guidelines usually recommend that these are kept fairly short, with Taylor & Francis (n.d.) recommending no more than 2 minutes and 20 seconds to optimise the impact of the video abstract is the *British Journal of Educational Technology*, which has a collection of video abstracts on its website that ranges from lecture-style voice-over-PowerPoint presentations through to professionally shot videos demonstrating technology use in a practical environment. Four of the 10 journals included in our investigation currently allow submission of video abstracts.



Another interesting development in relation to abstracts in academic publishing more broadly is the ability to utilise generative artificial intelligence (AI) to generate abstract text. A recent study of generative Al-generated abstracts (generated from a selection of real abstracts from medical journals) found that when run through a plagiarism checker the Al-generated versions were not flagged as being plagiarised, and a tool designed to spot Al-generated text only detected 66% (Else, 2023). When all the abstracts were shown to human reviewers, they only identified 68% of the AI-generated abstracts as being written by AI, and incorrectly identified 14% of the original human-authored abstracts as being generated by AI. These findings, now over 12 months old, demonstrate that the quality of AI-generated abstracts can be reasonably high. This level of quality has potentially improved in the intervening year due to the advancements that have been made in the development and training of the large language models that drive generative AI tools. It could be argued that, due to the current variable quality of abstracts in the literature, AI could be useful in helping to improve the standard and consistency of their structure and expression. At the same time, some journals, like Computers & Education, are explicitly stating that the use of generative AI or AI-assisted tools is not allowed for the creation of artwork for graphical abstracts. It will be an interesting conversation for journal editors and academic publishers to have to determine whether the use of generative AI to create abstracts will be considered appropriate, and even encouraged, in the future.

Regardless of the format of the abstract or who wrote it, the core principles of being concise, clear and informative continue to apply. In an ever-expanding research and publishing environment, enabling your work to be found and to stand out in a sea of reporting on research and practice will ensure it has greater impact. In the field of educational technology, where technologies and approaches are constantly evolving, allowing researchers and practitioners to access and be inspired by your work is important so we can learn from one another and move the field forward. Therefore, our advice is to spend time on your abstract, rather than it being an afterthought in the writing process, to make your work as impactful as possible.

#### Author contributions

**Linda Corrin**: Conceptualisation, Investigation, Writing – original draft, Writing – review and editing; **Henk Huijser**: Writing – review and editing; **Feifei Han**: Writing – review and editing; **Jason Lodge**: Writing – review and editing.

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Consequently, we now welcome Associate Professor Chris Deneen into the role of Lead Editor alongside Associate Professor Linda Corrin, Dr Feifei Han and Associate Professor Henk Huijser. Chris is an Enterprise Research Fellow with Education Futures at University of South Australia and an Honorary Principal Research Fellow with The University of Melbourne. Chris' work contributes to essential, future-focused understandings of assessment and feedback in higher education. His program of research uses theoretical and empirical modelling to advance our understanding of how technology interacts with assessment and feedback. Chris has been an Associate Editor with AJET over the last 2 years, and we look forward to working with Chris in this new role.



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Corresponding author: Linda Corrin, linda.corrin@deakin.edu.au

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