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Reflections on designing multiple-choice items for large-scale assessments of student teachers' visual and critical visual literacy knowledge and practices

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Background: The current Curriculum and Assessment Policy Statement (CAPS) for teaching languages and literacies in South African schools includes visual literacy components in all grades and thus teachers need to be visually literate, to be critical viewers of the visual, and to know how to teach visual and critical visual literacy.

Objectives: The aim of this research was to investigate the possibilities of designing multiple-choice items that attempt to assess student teachers' visual and critical visual literacy content and pedagogic knowledge.

Method: In this reflective case study we present, discuss, and reflect on examples of multiple-choice items designed for the assessment of components of the Primary Teacher Education Project (PrimTEd). Our reflections are informed by literature in the fields of visual literacy and critical visual literacy education.

Results: Sourcing socio-culturally inclusive, multimodal texts and creating appropriate classroom teaching scenarios on which to base questions that comply with the criterion of test fairness is challenging to achieve in any test format. It is particularly difficult to achieve when constrained by a multiple-choice format.

Conclusion: Multiple-choice items can be used to assess some aspects of student teachers' visual and critical visual literacy, such as discourse-specific terminology, explanations of terminology, and choices of classroom teaching strategies. However, alternative question forms or tasks have greater affordances for assessing other aspects of student teachers' ability to read still and moving images and multimodal texts with understanding and criticality, and to teach learners how to do so.

Contribution: The article contributes to the field of visual and critical visual literacy assessment in initial teacher education through an investigation of the affordances and limitations of the multiple-choice format commonly used in large-scale assessments.

Keywords: reflective case study; assessing visual and critical visual literacy; multiple-choice questions; student teachers; PrimTEd Assessment project.

Introduction

In 2016, as a contribution to the *Integrated Strategic Planning Framework for Teacher Education and Development in South Africa 2011–2025*, the Department of Higher Education and Training (DHET) tasked teams of teacher educators across South African universities with the development of Initial Teacher Education (ITE) standards for Mathematics and English ('Home' Language and 'Additional' Language). The aim of these knowledge and practice standards is to provide teacher educators with guidelines for curriculum design and enactment in ITE programmes for primary school teachers. Given the importance of understanding what student teachers know when they begin their Bachelor of Education (BEd) degree, and of assessing what they know and can enact in the classroom when they graduate, one strand of the Primary Teacher Education Project (PrimTEd) focuses on assessment. The authors were part of the team tasked with designing items for an English test to be used across universities. Given the large-scale nature of test administration and marking, we were requested to design items in multiple choice format. In this article, we reflect on our experiences of designing items in this format for the assessment of student teachers' knowledge of visual and critical visual literacy.

Note: The manuscript is a contribution to the themed collection titled 'Advancing Literacy through Teacher Education: Insights from the PrimTEd Language and Literacy Initiative' under the expert guidance of guest editors Dr Mmamoyahabo Constance Makgabo, Prof. Maureen Robinson, Dr Elsie Carolyn Ann Kok and Dr Meshack Qetelo Moloi.

The PrimTEd *Knowledge and Practice Standards for primary teacher education graduates: language and literacy* (PrimTEd Literacy Working Group 2020–2021) recognise that teachers should be both visually and critically visually literate. For example, under the general heading *Teacher standards: Practice* is the specific outcome statement that graduating teachers should be able to '[*i*]mplement multimodal forms of instruction and evaluate instructional practice in each of the key components of reading and writing' (Specific outcome 3). Two of the 'components' listed are 'visual literacy' (3.1) and 'critical engagement with texts' (3.1). Under the general heading *Teacher standards: Knowledge* is the specific outcome statement that graduating teachers should:

> Demonstrate knowledge of phase appropriate features of page or screen-based visual texts, of how the relationship of verbal and visual features of texts affects meaning and of strategies to teach learners to become firstly, visually literate and subsequently, critically visually literate. (Aitchison et al. 2020–2021:17)

The assessment criteria accompanying this knowledge statement are as follows:

- Features of page or screen-based visual texts (e.g. layout, colour, image choice) can be explained.
- The effects of the relationship between words and images and colours of various kinds on meaning can be explained.
- Strategies for teaching learners how to read and view visual texts or texts that combine words and images can be described. (Assessment criteria 17.1 to 17.3)

With reference to visual literacy, the PrimTEd Standards for teaching English as First Additional Language (EFAL) as a subject and for using EFAL 'as the general medium of instruction' include:

> Ability to use a range of instructional strategies and methods including recycling and repetition of key vocabulary and language structure *and using multimodal texts* – to assist learners to make the transition from learning in a home language to learning in English is demonstrated. (Assessment criterion 5.4 [Aitchison et al. 2020–2021:30])

Teachers are also expected to demonstrate ability to '*source, design and manage appropriate EFAL resources*' (Assessment criterion 6.1 [*authors' own emphasis*]).

After providing a brief rationale for including visual and critical visual literacy in school and ITE curricula, we describe and discuss some of the challenges we have faced in our attempts to design multiple-choice items for inclusion in the PrimTEd English tests. In place of a discussion section, beneath each example of test items, we have written a brief commentary to which we refer in the final part of the article.

To provide context for our presentation of test items and reflections on these, we briefly review literature in the fields of visual and critical visual literacy and assessment.

Literature review

Visual literacy has been described as an 'organic concept' (Harrison n.d.) that requires ongoing redefinition as the design and production of the visual changes. We find useful for teaching and learning, at all levels, the definition offered below:

> Visual literacy is a set of abilities that enables an individual to effectively find, interpret, evaluate, use and create images and visual media. Visual literacy skills equip a learner to understand and analyse the contextual, cultural, ethical, aesthetic, intellectual and technical components involved in the production and use of visual materials. A visually literate individual is both a critical consumer of visual media and a competent contributor to a body of shared knowledge and culture. (Association of College and Research Libraries [ACRL] 2011:2)

In 2022, ACRL updated its document on visual literacy to include 'four emerging themes' in visual literacy (ACRL 2022:2):

- Learners participate in a changing visual information landscape.
- Learners perceive visuals as communicating information.
- Learners practice [*sic*] visual discernment and criticality.
- Learners pursue social justice through visual practice.

In incorporating both visual and critical visual literacy, this definition, together with the themes subsequently identified, is in the tradition of early critical literacy scholars such as Freire (1972a, 1972b). In the early 1970s, Freire showed how 'the process of learning how to read both the word and the world critically' (Janks 2010:13) enabled adult literacy learners to become critically conscious actors in society. Critical reading of images, and of the relationship between words and images, is an important part of reading both the word and the world. As noted by Chung (2013:4, in Adil 2022:1), critical visual literacy 'goes beyond mere analysis and understanding of visual objects' (although this is an important starting point), as it involves asking critical questions about these objects – for example, about their choice and placement in a text on a page or screen. In outlining three steps for 'thinking about looking', Ferreira and Newfield (2014:85) ask the following:

- **What or who?** The visual content: *W*ho or what is in the image? What do you see? What don't you see? Who is shown? Who isn't shown?
- **How?** Representation: How are people, places or things represented? Shots? Angles? Lighting? Colour? Eye contact? etc.
- **Where?** Context: How is the image used? In what context – textual, social, political? What is the text's purpose *or genre?*

These questions appear in *Doing Critical Literacy: Texts and Activities for Students and Teachers*, a publication designed to guide learners and teachers in becoming critically visually literate readers and designers of texts for both page and screen.

As Janks (2014:1) writes in her introduction to this workbook, 'the ability to do critical literacy gives us potent ways of reading, seeing and acting in the world.'

In an earlier publication, Janks (2010) makes an important distinction between a literacy teacher and a critical literacy teacher:

> I think it is possible to think of a literacy teacher as someone who works with others to make meaning with or from texts. A critical literacy teacher is, in addition interested in what all kinds of texts (written, visual and oral) do to readers, viewers and listeners and whose interests are served by what these texts do. They also help students to rewrite themselves and their local situations by helping them to pose problems and to act, often in small ways, to make the world a fairer place. (p. 19)

For Newfield (2011:81) what distinguishes critical visual literacy from visual literacy is the emphasis of the latter on 'the positioned and positioning nature of visual texts, on the socio-political consequences of semiotic choice in visual texts, and on reading *against* rather than *with* the visual text'.

In our view, learners need teachers who include both visual literacy and critical visual literacy in their classroom work and thus student teachers need to become visually and critically visually literate. Kedra and Zakeviciute (2019:1) describe students entering tertiary education in recent times as being 'technologically savvy but often visually illiterate. They do not know how to interpret and evaluate images and how to use them for effective communication'. While visual and critical visual literacy have always been important, they have become more so in an age in which 'new possibilities for representation' are 'afforded by the new media of production and dissemination' (Kress & Van Leeuwen 2006:32). Also, as suggested by one of the reviewers of this article, given the importance of responding to learners' multiple intelligences (Gardner 1983), a focus on the visual may be enabling for learners whose spatial-visual intelligence is 'stronger' than their verbal-linguistic intelligence.

In surveying the views of media literacy scholars and teachers in 35 countries, on the challenges of assessing media literacy, Schilder, Lockee and Saxon (2016:43) found that the most frequently mentioned challenge was 'lack of teacher preparedness and teacher training to assess media literacy outcomes'. This finding is similar to those of South African classroom-based researchers. For example, Moodley (2015) found that teachers in her study lacked the pedagogic content knowledge to guide learners in engaging with visual texts. Mnyanda and Mbelani (2018) express concern that the teachers they observed were not able to capitalise on learners' digital literacy knowledge and skills and thus, by implication, were unable to guide learners in thinking critically about what they were viewing and what they were designing.

For the PrimTEd languages and literacies test, preparing items that aim to assess student teachers' ability to meet the assessment standards specified for visual and critical visual literacy, and which also conform to the requirements of 'test integrity' (Weideman 2011) has proved to be a considerable challenge. We argue that it is a challenge that is exacerbated, by the assessment team's decision, for reasons outlined below, to design and use multiple choice questions (MCQs) in the test.

Assessing student teachers' knowledge of visual and critical visual literacy

While there is an increasing use of multimodal pedagogies in education at all levels (eds. Archer & Newfield 2014; Bowen 2017; Callow 2018; Wei 2022), there has been limited research on the assessment of visual literacy competencies in education in general (Moodley 2015; Schilder et al. 2016) and in higher education in particular (Bowen 2017; Kedra 2018; Yeh 2010). We have not been able to locate any research based on the choice and use of MCQs in assessors' attempts to do so.

We acknowledge that many advocates of a multimodal, multiliteracies approach to teaching and learning have long been critical of standardised testing in general, and of the lack of opportunities to demonstrate nuanced understandings or creative responses that are an inevitable consequence of the use of MCQs (e.g. Kalantzis, Cope & Harvey 2003; Newfield et al. 2003; Reed 2014; Schilder et al. 2016).

However, in contexts in which assessment of the languages and literacies content and pedagogic content knowledge of large numbers of student teachers throughout South Africa is the goal – as in the PrimTEd Assessment Project – it can be argued that standardised testing and the use of well-designed MCQs is a practical and useful option, given the following widely recognised affordances of this question type (University College Dublin, Teaching and Learning Resources, n.d.):

- Responses are easily marked (often by computer), objective and reliable.
- MCQs may measure different cognitive levels of testees.
- Responses offer opportunities for feed forward (assessment for learning) and feedback.
- MCQs facilitate the development of question banks so that items can be rotated across numerous iterations of a test.

As described in Roberts and Mort (2023), the team of item designers engaged in preparing MCQs for the PrimTEd language and literacies test was advised by Moloi (2021) who demonstrated how to consider items from five perspectives: (1) accuracy; (2) fairness; (3) validity; (4) reliability; and (5) accessibility. While recognising the importance, for the design of MCQs, of providing both one unambiguously correct answer and three plausible distractors or foils to support accuracy, validity, and reliability of multiple-choice items, in this article we focus on the challenges associated with designing items to assess aspects of visual literacy knowledge pertaining to *fairness* and *accessibility*.

Roberts and Mort's (2023) description of the agreement reached by the team on how to promote fairness when designing MCQs is quoted in full because it indicates important features that test designers need to address in each

item, some of these being particularly difficult to achieve when aspects of visual literacy knowledge are being assessed (Roberts & Mort 2023):

> With reference to fairness, the team decided that this aspect would be promoted if items were well written and culturally accessible to students from diverse backgrounds. For example, in the case of the former criterion, each aspect of the item (from the instruction to the stem, the stimulus and the distractors) had to be unambiguous, well written, and purposeful. The distractors had to be plausible answers rather than obviously incorrect. The appearance of the key (correct answer) and distractors had to be visually similar, so as not to make the correct answer too apparent. There could be no repetition in the distractors, so that the test candidates' time would not be wasted with unnecessary reading. With reference to the latter criterion, that of cultural accessibility, the content of prompts – either written texts and/or images – needed to be accessible to students from widely varying socio-cultural backgrounds, and to express southern African diction and experience. (pp. 42–43)

As Roberts and Mort (2023:43) explain, accessibility is likely to be enhanced if item designers carefully consider 'the context and the type of world view and experience reflected in the stimuli or prompts for test items'.

Research methods and design

Research design

In writing about case study research in educational settings, Bassey (1999) identifies several types: theory building, theory testing, storytelling, picture drawing, and evaluative. This reflective case study, in which test item design is the case, includes elements of the storytelling and picture drawing types and is to some extent also evaluative, given that reflection is at its heart. It should be noted that, from its inception, the PrimTEd Assessment project has combined research and development, with lecturers across South African universities participating in face-to-face and online workshops and in email exchanges. In this article, we reflect on a selection of the items designed by one or both of us as members of a larger English test item team in which the number of participants varied across workshops. Team members designed items individually or in pairs, shared them with the team for comment and, if necessary, adjusted them in response to comments made. Subsequently, all items were reviewed by members of the PrimTEd Assessment project for conformity to the requirements of quality MCQs and for their 'match' to one of the knowledge and practice standards or sub-standards. All the items discussed in this article were designed to be used in the pilot phase of PrimTEd, but were excluded from the administered pilot test.

We chose the items presented and discussed to illustrate the concerns we have about the affordances of MCQs for assessing teachers' knowledge of visual and critical visual literacy and of how to teach learners to be visually and critically visually literate. We agree with Attia and Edge (2017) and Arnold et al. (2022) that there is a need to move away from (Atti & Edge 2017):

> [*R*]esearch methods as objectified procedures to be learnt by researchers' and towards 'the development of researchers who craft procedures integral to the environments in which they operate – environments of which they are also a functioning constituent. (p. 33)

However, we brfiefly outline three aspects of a conventional research methods description.

Research participants

The authors as test item designers, together with other members of PrimTEd test item development team, are the participants.

Data collection and analysis

The test items included in the article are the data and were selected firstly, because they were designed by the authors; and secondly, because they illustrate the challenges we experienced in our attempts to use multiple choice items to assess elements of student teachers' content and pedagogic content knowledge of visual and critical visual literacy. Our reflections on the items, in terms of their conformity to the requirements of high-quality MCQs and in terms of their affordances and limitations for assessing elements of visual and critical visual literacy, constitute our analysis.

Image selections and use

Images selected for test items need to be generative for the assessment of student teachers' visual and critical visual literacy content and pedagogic content knowledge. Our search for culturally accessible multimodal materials appropriate for use in primary schools was made more challenging by the need for these to be either open access, or materials for which permission to use for non-commercial purposes is easily obtained.

There are also technical challenges associated with using images. Numerous examples of cartoons or cartoon strips or advertisements could not be copied and pasted into Jumptrak, the digital assessment platform being used for testing in PrimTEd. Redrawing these images would be too time consuming and expensive to be viable.

In selecting examples of visual texts, item designers need to consider the likely background knowledge of both the testees and the learners whom they are preparing to teach. Many student teachers' visual literacy experiences in secondary school classrooms are likely to have been constrained by the washback effect of the National Senior Certificate examination papers in which, for many years, cartoon strips and advertisements have been dominant (Moodley 2015). However, while cartoons and advertisements have a role to play in visual and critical visual literacy education in the later years of primary school, young learners need to learn how to 'think about looking' (Ferreira & Newfield 2014) at the images in the stories and information texts they encounter in the classroom.

Thus, student teachers who will work in primary schools need content and pedagogic content knowledge that will enable them to facilitate such thinking.

In the next section we present and reflect on a selection of items designed to assess elements of student teachers' content and pedagogic content knowledge of visual and critical visual literacy.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of South Africa College of Education Ethics Review Committee. The ethical clearance number is 2023/05/10/90502744/36/AM. Permission to use the illustrations on which the designed test items are based was obtained by PrimTEd co-ordinators. Test items selected for this article were excluded from those used in the tests administered to students.

Findings and discussion

Items designed for assessing student teachers' content and pedagogic knowledge of visual and critical literacy

The open access materials included in the storybooks and teacher resources developed for the *African Storybook Initiative*[1] have proved excellent for devising questions pertaining to visual literacy, but the difficulty of formulating such questions in multiple-choice format remains, as we illustrate in the example below.

The example comes from a South African Institute for Distance Education (Saide)[1] resource designed for teacher professional development work in Uganda. The story used in the resource is originally from Mozambique but was versioned into one of the languages used in Uganda. Neither the Ugandan language nor the Mozambiquan origin of the story is centrally important to the items devised about the illustration for the PrimTEd test, although we acknowledge the value of using a story from Africa in an African language.

The South African Institute for Distance Education presents an illustration (see Figure 1) by Hélder de Paz Alexandre titled *Why Frog is so ugly* (Mozambican folktale 2014) as a resource for teachers to utilise for conversing with children. They advise teachers to look at the picture, then think about questions to ask children, and finally make some suggestions to teachers. The next section offers more insight into this Saide resource

Talking about pictures

Look at the pictures in the Mozambican folktale, *Why Frog is so ugly*.

- What questions could you ask about this picture from the storybook?
- What conversations could you have with children about this picture?

1.See www.saide.org.za.



Source: Mozambican folktale, 2014, *Why Frog is so ugly (Colour-in)*, Mozambican Writers, African Storybook, Johannesburg, South Africa, viewed 22 April 2025, from https://www.bookfusion.com/books/204251-why-frog-is-so-ugly

FIGURE 1: A Saide activity for teachers.

We had the following ideas for questions:

- The frog has a speech bubble (or a thought bubble) in the picture. What language is the frog speaking (or thinking in)? What is it saying or thinking?
- Do frogs really use language? How do we know?
- What colour is the frog in the picture? Are frogs this colour in life?
- Does this frog have a tail? Do frogs usually have a tail?
- How many legs does the frog have?

In the Saide resource, each of the bulleted questions designed to be asked by teachers could be used to promote lively discussion in a primary school classroom and to address aspects of visual literacy. For the PrimTEd test, we attempted to use the illustration and the accompanying questions to design MCQs to assess aspects of student teachers' visual literacy knowledge together with their understanding of the importance of working with learners' linguistic repertoires (McKinney 2017).

Box 1 presents the first example of four visual literacy MCQs followed by a brief commentary.

Similar MCQs could be designed to assess student teachers' knowledge of the metalanguage of visual literacy or critical visual literacy as in the examples presented in Box 2.

For Question 4 in Box 2, in recognition of the limited teaching of visual literacy that some first-year student teachers are likely to have experienced (see Mbelani & Murray 2009), we decided to provide support. In our view, this is an example of an MCQ in which all the distractors are visually similar and plausible with the cognitive level appropriate for entering BEd students, although we hope

BOX 1: Visual literacy multiple choice questions with brief commentary.

Question 1: In addition to story books, where are readers most likely to see examples of thought bubbles or speech bubbles?

a. Play scripts

b. Magazines

c. Cartoons KEY

d. Poetry books

Commentary: This is an example of a multiple-choice item that meets the criterion of one unambiguous correct answer from a list of alternatives that are visually similar (i.e. similar in length). It is also an example of a low cognitive level visual literacy question that should be answered correctly by most student teachers at the start of their BEd degree. If it is not, then incorrect answers may indicate that some students need guidance in identifying visual features of texts across a range of genres.

Note: Please see the full reference list of Zwane, D.P. & Reed, Y., 2026, 'Reflections on designing multiple-choice items for large-scale assessments of student teachers' visual and critical visual literacy knowledge and practices', *Reading & Writing* 17(1), a658. https://doi.org/10.4102/rw.v17i1.658.

BOX 2: Multiple choice questions to assess student teachers' knowledge of metalanguage of visual or critical literacy.

Question 2: The illustrator places the frog in the centre of the page and colours it bright green. Choose the visual literacy term that correctly completes the sentence. The illustrator makes the frog for readers or viewers:

a. Humorous

b. Salient KEY

c. Schematic

d. Stylised

Commentary: While the stem gives clues to the unambiguously correct answer, we suggest that the item is useful for demonstrating whether entering students know the meaning of salience, given its centrality to discussions of layout on a page or screen. The next two examples attempt to assess aspects of student teachers' pedagogic content knowledge.

Question 3: Teachers might ask the questions Does this frog have a tail? and How many legs does the frog have? Because they:

a. Want learners to look carefully at details in the drawing. KEY

b. Hope to stimulate learners' interest in the natural world.

c. Hope learners will be able to answer these questions.

d. Want learners to distinguish between real and imaginary frogs.

Commentary: While we suggest that alternative A is the correct answer, and also that it responds to the visual literacy requirement that teachers ask questions that encourage learners to look at details in images, an argument could be made that alternative B is also plausible. It could also be argued that alternatives C and D are somewhat weak distractors – particularly C – and thus that this item requires further refinement.

Question 4: The line down its back, the upward line representing its mouth and the two sets of lines on its back leg suggest that the frog is getting ready to jump. These lines are an example of:

a. A contrast with the green of the frog's skin.

b. Accurate drawing of a frog by the illustrator.

c. Visual clues for understanding a story. KEY

d. Ability to draw a frog in an amusing way.

Commentary: To assist testees, the item stem tells them that the frog is getting ready to jump. This information makes the stem quite long and lengthens reading time. It also provides a clue to the correct choice of alternative.

Note: Please see the full reference list of Zwane, D.P. & Reed, Y., 2026, 'Reflections on designing multiple-choice items for large-scale assessments of student teachers' visual and critical visual literacy knowledge and practices', *Reading & Writing* 17(1), a658. https://doi.org/10.4102/rw.v17i1.658.

that graduating teachers would find it easy to identify the correct answer.

While each of the MCQ items above attempts to assess an aspect of student teachers' visual literacy, none of them attempts to assess knowledge of *critical* visual literacy. In our view designing MCQs to assess the latter is even more of a challenge. Ferreira and Newfield's 'What or Who? How? Where?' questions provide a framework for critical visual literacy questions that could be asked about the frog illustration:

- What language does the frog speak? Why has this language been used? What other languages could the illustrator have chosen? (The question translates into English as What can I do?)

BOX 3: Multiple choice question to determine whether student teachers comprehend that a designer's image and layout choices on a page are intended to position viewers or readers to respond in specific ways.

Question 5: Which one of the following is an example of a critical visual literacy question that a teacher could ask learners about the illustration of a talking or thinking frog?

a. Why is the frog looking towards the right of the page?

b. Why are the frog's words placed inside a speech bubble?

c. How does the artist want you to respond to this frog? KEY

d. What do you think will happen to the frog in this story?

Commentary: This item requires the testee to know that texts have designs on us (Janks 2005) and that readers or viewers can either accept or reject such attempts at positioning. Whether or not entering BEd students know this may depend on how they were taught to respond to the dominant visual genres (cartoons and advertisements) encountered at secondary school. If critical visual literacy has been included in ITE curricula, student teachers who are about to graduate should find this question easy to answer.

Note: Please see the full reference list of Zwane, D.P. & Reed, Y., 2026, 'Reflections on designing multiple-choice items for large-scale assessments of student teachers' visual and critical visual literacy knowledge and practices', *Reading & Writing* 17(1), a658. https://doi.org/10.4102/rw.v17i1.658.

- What does the illustrator want you to notice about this frog?
- If you drew a frog, would it look like the one on the storybook page? Why or why not?

Teachers could ask primary school learners each of these questions to assist them to think about an illustrator's choices and the likely influence of these choices on readers of this page from a story. Very similar questions could also be asked of student teachers. However, designing MCQs based on this illustration to assess aspects of student teachers' critical visual literacy knowledge is a much greater challenge. The MCQ item in Box 3 was designed as an attempt to assess whether student teachers understand that a designer's choices of image and layout on a page attempt to position viewers or readers to respond in particular ways.

In addition to using the African Storybook Teachers' Resource to design visual literacy test items, this resource was used to design several items for assessing student teachers' understanding of the importance of valuing learners' home languages, and of drawing on their full linguistic repertoires in the classroom. Question 6 is one example of such an MCQ item (see Box 4).

As noted by Callow (2018:5), 'picture books continue to be cornerstone resources in primary classrooms, enduring in their appeal, but at the same time evolving, with authors and illustrators exploring new forms and concepts'. Given that images and their positioning on the page or screen are central to the meanings available in fiction and non-fiction books for primary school learners, the PrimTEd item writers have attempted to design MCQs to assess student teachers' visual literacy knowledge and practices in relation to picture books. Question 7 exemplifies such an item (Box 5). Drawn from the American children's story *Charlotte's web*, which features prominently on South African educational websites alongside classroom resources, the item uses a scene from the 2006 edition.

Due to copyright constraints, the book cover is not reproduced here, although it is widely available online. The image

BOX 4: Multiple choice question to assess student teachers' understanding of the importance of valuing learners' home languages, and of drawing on their full linguistic repertoires in the classroom.

Question 6: If young learners read a story about a frog in English, rather than in their home language(s) and then used some English words and some words from their home language(s), to answer questions, the teacher should :_____.

a. Ask learners to listen carefully while she gives answers in English.

b. Request them to speak only English in the English class.

c. Request them to speak in one language to avoid confusion.

d. Respond to their meaning-making in any language they use. KEY

Commentary: This is an example of an item to which teacher educators could expect differences in the answers chosen by entering and exiting BEd students, particularly if they have experienced a, b, or c during English lessons at school. It is to be hoped that during their tertiary studies they would learn about the value of bilingual or multilingual meaning making. The item designing team has found it easier to design MCQs related to 'languaging' than to visual or critical visual literacy.

Note: Please see the full reference list of Zwane, D.P. & Reed, Y., 2026, 'Reflections on designing multiple-choice items for large-scale assessments of student teachers' visual and critical visual literacy knowledge and practices', *Reading & Writing* 17(1), a658. https://doi.org/10.4102/rw.v17i1.658.

BOX 5: Multiple choice questions to assess student teachers' visual literacy knowledge and practices in relation to picture books.

Question 7: Mrs Forbes is introducing learners to visual literacy. As part of a pre-reading activity, she asks several questions related to the cover of a storybook for children. These are two of the questions: What did you notice first on this cover? Why do you think you noticed this first? Some learners said the name of the story; some said the pig and some the spider and its web. From the list below, choose the answer that most accurately completes this sentence: By asking these two questions about the cover, Mrs Forbes:_____.

a. Asking learners to predict what the story will be about.

b. Encouraging learners to pay attention to a new story.

c. Drawing learners' attention to design features of the cover. KEY

d. Demonstrating the importance of the cover of a book.

Commentary: While each answer could be considered plausible, only C focuses on design features. These two questions introduce the visual design of a book cover that teachers could build on in a number of ways. If not constrained by the multiple-choice format, it would be possible to ask testees for examples of additional questions about the cover and to provide a rationale for these questions. However, doing this would make marking a considerable challenge on a large-scale test used across universities.

Note: Please see the full reference list of Zwane, D.P. & Reed, Y., 2026, 'Reflections on designing multiple-choice items for large-scale assessments of student teachers' visual and critical visual literacy knowledge and practices', *Reading & Writing* 17(1), a658. https://doi.org/10.4102/rw.v17i1.658.

depicts Wilbur the pig, with Charlotte the spider perched on a web atop his snout, set against a farm sunset backdrop.

Conclusion

Reflections on work in progress

To conclude this article, we reflect briefly on what we have learned thus far from our experiences of designing MCQs for the assessment of visual and critical visual literacy content and pedagogic content knowledge.

Firstly, we suggest that MCQs can be designed successfully to assess student teachers' subject or content knowledge of the *metalanguage* of both visual and critical visual literacy because correct and incorrect options can be offered as single words or short phrases. Knowledge of this metalanguage should enable teachers to comprehend and discuss articles and books that focus on visual literacy and critical visual literacy and to use what they have learned in planning lessons. In teaching visual and critical visual literacy in primary schools, teachers also need to know how to 'version' this metalanguage to make it comprehensible to primary school learners so that these learners can extend the ways in which they 'read' and discuss images and layout on a page or screen.

This is an aspect of pedagogic content knowledge for which we have not yet attempted to design MCQs, although it should be feasible to do so as 'simpler' words, phrases, or examples could be offered as options in MCQ format.

Secondly, we have found it challenging to design MCQs that do not position testees to take up the item designers' position on an image – a position that may not be equally fair to all of them. As some of those interviewed for Schilder et al.'s (2016:43) study noted, '[*i*]t is difficult to take your own philosophical views out of assessment'.

We suggest that it is particularly difficult to do so when offering multiple options, only one of which is 'correct', given that an obvious question to ask is, 'Correct according to whom?' In our view, ability to read and respond *critically* to a visual text is more appropriately assessed through questions that enable a range of responses and rationales for these responses on the part of the test taker.

Thirdly, as indicated in Question 5 (Box 3), we suggest that it is slightly easier to design MCQ items to assess student teachers' knowledge of how to teach critical visual literacy than to assess their critical visual awareness because a range of plausible teaching strategy options or teacher questions can be offered.

Fourthly, while we think it is feasible to design MCQs to assess some aspects of knowledge of pedagogic practices associated with teaching visual literacy, the items are likely to be quite wordy, and thus time-consuming for testees to read, because of the descriptions needed in both the stem and the four options.

While MCQs may be the best option available for large-scale, computer-marked national assessments, perhaps it should be accepted that these are not well suited to assessing all aspects of student teachers' subject and pedagogic knowledge of visual and critical visual literacy. We suggest that teacher educators teach ITE students how to use a range of more open-ended and multimodal strategies to assess learners' developing visual literacy and critical visual literacy. In addition to theorising visual literacy and critical visual literacy, the work of scholars such as Janks (2010), Janks et al. (2014), and Ferreira and Newfield (2014) referred to above, together with others such as Vasquez (2014) and Vasquez, Janks and Comber (2019), provides examples of how to engage primary and secondary school learners in activities that can be assessed both formatively and summatively. When teacher educators use such open-ended and multimodal strategies in assessing their students' content and pedagogic knowledge of visual and critical visual literacy, and provide feedback to their students, they are modelling how graduate teachers could use open-ended, multimodal assessment tools in their classrooms.

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CRediT authorship contribution

Duduzile P. Zwane: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Validation, Visualisation, Writing – original draft, Writing – review & editing. Yvonne Reed: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualisation, Writing – original draft, Writing – review & editing. Both authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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Data availability

The authors confirm that the data supporting this study and its findings are available within the article and its listed references.

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