

Access to Graphics by Vision Impaired Students

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- OLT Project: "Improving vision impaired students' access to graphics in higher education"
- Examined current practice, identified best practice and trialed additional strategies
- Information gathering:
 - National survey of 71 VI students
 - Interviews with 42 students, academics, disability services staff and accessible format providers
- Pilot studies
- Workshop

Thank you to everyone involved, whose views and experiences we have strived to represent.

- Expert reference group
- Merrin McCracken
- Matt Brett
- Participants

VI students do not have full access to information from graphics:

- 84% skip graphic materials of potential value due to inaccessibility
- 94% could benefit from improved graphics
- 50% avoided a potential area of study or career
- Higher participation in Society and Culture (43% vs 24%); lower participation in STEM (11% vs 24%)

Barriers:

- Time
- Money
- Disability awareness
- Knowledge about accessible graphics
- Skills
- Communication

Four model principles for best practice.

Directed at improving vision impaired students' access to graphics in higher education, but also applicable more widely.

Each principle is accompanied by suggested strategies.

1. Support for the learning requirements of vision impaired students requires **communication and shared responsibilities** between students, academics, support staff and specialist services.

1. Communication & shared responsibilities

- Roles and responsibilities must be understood and agreed to by all stakeholders.
- Foster effective and timely formal (and informal) communication processes between all stakeholders.
- Formal mechanisms are required to capture and distribute feedback regarding disability services.

2. Many of the learning requirements of vision impaired students can be addressed through **inclusive teaching strategies**.

2. Inclusive teaching strategies

- Improve disability awareness among academics.
- Encourage use of teaching strategies that improve accessibility and learning outcomes for *all* students.

3. Vision impaired students have **specific learning requirements** for which higher education institutions are obligated to provide appropriate services and support.

3. Specific learning requirements

- Students with disabilities require specialised support for transition to higher education.
- Vision impaired students require resources and skills to access materials independently. Universities should assist students in acquiring these.

4. Vision impaired students require further specialized support, including the use of **appropriate strategies for accessible graphics.**

4. Strategies for accessible graphics

- Consideration is given to the multiple roles that graphics play in the overall learning experience.
- Application of appropriate technologies and practices to make graphics accessible, as best suited to the individual student, content and context.
- Use national networks and partnerships to share expertise, best practice and resources and keep up-to-date with changes in technology and the teaching environment.

Accessible graphics strategies

method	suitability	example diagrams	advantages	disadvantages	resources
enlargement	Students with sufficient usable vision. Original image must be high quality with good contrast.		<ul style="list-style-type: none"> • can use original graphic without modification • can be used independently 	<ul style="list-style-type: none"> • can cause headaches or fatigue • can be difficult to gain an overview and navigate 	<ul style="list-style-type: none"> • software • large screen
verbal description	Information graphics where spatial layout is unimportant.	<ul style="list-style-type: none"> • single-path flow charts • infographics • concept maps • cartoons • illustrations 	<ul style="list-style-type: none"> • can be provided on the spot (without preparation) • student has opportunity to seek clarification • can also be useful for other students 	<ul style="list-style-type: none"> • student cannot access the information independently • not suitable for conveying spatial information • often requires subject-matter expertise 	
written description	Information graphics where spatial layout is unimportant.	<ul style="list-style-type: none"> • single-path flow charts • infographics • concept maps • cartoons • illustrations 	<ul style="list-style-type: none"> • quick to produce • can be reviewed by the student at any time • can also be useful for other students (if given as alt text in original course materials) 	<ul style="list-style-type: none"> • needs to be prepared ahead of time • not suitable for conveying spatial information • often requires subject-matter expertise 	<ul style="list-style-type: none"> • staff time for accessible format production

+ image recognition software, audio labelling, sonification, tactile graphics, 3D models, 3D printing ...

- Butler, M., Holloway, L. M., Marriott, K. & Goncu, C. (2016). Understanding the graphical challenges faced by vision-impaired students in Australian universities, **Higher Education Research & Development**
- <http://accessiblegraphics.org/he>
- Aust-Ed